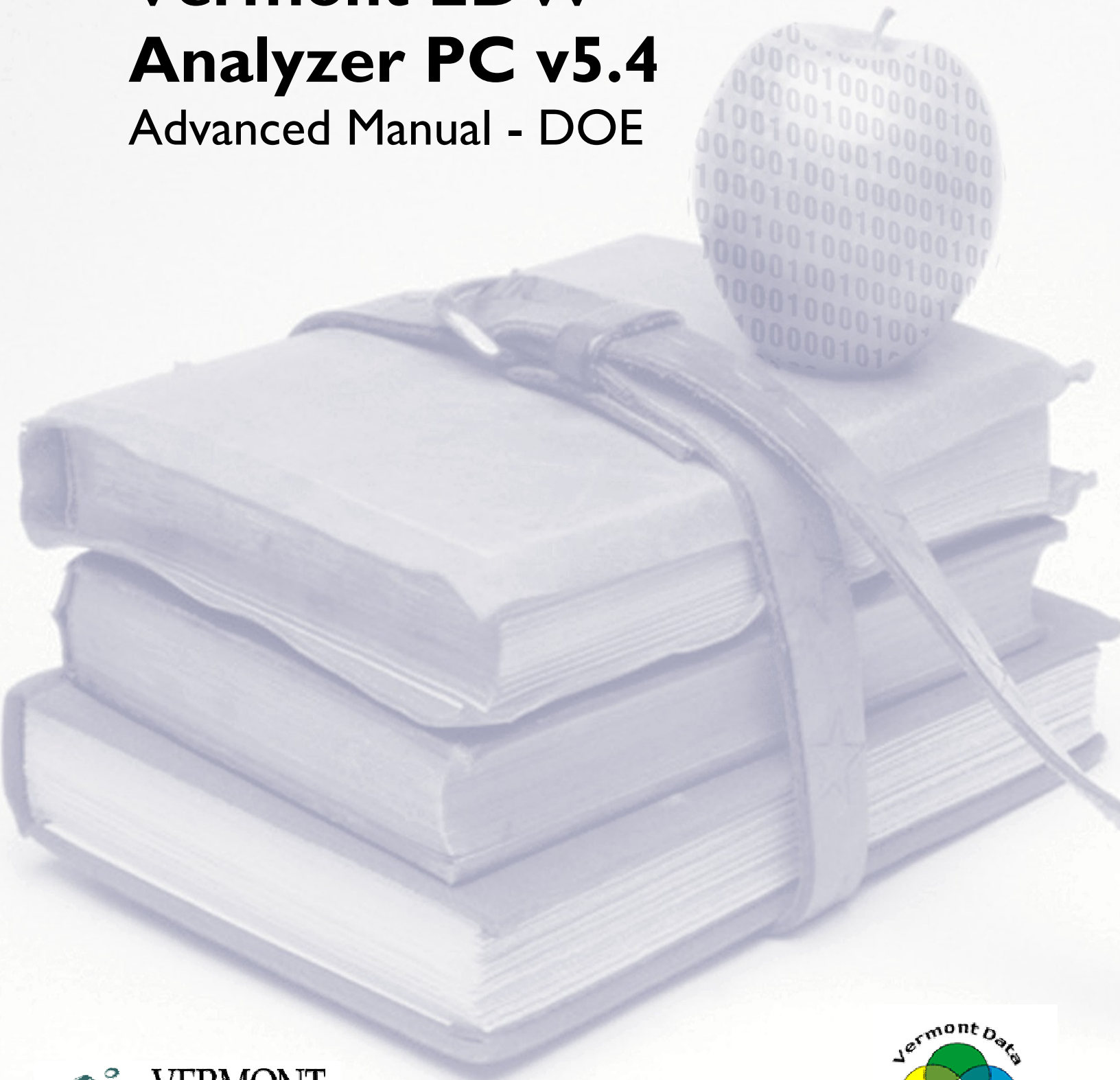


Vermont EDW Analyzer PC v5.4 Advanced Manual - DOE



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Getting Started

Overview

VT EDW is a data warehouse, mining, analysis, and reporting system designed to facilitate educator accountability and improve the decision-making process. This product enables districts to establish educational benchmarks and track performance at the district, school, and class levels. In addition, the product enables multi-dimensional analysis of the performance information, e.g., reviewing test scores by gender, ethnicity, economic background, etc. All types of local, state, and national level performance information can be easily loaded into Analyzer and utilized to monitor progress in regard to the learning mission. Unique features of VT EDW include:

- Graphical User Interface (GUI) that enables drill down/drill up
- Multi-dimensional functionality with easy data manipulation
- Cohort matching over time
- Time set constraints that allow group analysis over time

VT EDW enables states and school districts to develop, measure, analyze, and communicate educational accountability programs. These accountability programs will focus on enhancing the educational performance of individual students in relation to local, state, and national criteria.



A **data warehouse** is a central repository where data that your school or district collects (such as assessment data, student and teacher demographic data, school and course information, etc.) can be stored and easily accessed. Unlike your student information system (SIS), VT EDW *does not* allow users to change or update the data that has been loaded into your warehouse.

Who should use this training guide

This training guide is available for any user participating in the VT EDW PC Advanced Class.

How to use this training guide

This training guide follows a skills-building approach. Each section contains instruction for more complex features while utilizing knowledge from earlier sections. The class instructor will follow the training guide that serves as a reference for note taking and future use.

At the end of this training session, you will be able to edit non-enumerated text coordinates by searching for specific members, create distributions and thresholds, isolate groups of students to look at over time, create queries that match cohorts over time, and add multiple constraints to queries and lists.

Look for the icons below to get quick tips and other valuable information as you work through this manual.



Tips



Knowledge Base



General Information



Hands-on

Review of Query Creation Process

Objectives

When you complete this chapter, you will be able to:

- List the recommended steps in the creation of a VT EDW query

Following the Query Creation Process

Remember that by adhering to the basic process for query creation that we follow in class, creating queries will become a habit, making both basic and advanced queries easy to create.

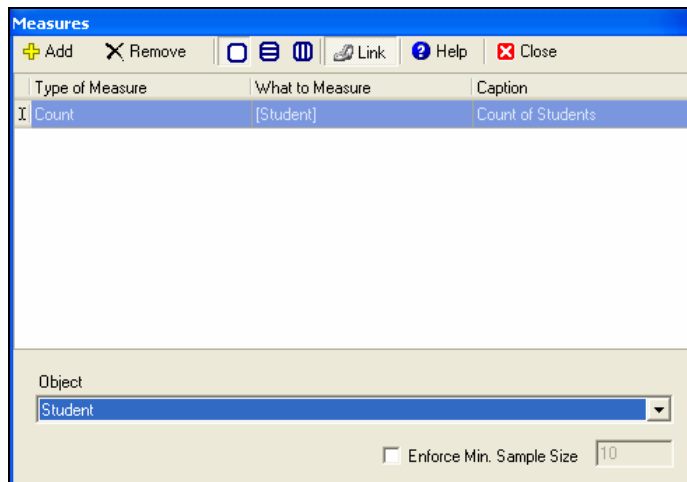
Step 1: Define the Query in Words

Sometimes the most difficult step is the getting started. Creating a query in VT EDW Analyzer is the same; you must first identify what data you are interested in looking at and analyzing. For example, you might say to yourself, “I need to run some reports that look at various demographic breakdowns of my student population.” That is a good start, but “student population” and “demographics” cover a very broad area. When you begin thinking about creating a query, be very specific and write down the exact query you are trying to create. An example of a specific query is, “*I need a count of my student population by grade and gender for 2000-2001.*” You might even want to draw a picture of how the query will appear in the final results table.

Step 2: Select the Measure

Once the query is defined, you can then get into VT EDW and begin the actual hands-on creation of your query. All queries must have a Measure defined. As mentioned in the Basic class, the Measure is the mathematical foundation of the query and lets you define how the data is statistically represented.

- 1) Go to the Ruler icon on the toolbar to open the Measures window.
- 2) Click Add.
- 3) Under Type of Measure, select Count.
- 4) For What to Measure, select Student from the Object dropdown list at the bottom of the popup window.
- 5) Lastly, define the caption for the Measure by typing a description in the Caption field.



Since there is only one Measure used in this query, the measure can be left in the background. Click Close to hide the Measures window.

Note: The caption appears as part of the query only if the Measure is placed on the rows or columns. Otherwise, it displays as part of the Summary information above the Query Table.

Step 3: Set Time Parameters

The next step is to select the appropriate time periods representing the data that is to be queried. This will limit the data that is returned to the year(s) you select.

- 1) Click the Time Periods icon on the toolbar.
- 2) Click the checkbox beside the 2000-2001 option and then click Close.
 - ✓ Since there is only one time period specified for this query, Time can remain on the background.

Step 4: Define the Rows and Columns

Referring back to the query we defined in Step 1, we now need to select the specific Attributes that will further define our query. To do this, we'll drag and drop elements from the Objects Panel into the rows and columns of the query table.

- 1) Under the Student Object, highlight Oct 1 Grade Level and click and drag it to the Empty box representing the rows.

- 2) Under the Student Object, highlight Gender and click and drag it to the Empty box representing the columns. Your query will look like the following illustration.

Rows: Student.Oct 1 Grade Level; Columns: Student.Gender; Background: Count of STUDENT [Linked]; 2000-2001; Results; Constraint:	
Student.Gender	
Female Male Gender Unknown	
Student.Oct 1 Grade Level	
Infants and Toddlers	
EEE	
Pre-Kindergarten	
Kindergarten - Part Time	
Kindergarten - Full Time	
1st Grade	
2nd Grade	
3rd Grade	
4th Grade	
5th Grade	
6th Grade	
7th Grade	
8th Grade	
9th Grade - H.S. Freshman	
10th Grade - H.S. Sophomore	
11th Grade - H.S. Junior	
12th Grade - H.S. Senior	

Measures (Count of STUDENT)
Time (2000-2001)
Results (Results)

Step 5: Run the Query

The last step is to run the query.

- 1) Run the query by clicking the Run Query icon on the toolbar. See the sample query results below.

Rows: Student.Oct 1 Grade Level; Columns: Student.Gender; Background: Count of STUDENT [Linked]; 2000-2001; Results; Constraint:		
Student.Gender		
Female Male		
Student.Oct 1 Grade Level	Female	Male
Infants and Toddlers	53	75
EEE	267	526
Pre-Kindergarten	732	847
Kindergarten - Part Time	2,468	2,652
Kindergarten - Full Time	670	726
1st Grade	3,433	3,625
2nd Grade	3,504	3,687
3rd Grade	3,669	3,791
4th Grade	3,792	3,984
5th Grade	3,865	4,153
6th Grade	4,006	4,142
7th Grade	3,822	4,128
8th Grade	3,909	4,212
9th Grade - H.S. Freshman	4,156	4,452
10th Grade - H.S. Sophomore	3,868	4,196
11th Grade - H.S. Junior	3,755	4,052
12th Grade - H.S. Senior	3,590	3,646

Trouble-Shooting in VT EDW

As with any computer application, the more you know about trouble-shooting and working through common problems, the better your experience with the program will be, and the more valuable the program will become as you master the functionality.

Trouble-Shooting Queries

If you're using the VT EDW Warehouse (*EDWA*) as you work through this manual and your query results don't match the ones displayed in this training manual, try these simple trouble-shooting techniques:

- Go back into the Measures window and make sure you have selected the correct Measure(s) as well as the Object(s) and/or Attributes the query requires. A slip of the mouse makes it easy to select Maximum when you meant to select Mean.
- Check your Time Periods – you may have forgotten to select the appropriate year(s) or to select any time period at all (which would then display results for All Time). This is a very common oversight.
- Check the Help System (right click on object name) to see if the time period you have selected has data loaded for that object.
- Check that you have added the correct Attributes and/or members to the rows and columns. It's easy to select NSRE Math Performance Levels instead of NSRE ELA Performance Levels or to select the Grade Levels attribute under Organization instead of the Last Reported Grade Level attribute under the Student object.
- Check your results against a co-worker. If you're working in your own data warehouse, you may be unsure if you constructed your query correctly. The best check is to get a co-worker to create the same query from scratch and compare your results. The chance that you both did it incorrectly and got the same incorrect answers is generally slim.

Trouble-Shooting Other Issues in VT EDW

More than likely, if you get an error message as you work with VT EDW PC, it will have to do with internet connectivity. Because most of the processing takes place on the server end, if there is a breakdown somewhere between the sending and receiving of query parameters or results, a query may time-out. The following tips often clear up any error messages you may get as you work with VT EDW.

Anytime you get an error when you run a query, the first course of action should be to just rerun the query.

If that fails to provide results, save the query as a favorite, clear the query (Edit | Reset All) and pull up the saved favorite and try to rerun it. If this fails as well, rebuild the query from scratch.

As a last resort, re-connect to the warehouse by closing the program and opening it again from the Portal page.

If problem still persists, visit the EDW page of DOEWEB at <http://doeweb/html/employees/edwa.html> and see the section on [How to Get Support](#).

Editing Non-Enumerated Text Coordinates

Objectives

When you complete this chapter, you will be able to:

- Edit non-enumerated text coordinates for your queries in VT EDW
- Search for specific text coordinates
- Remove existing text coordinates
- Isolate text coordinates within a query
- Change the number of text coordinates that will display in your queries

Overview

When editing coordinates, it is necessary to recognize whether or not an attribute is enumerated or non-enumerated as discussed in the Basic training manual. Each attribute type allows you to Edit Coordinates, but with different options for each.

You've already looked at enumerated coordinates during the Basic class. Editing these coordinates involved filtering and combining existing coordinates. Editing non-enumerated text coordinates allows you to search for and select specific coordinates to use in your queries, such as individual student or teacher names.

Editing Coordinates for Non-Enumerated Attributes

As stated during the Basic class and in the training manual, there are a few reasons why attributes are non-enumerated.

- The possible values – or members – are always changing or have infinite possibilities, like Student Name.
- The values are finite, but the number of possible members is too many to list – as in a Percentile Rank with 99 possible members.

There are many reasons for isolating a member of a non-enumerated text attribute within a query. For example, if you want to look at a particular teacher or student, it would be necessary to Edit Coordinates and search for the desired Educator Name or Student Name.

Searching for Text Attributes

The VT EDW provides a search option for all non-enumerated text attributes. Editing non-enumerated attributes has limited application in the VT EDW because there is no connection between educator and student data until the local data warehouses are built. For instructional purposes, consider the following example:

"Create a query showing how many teachers with a given surname teach in your district and what endorsements they had in 2003-2004."

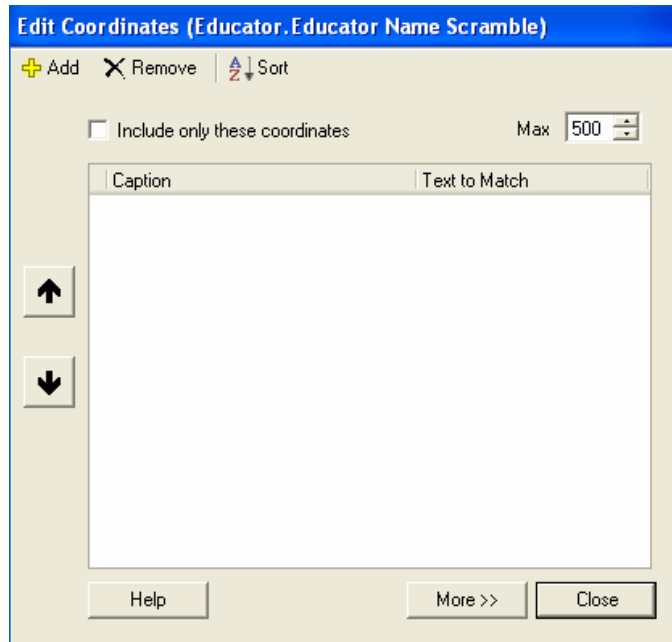
To create this query efficiently, edit the coordinates to make the query more manageable.


- 1) In the Measures window, select a Count of Educator.
- 2) Select 2003-2004 as the time period.
- 3) From the Objects Panel, go to the Educator section of the Object panel and drag Endorsement to the rows.
- 4) Also in the Rows, add Educator Name Scramble
- 5) Do Not Run the query.

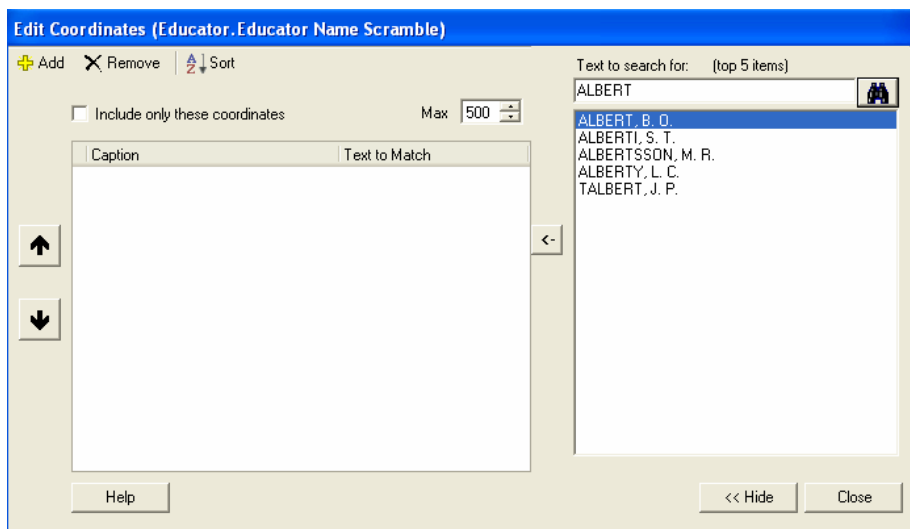
Rows: Endorsement.Endorsement; Educator.Educator Name Scramble;	
Columns:	
Background: Count of Educator [Linked]; 2003-2004; Results;	
Constraint:	
Empty	
Endorsement.Endorsement	Educator.Educator Name Scramble
Administrative:Adult Services Coordinator	Educator Name Scramble
Administrative:Career and Technical Center Director	
Administrative:Director of Special Education	
Administrative:Principal	
Administrative:Superintendent	
Administrative:Supervisor	
Arts:Art	
Arts:Dance	
Arts:Music	
Arts:Theatre Arts	

Now continue working with the query created above to limit the data returned to show only the surname you chose.

- 1) Double-click on the Educator Name Scramble coordinate to access the Edit Coordinates window
 - a. Note: You can also access the Edit Coordinates window by right-clicking on the Educator Name Scramble coordinate and selecting the Edit Coordinates option from the menu that displays).

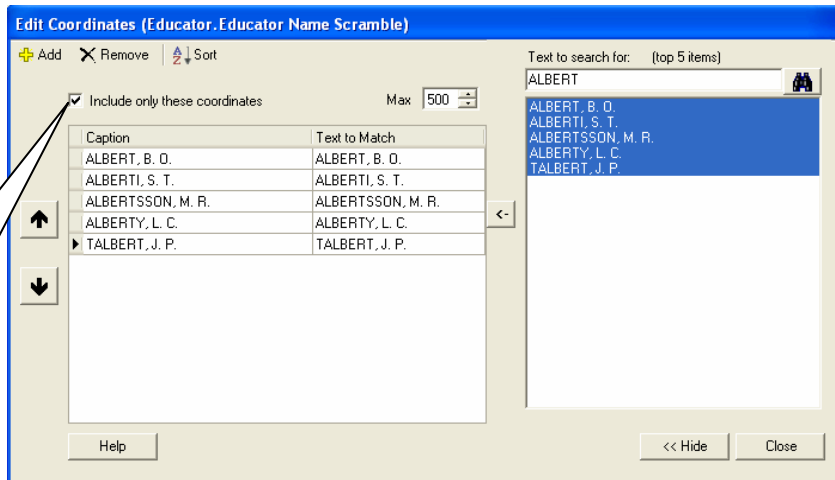


- 2) Click the More>> button to expand the window and access the search functionality.
- 3) In the *Text to search for:* field, type in the teacher's last name – in this example **ALBERT**.
NOTE: In order to get results for this search Educator name must be entered in ALL CAPS.
- 4) Click the Search icon . Any items that match the text you entered will display in the field below.
 - a. Note: the search functionality allows searches on both full and partial text.



- 5) Shift-select the records for all of the results and click the arrow between the two panels to move the names to the left portion of the window. **Make sure that you check the 'Include only these coordinates' checkbox.**

This checkbox is necessary to ensure that only the Teacher Name selected is returned when you run the query. If you forget to select this checkbox, you will get the Teacher Name you searched for, but you will also get other teachers who meet the query criteria.



6) Click Close and run the query.

Rows: Endorsement.Endorsement; Educator.Educator Name Scramble;
Columns:
Background: Count of Educator [Linked]; 2003-2004; Results;
Constraint:

		Empty
Endorsement.Endorsement	Educator.Educator Name Scramble	
Other Vocational Areas:Cooperative Career and Technical Education	ALBERTSSON, M. R.	1
Sp Ed:Special Educator	TALBERT, J. P.	1
Student Support:School Nurse	ALBERT, B. O.	1
Elementary Education	ALBERTI, S. T.	2
	ALBERTY, L. C.	1
	TALBERT, J. P.	1
English	ALBERTY, L. C.	1
Social Studies	TALBERT, J. P.	1



Remember that any non-enumerated text coordinate (Attributes such as Student Name, Course Name, Educator ID, etc.) will have these same search features.

Removing Text Coordinates from your Query

Just as you can remove an enumerated coordinate from your query after it has been run (e.g., a specific grade level that isn't necessary), you can also remove unneeded non-enumerated text coordinates as well. For example, we could recreate the query from above by removing "extra" text coordinates instead of searching for the specific coordinate of ALBERT.

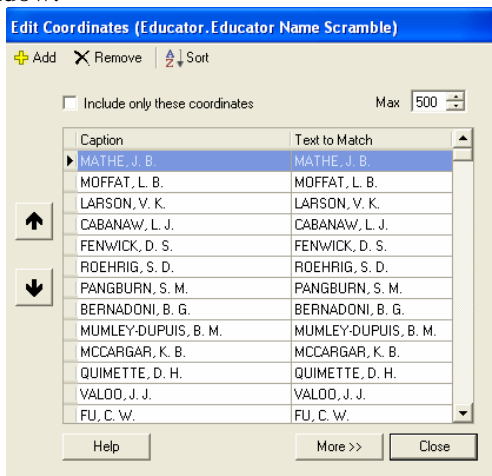
Recreate the query from above, but this time, add Educator Name Scramble in as part of the original query:

"Create a query showing the Roles that a specific Educator in your District had in 2003-2004."

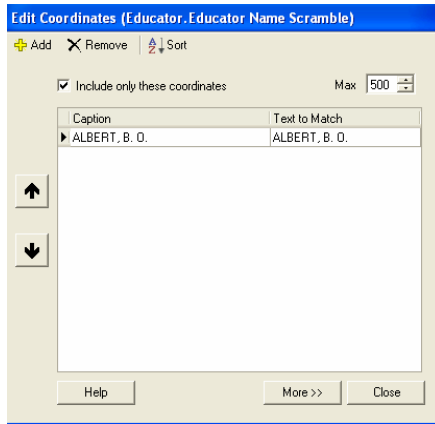
- 1) In the Measures window, select a Count of Educator.
- 2) Select 2003-2004 as the time period.
- 3) From the Objects Panel, go to State Educator Objects section and drag and drop **Addison Northeast SU** from the Place of Service – Administrative Name into the Rows.
- 4) In the Rows, also add Place of Service - Educator Role and Educator - Educator Name Scramble
- 5) Run the query.

Rows: Place of Service.Administrative Name; Place of Service.Educator Role; Educator.Educator Name Scramble; Columns: Background: Count of Educator [Linked]; 2003-2004; Results; Constraint:			
Place of Service.Administrative Name	Place of Service.Educator Role	Educator.Educator Name Scramble	Empty
	Pre-Kindergarten	MCCARGAR, K. B.	1
		QUIMETTE, D. H.	1
		VALOO, J. J.	1
		GULFIELD, C. C.	1
		FU, C. W.	1
		DEC, K. K.	1

- 6) You can see names for each Educator in 2003-2004 listed, but we only want to see B.O. Albert.
- 7) Double-click on the Educator Name Scramble coordinates to open the Edit Coordinates window.



- 8) Notice that since we have already run the query, the teacher names that match our query parameters are displayed in the window. Select all of the names *except* B.O. Albert and click Remove. Note: Remember, to select multiple coordinates, hold down the Ctrl key as you select them or click the first name and hold the Shift key to select consecutive names.



- 9) Check the 'Include only these coordinates' checkbox and click Close.
- 10) Rerun the query. Only results for your selected name will display.

Isolating Text Coordinates

There may be times when you need to isolate a group of your text coordinates. For example, you may want to create a custom group of Educators with a specific endorsement so you can look at which courses they teach.

We will create the following query.

Create a group consisting of the Educators endorsed in Science at Addison Northeast SU in 2004-2005.

We may want to isolate these particular students so that we can then perform further data analysis on how this group has performed over time.

- 1) Select a measure of Count of Educator.
- 2) Select the 2004-2005 time period.
- 3) From the Objects Panel, Organization – Administration Name drag and drop Addison Northeast SU into the Rows.
- 4) In the Endorsement Object select Endorsement of Science and drag and drop into the Rows.
- 5) In the Educator Object select Educator Name Scramble and drag and drop into the Rows.

Rows:	Organization.Administrative Name; Endorsement.Endorsement; Educator.Educator Name Scramble;		
Columns:			
Background:	Count of Educator [Linked]; 2004-2005; Results;		
Constraint:			
Empty			
Organization.Administrative Name	Endorsement.Endorsement	Educator.Educator Name Scramble	Measures (Count of Educator) Time (2004-2005) Results (Results)
A-C:Addison Northeast SU	Science	Educator Name Scramble	

- 6) Run the query.
- 7) Now that we have all of the educator names displayed, double-click in the Educator Name Scramble coordinate and check the 'Include only these coordinates' checkbox. **As long as this Educator Name Scramble attribute remains part of the query and isn't modified, any query you run will only return results associated with this group of educators.** Leave this query displayed to use in the next example.



If you have more than 500 Educator names to display, you will need to change the default maximum number of coordinates to return. In the Edit Coordinates window for Educator Name, change the Max field so that it reflects the number of educators you need to display in your query. This is true for any non-enumerated coordinate.

Working with Isolated Text Coordinates

Now that we have a group of educators locked in as a custom group, we can create new queries that look at any type of information on these educators for any year in the warehouse. For example, we may want to see all the data in the EDW on the courses these educators taught.

- 1) Using the query you built in the previous exercise, remove all of the query parameters *except* the Educator Name Scramble attribute. Remember, as long as this attribute isn't modified, the specific educators with a Science endorsement in 2004-2005 will be the only educators used for any query we run.
- 2) Open the Measures window and check that it is still Count of Educator.
- 3) Drag and drop the Educator Course > Course Category Name to the right of the Educator Name Scramble.
- 4) Select the time periods that the EDW has Educator Course data. HINT – look at Help System.
- 5) Run the query.

		Time		
		2002-2003	2003-2004	2004-2005
Rows:	Educator.Educator Name Scramble; Educator Course.Course Category Name;			
Columns:	2002-2003, 2003-2004, 2004-2005;			
Background:	Count of Educator [Linked]; Results;			
Constraint:				
Educator.Educator Name S...	Educator Course.Course Category Name			
ELIO, S. A.	Arts:Music	1		
	Foreign Language:Foreign Lang-Spanish	1	1	
	Science:Science-Biology			1
	Social Studies:Social Studies-General			1
MORI, T. C.	Science:Science-Biology			1
	Science:Science-Physical Science			1
	Elementary Education-General		1	
RAGIS, K. R.	English	1		
	Middle Grades:Middle Grades-English		1	
	Other Vocational Areas:Business Education		1	
	Computer Science		1	
	Elementary Education-General			1
GRENON, M. B.	Other Course Categories		1	
	Science:Science-General Science		1	
	Elementary Education-General	1		
	English		1	
	Mathematics		1	

- 6) To see all the endorsements this specific group of educators have attained, overlay the Course Category Name with Endorsement and run the query.



Exercises

1. What are the 2 types of non-enumerated members?
2. When you select or add specific members of a non-enumerated attribute on the Edit Coordinates window, what must you remember to do to ensure that only those coordinates display on your query's results?
3. Were there any teachers with the name Smith teaching in your Supervisory Union in both 2002-2003 and 2003-2004? (Remember to use ALL CAPS to search for a name)

Longitudinal Analysis

Objectives

When you complete the next three chapters, you will be able to:

- Create custom groups based on an individual cell result for a specific time period.
- Create queries that track the progress of a student or group who meet certain criteria in one time period and/or over time

Overview

Most important for following individual student progress, VT EDW gives educators the ability to look at student achievement longitudinally. In the following chapters, we will look at three distinct types of Longitudinal Analysis:

- ✓ Time Set Constraints
- ✓ Matching Over Time
- ✓ Time Set Limits

Each of these offers different types of results, including comparing the performance of large groups of students, as well as groups of the exact same students. With Longitudinal Analysis, it is simple to monitor the progress of the same students within a district or school over time. The steps for creating these types of queries are the same as for the queries you have already worked with, but include the addition of a few steps.

Time Set Constraints


Time Set Constraints allow you to create custom groups based on an individual cell result for a specific time period. For example, if you created a query that displayed how many students were in the Below the Standard as 8th graders in 2001-2002 in the NSRE ELA Basic Understanding, you could create a Time Set constraint based on those results which would let you look at data for this group of students over time. You could track how they performed on the same test as 10th graders in 2003-2004 or in different assessments such as NSRE Math.

Time Set Constraints allows you to look at students over time; however, students must meet only your specified criteria in just one time period rather than multiple time periods. Because of this, when you look at data for a group constrained by a Time Set, you will rarely get the same number of students. Time Set Constraints can be used in any query to isolate and display the values of any cell's Objects across time.

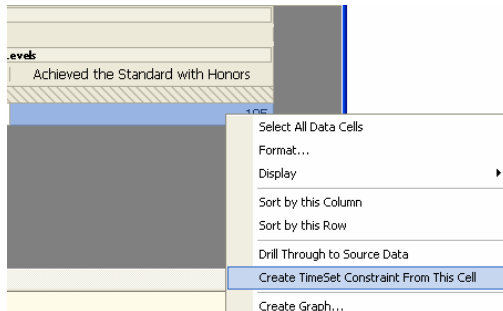
Let's look at the following example:

You have identified a group of students who did well on the DRA. Now you'd like to see how those students did on the NSRE in 4th grade two years later. We need to constrain this specific group of students based on the DRA query and modify the query to see how they performed in the NSRE.

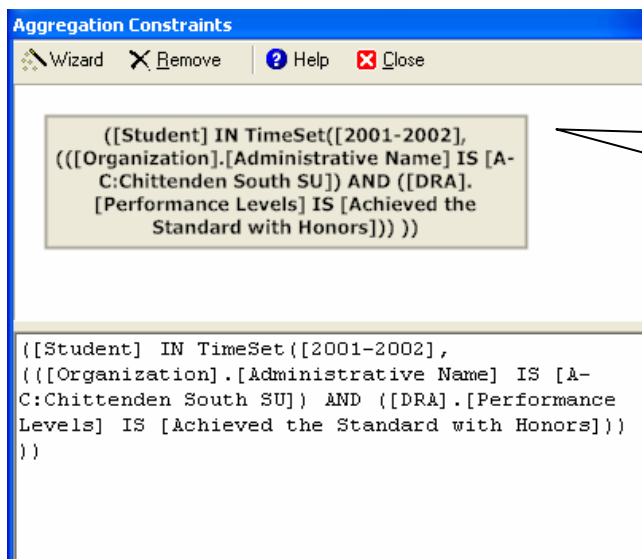
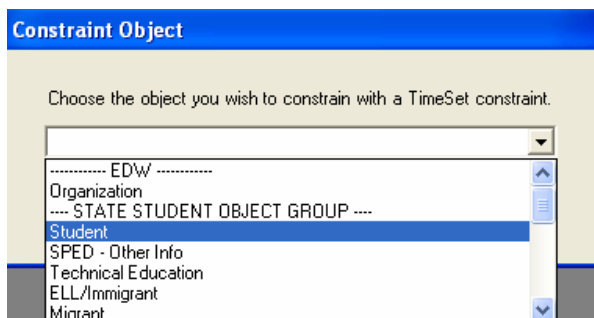
- 1) For the measure, select a Count of Students.
- 2) Select 2001-2002 for the time period.
- 3) From the Administration Name add the Chittenden South SU to the Rows
- 4) Add DRA Performance Levels to the Columns.
- 5) Run the query.

 Rows: Organization.Administrative Name; Columns: DRA.Performance Levels; Background: Count of STUDENT [Linked]; 2001-2002; Results; Constraint:		
	DRA.Performance Levels	
	Achieved the Standard	Achieved the Standard with Honors
Organization.Administrative Name		
A-C:Chittenden South SU	99	185

- Right-click on the Achieved the Standard with Honors results cell and select Create Time Set Constraint From This Cell.



- Select Student from the drop-down and click OK.



As long as this constraint stays attached to the query, future queries will give results based on the original group of 2nd grade students in the Achieved with Honors DRA result.

- Close the Aggregation Constraints window.
- Drag off the DRA Performance Level coordinate.
- We now want to look at how these students performed in the NSRE ELA Reporting Areas Basic Understanding and Analysis and Interpretation two years later. Ctrl-Select both Reporting Areas and drag them into the row. Drag the NSRE ELA Performance Levels Attribute into the rows next to the Reporting Areas. Drag off the Administrative Name.

11) In the Time Periods window uncheck 2001-2002 and then check 2003-2004. Your query should look like be below.

Rows: NSRE ELA Performance Levels.Reporting Area; NSRE ELA Performance Levels.Performance Levels;
Columns:
Background: 2003-2004; Count of STUDENT [Linked]; Results;
Constraint: ([Student] IN TimeSet([2001-2002], ([[Organization].[Administrative Name] IS [A-C:Chittenden South SU]) AND ([DRA],[

		Empty
NSRE ELA Performance Levels.Reporting Area	NSRE ELA Performance Levels.Performance Levels	
Reading:Basic Understanding	Little Evidence of Achievement	
Reading:Analysis & Interpretation	Below the Standard	
	Nearly Achieved the Standard	
	Achieved the Standard	
	Achieved the Standard with Honors	
	Testing Incomplete	
	Performance Level Unknown	

Time (2003-2004)
Measures (Count of STUDENT)
Results (Results)

12) Run the query and view the results.

Rows: NSRE ELA Performance Levels.Reporting Area; NSRE ELA Performance Levels.Performance Levels;
Columns:
Background: 2003-2004; Count of STUDENT [Linked]; Results;
Constraint: ([Student] IN TimeSet([2001-2002], ([[Organization].[Administrative Name] IS [A-C:Chittenden Sou

		Empty
NSRE ELA Performance Levels.Reporting Area	NSRE ELA Performance Levels.Performance Levels	
	Nearly Achieved the Standard	*****
Reading:Basic Understanding	Achieved the Standard	101
	Achieved the Standard with Honors	67
	Testing Incomplete	*****
	Below the Standard	*****
Reading:Analysis & Interpretation	Nearly Achieved the Standard	*****
	Achieved the Standard	134
	Achieved the Standard with Honors	27
	Testing Incomplete	*****

In the example we see that how the students that achieved with honor on their DRA, did on their NSRE ELA two years later.

Exercises

1. Create a query showing the number of students who consistently attended an elementary school in your district from 1st grade to 4th grade, if they started 1st grade during the 2000-2001 academic year.
2. Create a query showing cohort analysis for the NSRE ELA, Analysis and Interpretation Achieved the Standard Performance Level for students in Grade 8 during 2001-2002 and in Grade 10 in 2003-2004.
3. How many 4th grade students were Below the Standard in the NSRE Math Problem Solving in your county in 2003-2004? Apply a Time Set Constraint on these students to see how they performed on the NECAP Math 2 years later as 6th graders.

Matching Over Time

While Matching allows you to look at students over time, it differs from Time Set Constraints in that instead of students meeting your specified criteria in just one time period, you can look at students over multiple time periods. Because of this, when you look at data for a group constrained by Matching Over Time, you will always get the same number of students when looking at multiple years of data.

For our sample query, we'll create a query that displays NSRE Math Problem Solving results for a matched cohort meeting the following criteria: 8th graders in 2002-2003 and 10th graders in 2004-2005 who took that test in each year. Creating a query that focuses in on only those students who were in the district *and* who took the test in those years allows us to get an “apples to apples” comparison.

- 1) Select a measure of a Count of Students.
- 2) Select 2002-2003 and 2004-2005 for the time periods and place on the Rows. This placement isn't necessary, but this format provides a better query structure visually.
- 3) Add Organization – **Administrative Name** – *Your District* to the Rows to the left of the Time Sets
- 4) Ctl-click on Student – Last Reported Grade Level – Grades 8 and 10 and drag them to the Rows to the Right of the Time Sets
- 5) Drag and drop NSRE Math Problem Solving Reporting Area to the Columns.
- 6) Drag and drop NSRE Math Performance Levels to the Columns below the Reporting Area.

Rows: Organization.Administrative Name; 2002-2003, 2004-2005; Student.Last Reported Grade Level; Columns: NSRE Math Performance Levels.Reporting Area; NSRE Math Performance Levels.Performance Levels; Background: Count of STUDENT [Linked]; Results; Constraint:			
			NSRE Math Performance Levels.Reporting Area
			NSRE Math Performance Levels.Performance Le...
Organization.Administrative Name	Time	Student.Last Reported Grade Level	Measures (Cour Results 1
A-C:Chittenden South SU	2002-2003	8th Grade	
	2004-2005	10th Grade - H.S. Sophomore	



When creating a Match Over Time query, all of the criteria you are using to define your matched group (i.e. the students must be in specific grades in specific years) must be placed on the same axis as your time periods. The coordinates placed beside the time periods will be used to create the coordinates available for selection in the Matching Wizard.

Run the query. When performing a match over time, you must create a “base” query to work with initially. From this point, we will apply additional constraints so that we’re only looking at the 2002-2003 8th graders and the 2004-2005 10th graders. Right click on any of the coordinates and select Merge Equivalent Cells to get results like below.

Rows: Organization.Administrative Name; 2002-2003, 2004-2005; Student.Last Reported Grade Level;
Columns: NSRE Math Performance Levels.Reporting Area; NSRE Math Performance Levels.Performance Levels;
Background: Count of STUDENT [Linked]; Results;
Constraint:

Organization.Administrative N...	Time	Student.Last ReportedGra...	NSRE Math Performance L... Problem Solving	NSRE Math Performance L... Problem Solving
A-C:Chittenden South SU	2002-2003	8th Grade	33	60
A-C:Chittenden South SU	2002-2003	10th Grade - H.S. Sop...	47	72
A-C:Chittenden South SU	2004-2005	10th Grade - H.S. Sop...	37	60

- 7) Go to Edit | Matching Wizard.
- 8) The Use Matched Records radio button will be selected by default. This ensures that the final query results only show records that meet all of the criteria we select.
- 9) For the Object to Match, select Student. This makes sure that the student is present in each year we select.
- 10) For the Ensuring Object, select NSRE Math and then select NSRE Performance Level for the Ensuring Attribute. The Ensuring Object and Attribute make sure that only those students who have a score for this test area are included in the match.
- 11) Highlight both 2002-2003, Grade 8, and 2004-2005, Grade 10. Remember to hold down the Ctrl key to select multiple rows.

This will default to “Use Matched Records”.

Choose “Use Unmatched Records” when, for example, you want to see how a more transient population performed on a test, as this will give you all of the students who don’t meet the “match” criteria.

12) Click OK and run the query again to see results

This shows the constraint that was created in the Matching Wizard.

Rows: Organization.Administrative Name; 2002-2003, 2004-2005; Student.Last Reported Grade Level;
Columns: NSRE Math Performance Levels.Reporting Area; NSRE Math Performance Levels.Performance Levels;
Background: Count of STUDENT [Linked]; Results;
Constraint: MATCH [Student] ON ([[2002-2003], ([[Organization].[Administrative Name] IS [A-C:Chittenden South SU]) AND ([S

Organization.Administrativ...	Time	Student.Last Reported Gra...	NSRE MathPerformance L... Problem Solving	NSRE MathPerformance L... Problem Solving
A-C:Chittenden South...	2002-2003	8th Grade	28	40
A-C:Chittenden South...	2004-2005	10th Grade - H.S. Sop...	28	53


13) Right-click on the Performance Level column and select the Include 'All' Coordinate option. Rerun the query.

Rows: 2002-2003, 2004-2005; Student.Last Reported Grade Level;
Columns: NSRE Math Performance Levels.Reporting Area; NSRE Math Performance Levels.Performance Levels;
Background: Count of STUDENT [Linked]; Results;
Constraint: MATCH [Student] ON ([[2002-2003], ([[Organization].[Administrative Name] IS [A-C:Chittenden South SU]) AND ([Student].[Last Reported Grade Level] IS [8th Grade]))

Time	Student.Last Reported Gra...	NSRE MathPerfoma... Problem Solving	NSRE MathPerfor... Problem Solving	NSRE Math Per... Problem Solvi...	NSRE MathPerf... Problem Solvi...	NSRE MathPerf... Problem Solving	NSRE Math... Problem S...	NSRE MathPerform... Problem Solving
2002-2003	8th Grade	28	40	32	120	71		291
2004-2005	10th Grade - H.S. Sop...	28	53	*****	144	47	11	291



It's a good idea to use the All coordinate when looking at matched query results. Because the query only looks at students who meet *all* selected criteria, the number of students will always remain constant over years and you will always have the same totals in the All column.

Remove the Constraint by selecting the Constraints icon  in the toolbar, selecting the currently applied constraint and clicking Remove.



Exercises

1. You must create and run a query before you can use the Matching Wizard.
 - a. True
 - b. False

2. Which following scenario is one in which you would need to use an Ensuring Attribute?
 - a. You want to show cohort analysis for a specific test area.
 - b. You want to look at a student's specific, individual scores over time.
 - c. You need to track students who are consistently in your school system over the years.

3. Where can you view the code that is created when you use the Matching Wizard?
 - a. The query summary
 - b. The Constraints Wizard window
 - c. The Notes window
 - d. It isn't accessible in VT EDW PC

Time Set Limits

Objectives

When you complete this chapter, you will be able to:

- Understand the Time Set Limits functionality
- Create queries that use Time Set Limits

Overview

Time Set Limits allow you to put Time Sets on both the X (row) and Y (column) axis in a single query: This feature allows users to compare data elements to each other across time sets. For example, you may want to view how students performed on the NECAP test between two years. Did students stay in the Partially Proficient level for both years or did they perform Partially Proficient in one year, but move up to Proficient the next year?

You can also use the Time Set Limits to compare two different tests that students may take over the years. For example, you may want to compare how students performed on the DRA Test as 2nd graders versus how they performed on a NSRE ELA test two years later as 4th graders. This could help you answer questions such as whether performance on the 2nd grade test predicts how the students will perform on the NSRE ELA. This query may also give you an idea whether the two tests measure the same types of skills.

This type of Longitudinal Analysis will certainly be very useful for measuring progress in the upcoming NECAP tests over time.

Creating Queries with Time Set Limits

A single basic query could look at Washington County’s NSRE Math Skills for 2 different years, but yields no information about which students were included in which results or whether specific groups of students remained in their performance level or went up or down from the first to the second test. If we created this query without using Time Set Limits, we would get the query below.

Rows: NSRE Math Performance Levels.Performance Levels;
Columns: Organization.County; NSRE Math Performance Levels.Reporting Area; 2003-2004, 2005-2006
Background: Count of STUDENT [Linked]; Results;
Constraint:

		Organization.County	
		WASHINGTON	
		NSRE Math Performance Levels.Reporting Area	
		Skills	
		Time	
		2003-2004	2005-2006
NSRE Math Performance Levels.Performan...			
Little Evidence of Achievement		36	33
Below the Standard		246	130
Nearly Achieved the Standard		313	62
Achieved the Standard		762	188
Achieved the Standard with Honors		709	301
Testing Incomplete		29	19

While this does show us how the county as a whole performed on the test between the two years, it doesn’t show us specific student movement from level to level between the two years. In order to view that information, we’ll create the query a different way and use Time Set Limits.

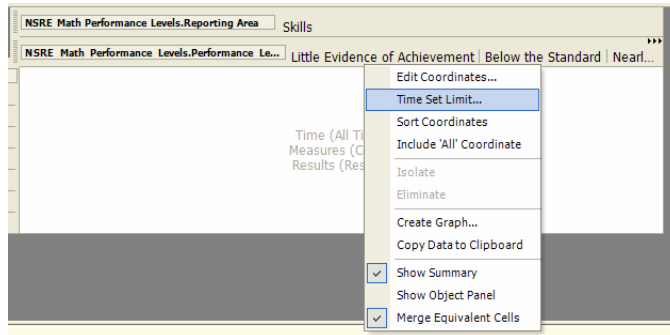
- 1) Select a Measure of Count of Student.
- 2) Do not select a time period – these will be added to the individual coordinates of the query.
- 3) From the Objects Panel, drag and drop NSRE Math Performance Levels into the Columns.
- 4) Also drag and drop the NSRE Math Performance Level Reporting Area – Skills into the Columns
- 5) From the Objects Panel, drag and drop NSRE Math Performance Level into the rows.
- 6) Also drag and drop the NSRE Math Performance Level, Reporting Area – Skills into the Rows

Rows: NSRE Math Performance Levels.Reporting Area; NSRE Math Performance Levels.Performance Levels;
Columns: Organization.County; NSRE Math Performance Levels.Reporting Area; NSRE Math Performance Levels.Performance Levels;
Background: All Time; Count of STUDENT [Linked]; Results;
Constraint:

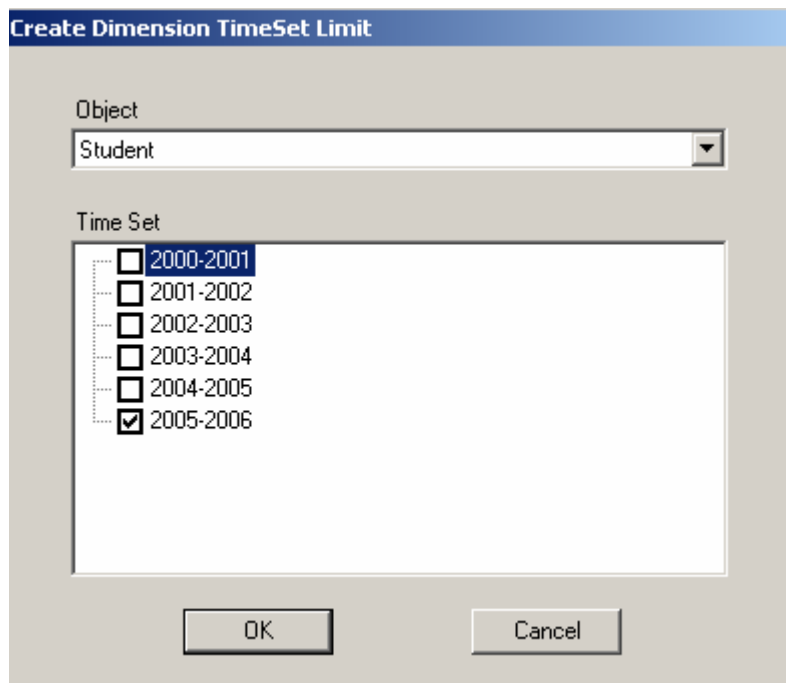
		Organization.County	WASHINGTON
		NSRE Math Performance Levels.Reporting Area	Skills
		NSRE Math Performance Levels.Performance Le...	Little Evidence of Ach
NSRE Math Performance Le...	NSRE Math Performance Levels.Perf...		
Skills	Little Evidence of Achievement		
	Below the Standard		
	Nearly Achieved the Standard		
	Achieved the Standard		
	Achieved the Standard with Hon...		
	Testing Incomplete		
	Performance Level Unknown		

Time (All Time)
Measures (Count of STUDENT)
Results (Results)

7) Right-click in the columns and select Time Set Limit.



Select Student from the Object drop-down list and select 2004-2005 as the time set to apply to this coordinate.



- 8) Click OK.
- 9) Repeat this process for the other Column attribute
- 10) Right-click in the rows and select Time Set Limit.
- 11) Select Student from the Object drop-down list and select 2003-2004 as the time set to apply to this row coordinate.
- 12) Click OK.
- 13) Repeat this process for the other Row attribute.
- 14) Run the query and view the results.

This query applies specific time sets to each Performance Level, so we see how the 2003-2004 Below the Std students performed on the same test in 2005-2006. 25 remained in the Below group and 12 moved down to Little Evidence, 6 moved up to Nearly and 8 up to Achieved. 1 student moved up to Achieved with Honors.

Rows: NSRE Math Performance Levels.Reporting Area (Student:2003-2004); NSRE Math Performance Levels.Performance Levels (Student:2003-2004);
Columns: Organization.County; NSRE Math Performance Levels.Reporting Area (Student:2005-2006); NSRE Math Performance Levels.Performance Levels (Student:2005-2006);
Background: All Time; Count of STUDENT [Linked]; Results;
Constraint:

		Organization.County					
		WASHINGTON					
		NSRE Math Performance Levels.Reporting Area (Student:2005-2006)					
		Skills					
		NSRE Math Performance Levels.Performance Levels (Student:2005-2006)					
		Little Evidence of A...	Below the Standard	Nearly Achieved...	Achieved the St...	Achieved the St...	Testing Inc...
NSRE Math...	NSRE Math Performance L...	2	3				1
	Little Evidence of Achi...						
	Below the Standard	12	25	6	8	1	3
	Nearly Achieved the S...	8	49	20	26	13	4
	Achieved the Standard	3	35	26	79	76	4
	Achieved the Standar...	2	11	9	74	201	6
	Testing Incomplete	1	2		2	2	1

We can continue working with this query and add specific grade levels and test levels to each axis as well.

- 1) Using the query from above, drag and drop NSRE Math Performance Level > Testing Grade Level 10 to the Columns and place it above the Scoring Levels.
- 2) Also drag and drop NSRE Math Performance Level > Test Level, High into the Columns
- 3) Drag and drop NSRE Math Performance Level > Testing Grade Level 8 to the Rows and place it beside the Performance Levels.
- 4) Now drag and drop NSRE Math Performance Level > Test Level, Middle into the Rows
- 5) Right-click on the Testing Grade Level coordinate in the columns and select Time Set Limit.
- 6) Select Student from the Object drop-down list and select 2005-2006 as the time set to apply to this coordinate.
- 7) Right-click on the Testing Grade Level coordinate in the rows and select Time Set Limit.
- 8) Select Student from the Object drop-down list and select 2003-2004 as the time set to apply to this coordinate.
- 9) Repeat these steps for the NSRE – Test Levels on both the Rows and the Columns
- 10) Run the query and view the results.

Rows: NSRE Math Performance Levels.Test Level (Student:2003-2004); NSRE Math Performance Levels.Testing Grade Level (Student:2003-2004); NSRE Math Perfo
Columns: Organization.County; NSRE Math Performance Levels.Test Level (Student:2005-2006); NSRE Math Performance Levels.Testing Grade Level (Student:2005-2006);
Background: All Time; Count of STUDENT [Linked]; Results;
Constraint:

		Organization.County					
		WASHINGTON					
		NSRE Math Performance Levels.Test Level (Student:2005-2006)					
		High					
		NSRE Math Performance Levels.Testing Grade Level (Student:2005-2006)					
		10th Grade - H.S. Sophomore					
		NSRE Math Performance Levels.Reporting Area (Student:2005-2006)					
		Skills					
		NSRE Math Performance Levels.Performance Levels (Student:2005-2006)					
		Little Evidenc...	Below the St...	Nearly Achiev...	Achieved t...	Achieved th...	Testing Incom...
NSRE Mat...	NSRE Math Pe...	2	2				1
	NSRE Math...	11	21	6	7	1	3
	Little Evid...						
	Below the...						
Middle	8th Grade	7	45	19	26	13	2
	Nearly Achi...						
	Achieved t...	3	33	26	79	76	3
	Achieved t...	2	9	9	73	201	6
	Testing Inc...	1	2		2	2	1



Exercises

1. Why would you want to use a Time Set Limit in your query instead of selecting your time sets from the Time Set window in the toolbar?
2. I want to look at the movement between the CRT Reading Performance Totals on the NSRE ELA test for 2002-2003 8th graders and 2004-2005 10th graders. The final query should show a comparison of how the students performed in 8th grade versus 10th grade on the same test. Leave this query displayed and go on to the next one.
3. Using the query from # 2, limit the data displayed to show the 8th graders at Crossett Brook Middle USD #45 who then moved to Harwood Union Middle UHSD as 10th graders.

Creating Thresholds and Distributions

Objectives

When you complete this chapter, you will be able to:

- Create distributions and thresholds
- Create queries that contain more than one distribution or threshold

Overview

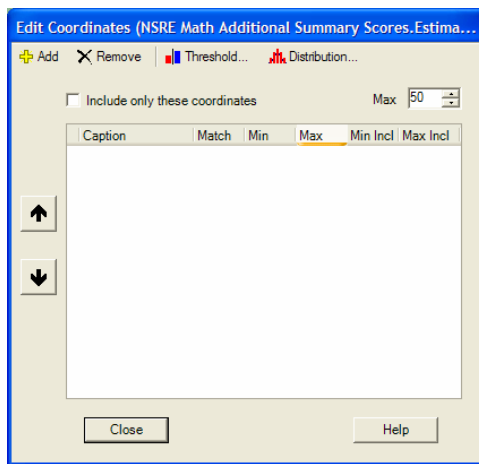
When working with non-enumerated numeric attributes such as percentile ranks or scale scores, you will often want to create distributions and/or thresholds to look at the available data. Creating distributions and thresholds allow you to view information such as test scores, student days absent, and teacher years of experience broken down into small, manageable groups. For example, if I want to see my school's SAT9, Math scores, I may not want to see each individual score for all 500 students who took the test. Instead, I may want to see a summary of the scores for my school i.e. how many students scored between the 60th and 70th percentile or above the 75th percentile. This gives me a high level look at how my school preformed as a whole.

Basically, distributions and thresholds are a combination of grouping and counting. Custom groups are created using the Edit Coordinates feature and by using a Measure type of Count, we get the number of records in each of these custom groups.

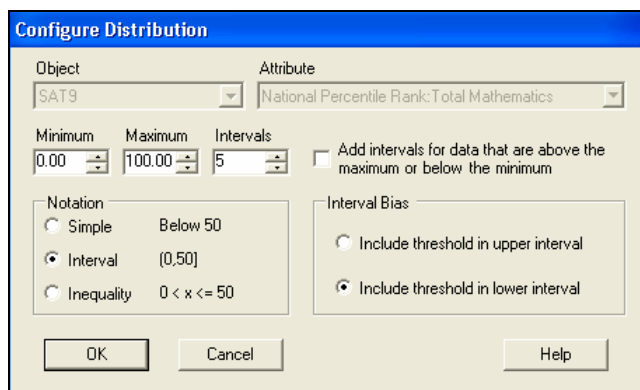
Creating Distributions with Numeric Attributes

For our sample query, we'll be creating a distribution of the NSRE, Math, National Percentile Rank scores. The National Percentile ranges from 1-99, so we'll break those possible scores down into 4 groups. We'll look at this data for your County for 2003-2004.

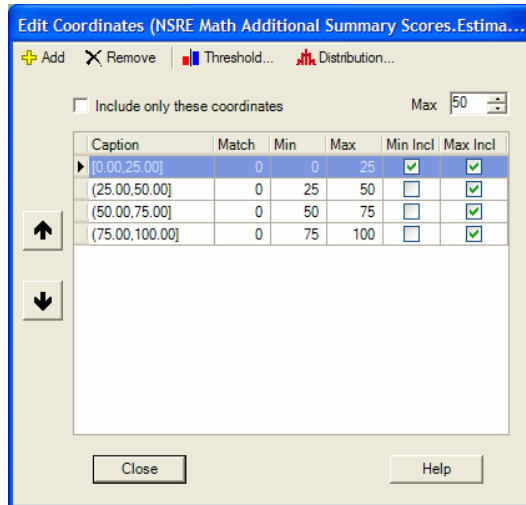
- 1) Select a Measure of Count of NSRE Math Additional Summary Scores.
- 2) Select 2003-2004 as the time period.
- 3) From the Objects Panel, drag and drop Organization – County – *your County* to the Rows.
- 4) From the Objects Panel, drag and drop NSRE Math Additional Summary Scores – Estimated SAT9 Norms – Percentile Rank into the Rows.
- 5) Double-click on the Estimated SAT9 Norms – Percentile Rank coordinate to open the Edit Coordinates window.



- 6) Click the Distribution button at the top right of the window to open the Configure Distribution window.



- 7) In the Intervals field, enter 4. This will create the 4 groups we want the scores broken into. We can leave the Minimum and Maximum set to the defaults of 0 and 100 since our score range is 1-99.
- 8) Click OK to return to the Edit Coordinates window. Your newly created groups display as coordinates for your query.



- 9) Check the Include only these coordinates checkbox and click Close.
- 10) Run the query.

Rows: Organization.County; NSRE Math Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank; Columns: Background: Count [Linked]; 2003-2004; Results; Constraint:		
Organization.County	NSRE Math Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank	Empty
FRANKLIN	[0.00,25.00]	242
	(25.00,50.00]	265
	(50.00,75.00]	498
	(75.00,100.00]	963

- 11) Save this query as a personal favorite named “Math Distribution.” It will be used in a future exercise.

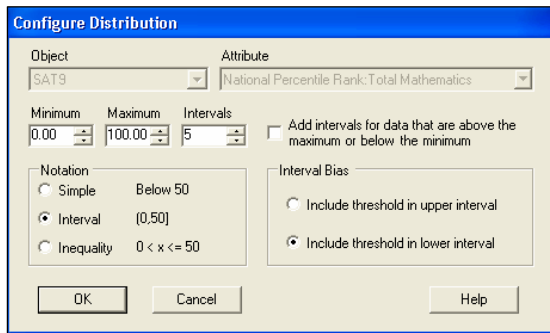


Note that if a grouping has no records, the group will drop out of the final query results.

More Information About Creating Distributions

In the sample query created above, very few changes were made to the default selections in the Configure Distribution window. While the defaults worked fine for the query above, that may not always be the case. The explanations of the fields in the Configure Distribution window are detailed below.

- **Object and Attribute:** These are automatically filled in based on the Attribute added to the Row or Column.



- Minimum:** This is the lowest value in the attribute's numeric range that you want included in the groups you're creating. Note that this is not always the minimum number in the available range. For example, you may want to create a distribution that looks only at those students who scored above the 50th percentile. In this case, your minimum would be 50, not the minimum possible score of 1.
- Maximum:** This is the maximum value in the attribute's numeric range that you want included in the groups you're creating. Note that this is not always the maximum number in the available range. For example, you may want to create a distribution that looks only at those students who scored below the 50th percentile. In this case, your maximum would be 50, not the maximum possible score of 99.
- Intervals:** The number of groups you want to create. For example, if you want to see a break-down of your NPR scores into quartiles (4 groups); enter 4 as the number of intervals.
- Add intervals for data that are above the maximum or below the minimum:** If this checkbox is selected, two additional groups will be created for your distribution. These two groups will count any records that fall outside of the minimum and maximum values that you specified. If no records fall outside of the provided range, the two additional groups drop out of the final query.
- Notation:** This area allows you to select the format of the text to be used for the caption of each coordinate. The resulting displays are shown below.

Simple	Interval	Inequality															
<table border="1"> <tr><td>Caption</td></tr> <tr><td>0.00 to 25.00</td></tr> <tr><td>25.00 to 50.00</td></tr> <tr><td>50.00 to 75.00</td></tr> <tr><td>75.00 to 100.00</td></tr> </table>	Caption	0.00 to 25.00	25.00 to 50.00	50.00 to 75.00	75.00 to 100.00	<table border="1"> <tr><td>Caption</td></tr> <tr><td>[0.00,25.00]</td></tr> <tr><td>(25.00,50.00]</td></tr> <tr><td>(50.00,75.00]</td></tr> <tr><td>(75.00,100.00]</td></tr> </table>	Caption	[0.00,25.00]	(25.00,50.00]	(50.00,75.00]	(75.00,100.00]	<table border="1"> <tr><td>Caption</td></tr> <tr><td>0.00 <= x <= 25.00</td></tr> <tr><td>25.00 < x <= 50.00</td></tr> <tr><td>50.00 < x <= 75.00</td></tr> <tr><td>75.00 < x <= 100.00</td></tr> </table>	Caption	0.00 <= x <= 25.00	25.00 < x <= 50.00	50.00 < x <= 75.00	75.00 < x <= 100.00
Caption																	
0.00 to 25.00																	
25.00 to 50.00																	
50.00 to 75.00																	
75.00 to 100.00																	
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(25.00,50.00]																	
(50.00,75.00]																	
(75.00,100.00]																	
Caption																	
0.00 <= x <= 25.00																	
25.00 < x <= 50.00																	
50.00 < x <= 75.00																	
75.00 < x <= 100.00																	

- Interval Bias:** These two options allow you to decide where the cut score between your groups should be counted. For example, if I create a 4-group distribution for NPR scores, I will get the following coordinates: 0-25, 25-50, 50-75, and 75-100. Since you wouldn't want to count scores of 25 in both the 0-25 group and the 25-50 groups, you must specify which group should include scores of exactly 25. If you select the *upper interval* option, a score of 25 will be counted in the 25-50 group. If you select the *lower interval* option, a score of 25 will be counted in the 0-25 group.

Once you click OK and close out of the Configure Distribution window, you can customize your distribution groupings even further on the Edit Coordinates window. All of the text in the Caption column can be modified to suit your specific query needs. You can also modify the actual groupings as well. The Match column allows you to indicate a specific number – only one value – as the coordinate. The Min column represents the minimum value of the coordinate. The Max column represents the maximum value of the coordinate. These options are covered in greater detail in the “Creating Manual and Uneven Distributions” section later in this chapter.

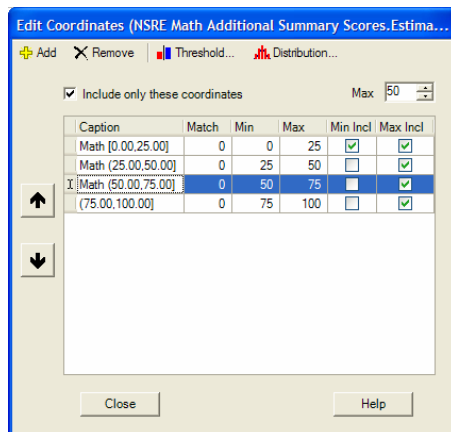
More than One Distribution

Building on the query created above (the personal favorite named “Math Distribution”), add NSRE ELA Additional Summary Scores – Estimated SAT9 Norms – Percentile Rank to the columns.

- 1) After adding the NSRE ELA - Percentile Rank attribute to the columns, double-click on the column to Edit Coordinates and then setup the same distribution parameters as for NSRE Math.
- 2) Remember to check the ‘Include Only These Coordinates’ checkbox.
- 3) Run the query again.

Rows:		Organization.County; NSRE Math Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank;			
Columns:		Count [Unlinked]; NSRE ELA Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank;			
Background:		2003-2004; Results;			
Constraint:					
		Measures			
		Count			
		NSRE ELA Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank			
		[0.00,25.00]	(25.00,50.00]	(50.00,75.00]	(75.00,100.00]
Organization.County	NSRE Math Additional Sum...				
FRANKLIN	[0.00,25.00]	105	78	31	19
	(25.00,50.00]	48	86	86	43
	(50.00,75.00]	40	104	176	175
	(75.00,100.00]	13	73	236	640

- 4) Note that both of the distributions' labels display exactly the same. Unless you check the summary information at the top of the query or look at the location of the row and column icons in the Objects panel, you can't tell which grouping is Reading and which is Math. To format the query to display this information, double-click on the Percentile Ranking coordinates for NSRE Math to access the Edit Coordinates window. Click in each of the Caption fields and add Math as part of the text to display.



5) Click Close and rerun the query. The additional text displays as part of the column headers.

Rows:		Organization.County; NSRE Math Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank;			
Columns:		Count [Unlinked]; NSRE ELA Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank;			
Background:		2003-2004; Results;			
Constraint:					
		Measures			
		Count			
		NSRE ELA Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank			
		[0.00,25.00]	(25.00,50.00]	(50.00,75.00]	(75.00,100.00]
Organization.County	NSRE Math Additional Sum...				
FRANKLIN	Math [0.00,25.00]	105	78	31	19
	Math (25.00,50.00]	48	86	86	43
	Math (50.00,75.00]	40	104	176	175
	Math (75.00,100.00]	13	73	236	640

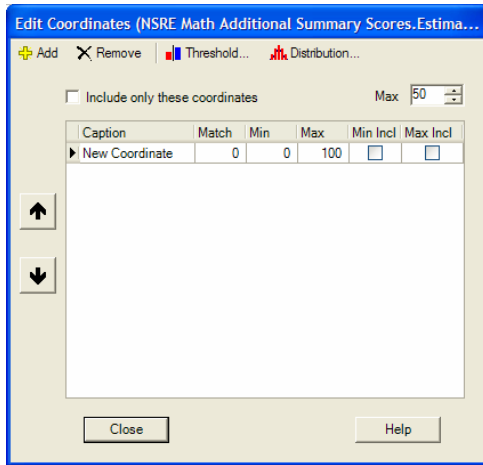


Add “ELA” as part of the text field on the column headers for the NSRE ELA, coordinate.

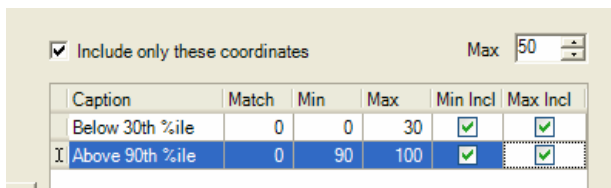
Creating Manual and Uneven Distributions

As stated above, you can edit your distribution groups from the Edit Coordinates window. When editing coordinates this way, by changing Match, Min, and Max, you can create any series of coordinates. For example, a school may use the NSRE assessment to identify 4th grade at-risk students as well as 4th grade gifted students in mathematics. The at-risk students may be identified as those who score below the 30th percentile on Percentile Rank Mathematics while gifted students are those who score above the 90th percentile. Follow the steps below to create these groups through the non-enumerated Edit Coordinates option.

- 1) Select a Measure of Count of NSRE Math Additional Summary Scores.
- 2) Select 2003-2004 as the time period.
- 3) Drag and drop Student – 4th Grade to the columns.
- 4) Drag and drop Organization – County – *your County* to the Rows.
- 5) Drag and drop NSRE Math Additional Summary Scores – Estimated SAT9 Norms – Percentile Rank into the Rows.
- 6) Double-click in the Estimated SAT9 Norms – Percentile Rank coordinate to access the Edit Coordinates window.
- 7) Click Add.



- 8) Do not modify the Match column for this exercise.
- 9) In the Caption field for the new coordinate, enter “Below the 30th %ile.”
- 10) Leave the Min field set to 0, and enter 30 in the Max field.
- 11) Check the Min Incl and Max Incl checkboxes.
- 12) Click Add to add a second coordinate.
- 13) In the Caption field, enter “Above the 90th %ile.”
- 14) Enter 90 in the Min field, and leave the Max field set to 100.
- 15) Check the Min Incl and Max Incl checkboxes.
- 16) Select the Include only these coordinates checkbox.
 - a. Your coordinates should resemble the illustration below.



- 17) Click Close and run the query.

Rows: Organization.County; NSRE Math Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank;
Columns: Student.Grade Level;
Background: 2003-2004; Results; Count [Linked];
Constraint:

		Student.Grade Level
		4th Grade
Organization.County	NSRE Math Additional Sum...	
FRANKLIN	Below 30th %ile	48
	Above 90th %ile	251

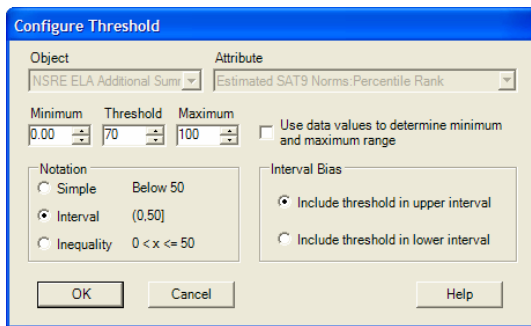
Editing Coordinates in this manner can be used for many purposes. *What are some other examples of using uneven intervals or creating coordinates manually?*

Creating Thresholds with Numeric Attributes

Thresholds are very similar to distributions. When you create distributions, you're creating multiple groupings from a range of numbers. With a threshold, you're basically always creating a two-group distribution. You can also think of a threshold as a cut score. For example, if 340 is the score that separates Nearly Proficient from Proficient students on an assessment, we could use a threshold to see how many students fell into the Nearly Proficient group versus how many were Proficient and above.

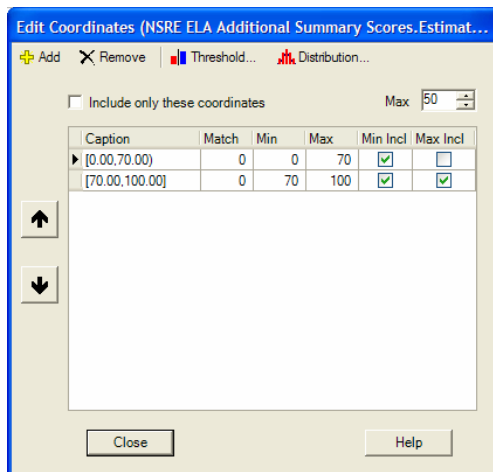
For our sample query, we'll create a query with a threshold of 70 for the SAT9, National Percentile Rank, NSRE ELA for our 4th graders in 2003-2004.

- 1) Select a measure of Count of NSRE ELA Additional Summary Scores.
- 2) Select 2003-2004 for the time period.
- 3) Drag and drop Grade 4 to the Columns.
- 4) Drag and drop NSRE ELA Additional Summary Scores – Estimated SAT9 Norms – Percentile Rank to the Rows.
- 5) Double-click on the Estimated SAT9 Norms – Percentile Rank coordinate to access the Edit Coordinates window.
- 6) Click the Threshold button.



The 'Configure Threshold' dialog box is shown. It has two tabs: 'Object' and 'Attribute'. The 'Object' dropdown is set to 'NSRE ELA Additional Summary Scores' and the 'Attribute' dropdown is set to 'Estimated SAT9 Norms - Percentile Rank'. Below these are three input fields: 'Minimum' (0.00), 'Threshold' (70), and 'Maximum' (100). There is a checkbox 'Use data values to determine minimum and maximum range' which is unchecked. Under 'Notation', there are three radio buttons: 'Simple' (selected), 'Interval' (0.50), and 'Inequality' (0 < x <= 50). Under 'Interval Bias', there are two radio buttons: 'Include threshold in upper interval' (selected) and 'Include threshold in lower interval'. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

- 7) The Object and Attribute fields are automatically filled in.
- 8) Leave the Minimum and Maximum fields set to their default values of 0 and 100.
- 9) For the threshold field, enter 70.
- 10) Leave the remaining fields set to their default values.
- 11) Click OK.



The 'Edit Coordinates' dialog box is shown. It has a title bar 'Edit Coordinates (NSRE ELA Additional Summary Scores.Estimat...'. At the top are buttons for '+ Add', '- Remove', 'Threshold...', and 'Distribution...'. Below is a checkbox 'Include only these coordinates' which is unchecked, and a 'Max' field set to 50. A table is displayed with the following data:

Caption	Match	Min	Max	Min Incl	Max Incl
[0.00,70.00]	0	0	70	<input checked="" type="checkbox"/>	<input type="checkbox"/>
[70.00,100.00]	0	70	100	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Below the table are up and down arrow buttons. At the bottom are 'Close' and 'Help' buttons.

- 12) Modify the Captions for each coordinate with the following text: “Below the 70th %ile” and “70th %ile and Above.”
- 13) Check the Include only these coordinates checkbox and click Close.
- 14) Run the query.

Rows: Organization.County; NSRE ELA Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank; Columns: Student.Grade Level; Background: 2003-2004; Results; Count [Linked]; Constraint:		
		Student.Grade Level
		4th Grade
Organization.County	NSRE ELA Additional Sum...	
FRANKLIN	Below 70th %ile	272
	70th %ile and Above	316



You can also create a threshold by selecting a measure type of Threshold. When you select this as your type of measure, the available options in the Measures window will change to show the same options available from the Configure Threshold window that is accessed when using the Edit Coordinates feature detailed above.

Note that the Configure Threshold window has almost the same fields as the Configure Distribution window. The Interval Bias area works the same as for the Configure Distribution window – the only difference is that for thresholds, the cut score is included in the upper interval.

The “Use Data Values to determine minimum and maximum range” checkbox allows you to create a threshold without knowing the full range of the scores. If you check this box, as long as you know that 200 is the cut score, you don’t have to worry about entering anything into the min and max fields. The program automatically counts all scores below the cut score and all of those above the cut score.

More than One Threshold

Building on the query created in the previous section, add NSRE Math Additional Summary Scores – Estimated SAT9 Norms – Percentile Rank to the columns just below the grade level.

- 1) After adding the Math Estimated SAT9 Norms attribute to the columns, double-click on the column to Edit Coordinates and then setup the same threshold parameters as for Total Reading.
- 2) Remember to check the ‘Include Only These Coordinates’ checkbox.
- 3) Run the query again.

Rows:		Organization.County; NSRE ELA Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank;	
Columns:		Student.Grade Level; NSRE Math Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank;	
Background:		2003-2004; Results; Count [Linked];	
Constraint:			
		Student.Grade Level	
		4th Grade	
		NSRE Math Additional Summary Scores.Estimated SAT9 Norms:P...	
		Below 70	70 and Above
Organization.County	NSRE ELA Additional Summary...		
FRANKLIN	Below 70th %ile	147	125
	70th %ile and Above	44	271

- 4) Note that both of the threshold’s labels display exactly the same. Unless you check the summary information at the top of the query or look at the location of the row and column icons in the Objects panel, you can't tell which grouping is ELA and which is Math. To format the query to display this information, double-click on the Percentile Ranking coordinates for NSRE ELA to access the Edit Coordinates window. Click in each of the Caption fields and add ELA as part of the text to display.
- 5) Click Close and rerun the query. The additional text displays as part of the column headers.

Rows:		Organization.County; NSRE ELA Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank;	
Columns:		Student.Grade Level; NSRE Math Additional Summary Scores.Estimated SAT9 Norms:Percentile Rank;	
Background:		2003-2004; Results; Count [Linked];	
Constraint:			
		Student.Grade Level	
		4th Grade	
		NSRE Math Additional Summary Scores.Estimated SAT9 N...	
		Below 70	70 and Above
Organization.County	NSRE ELA Additional Summary Score...		
FRANKLIN	Below 70th %ile ELA	147	125
	70th %ile and Above ELA	44	271

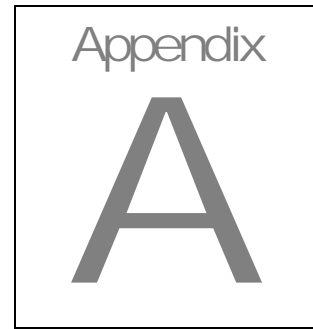


Add “Math” as part of the text field on the column headers for the NSRE Math, coordinate.



Exercises

1. In your own words, describe a distribution.
2. What will a threshold show you?
3. Create a 4-group distribution of the NECAP Math Scaled Score. Use the following headings for the coordinates: Substantially Below, Below Proficient, Proficient, Proficient with Distinction for 4th grade. Include scores for 2005-2006.
4. Create a threshold of 40 for the NECAP Reading Scaled Score for 8th graders and show a count of students for all schools in your county.



Hierarchy Constraints

Objectives

When you complete this chapter, you will be able to:

- Use hierarchy constraints to filter queries and lists.

Overview

The Hierarchy Constraints wizard is a way to add multiple filters without editing coordinates individually.

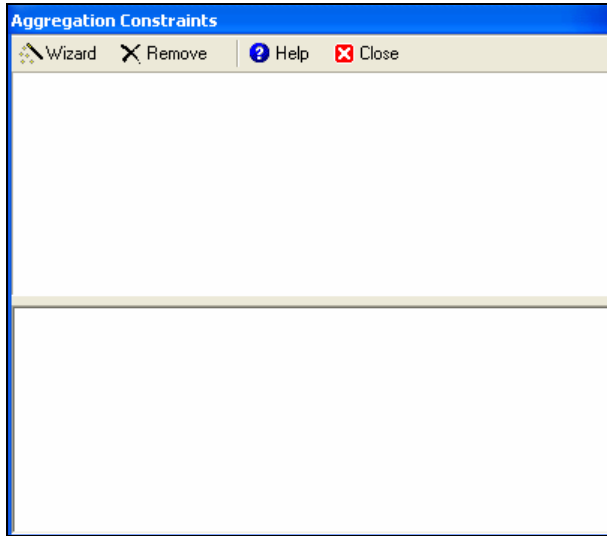
Using Hierarchy Constraints to Filter Queries

For our sample query, create a query displaying a count of Students, NECAP Math Results Achievement Level versus NECAP Reading Results Achievement Level

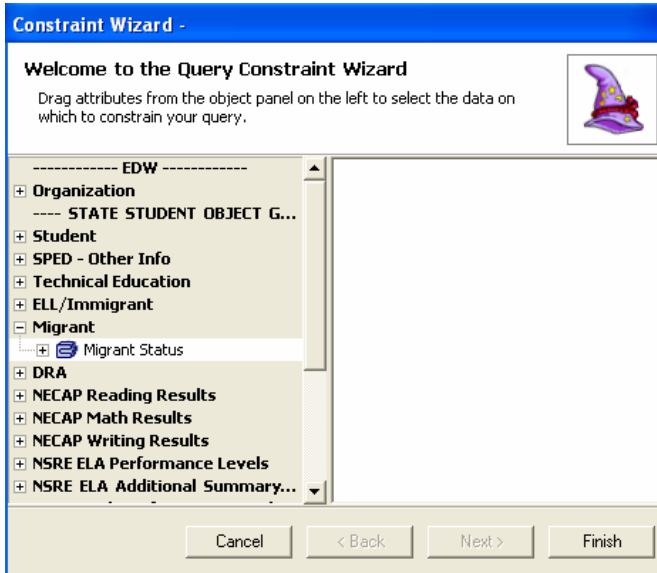
- 1) Select a measure of Count of Student.
- 2) Select 2005-2006 for the time period.
- 3) Drag and drop Organization – County – *WASHINGTON* on the Rows
- 4) Drag and drop NECAP Math Results Achievement Level to the Rows.
- 5) Drag and drop NECAP Reading Results Achievement Level to the Columns.
- 6) Run the query.

		NECAP Reading Results.Achievement Level		
		Substantially Below Proficient	Partially Proficient	Proficient
Organization.County	NECAP Math Results.Achievement...			
WASHINGTON	Substantially Below Proficient	211	198	80
	Partially Proficient	89	287	277
	Proficient	26	291	1,222
	Proficient with Distinction	*****	13	422
	No Achievement Level	12	*****	*****

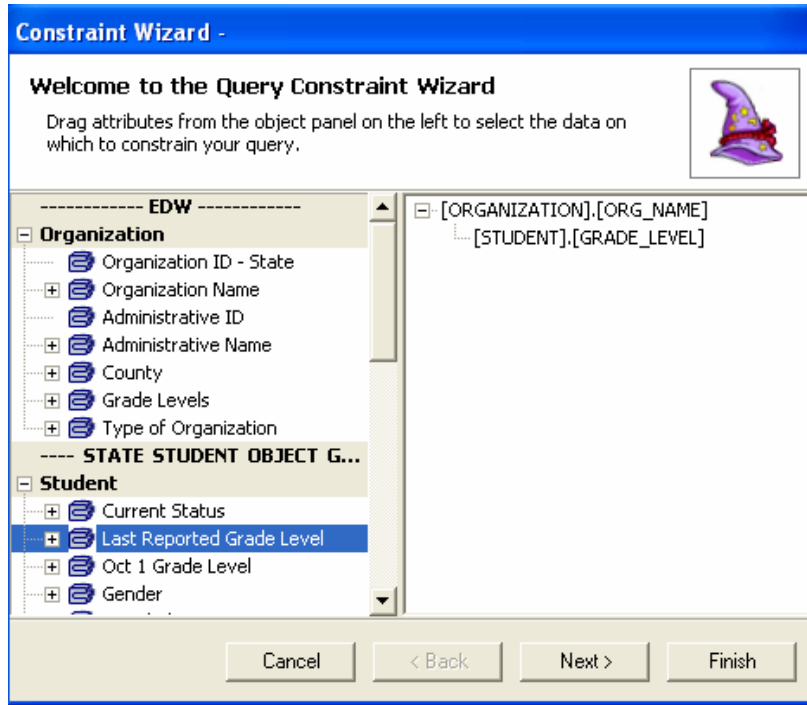
7) To apply multiple filters at one time, click the Constraints icon and click Wizard.



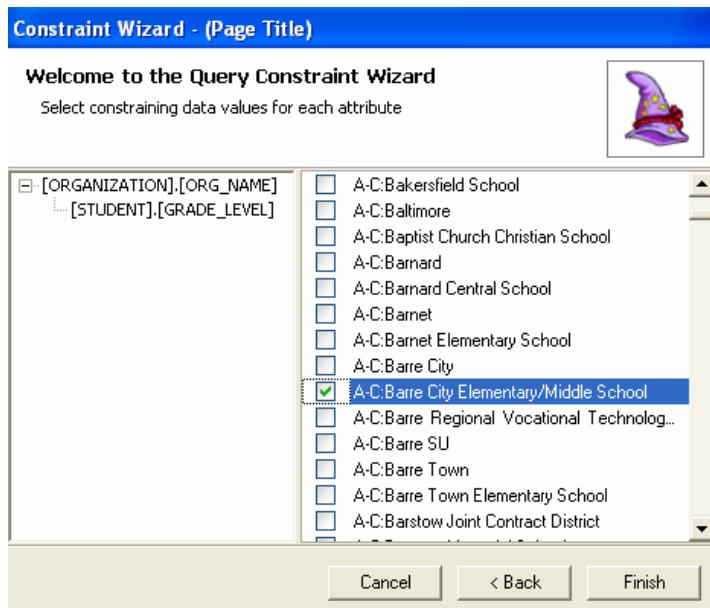
8) From the Constraint Wizard window, the query can be filtered to show only 7th and 8th grades at Barre City Elementary/Middle School.



- 9) Open the Organization object, highlight Organization Name and drag it into the window at the right.
- 10) Open the Student object, highlight Last Report Grade Level and drag it into the right-hand window also. The order of the filters will determine how the query processes. When applying multiple filters, it is best to move down from the most organized to the least organized.

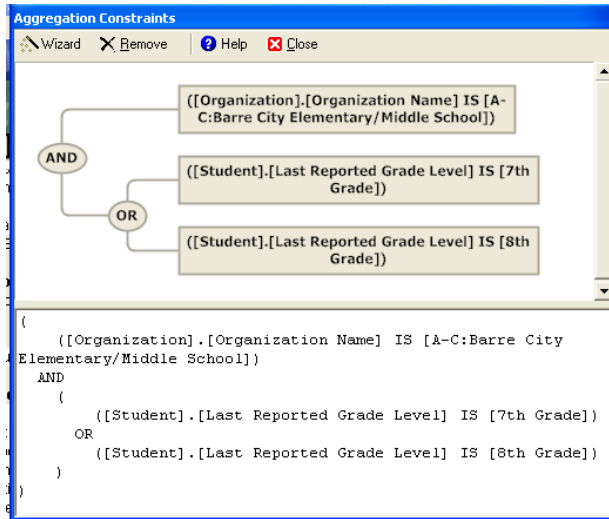


- 11) Click Next. The following window allows you to pick the school by highlighting [Organization].[Organization Name] on the left and then selecting from the values on the right.
- 12) After selecting the desired school, on the left, highlight [Student].[Grade Level], then click the appropriate value on the right.



8

- 13) After selecting all of the Constraints, click Finish. The Constraints display in the Constraints window.

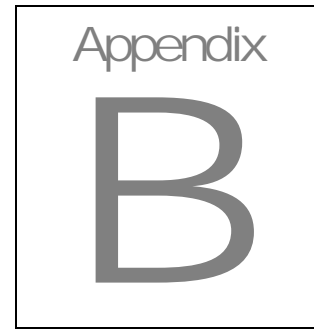


14) Close the Constraints window and run the query. Note that even though this query is constrained by a specific school and grade, you cannot tell this by the query itself. You must view the Summary area or return to the Constraints window to view the actual constraints.

Rows: Organization.County; NECAP Math Results.Achievement Level;
Columns: NECAP Reading Results.Achievement Level;
Background: 2005-2006; Count of STUDENT [Linked]; Results;
Constraint: ((([Organization].[Organization Name] IS [A-C:Barre City Elementary/Middle School]) AND ((([Student].[Last Reported Grade Level] IS [7th Grade]) OR ([Student].[Last Reported Grade Level] IS [8th Grade]))))

		NECAP Reading Results.Achievement Level				
		Substantially Below Pro...	Partially Proficient	Proficient	Proficient with Distinction	No Achievement Level
Organization.County	NECAP Math Results.Achie...					
WASHINGTON	Substantially Below P...	26	24	*****		
	Partially Proficient	*****	16	23	*****	
	Proficient		*****	47	*****	
	Proficient with Distinc...			*****	*****	
	No Achievement Level	*****				16

Note: Hierarchy Constraints can be used on the List tab as well.



Custom Formulas

Objectives

When you complete this chapter, you will be able to:

- Apply custom formulas to your query results.

Overview

Oftentimes you may need to perform calculations on your data results that aren't possible with the available measures. With VT EDW, you can add custom formulas to any query. The custom formulas available in VT EDW are similar to those available in Excel formulas or simple sql statements. Knowledge of these two areas isn't necessary however, as sample formulas and formula variables and structure are provided for reference.

Using Custom Formulas

A common educator request is to look at the percentage a certain group comprises compared to the entire student population. For example, I may want to see what percentage of my total student population is classified as Special Education. Many schools track Special Education information outside of the regular student information system. Because of this setup, all of the student population is rarely accounted for when looking at Special Education data; therefore, it sometimes seems impossible to look at how the percentage of students listed as Special Ed compares to the district population as a whole. With custom formulas, this information can be calculated within the VT EDW program.

Scenario: There is an Object in my warehouse called SPED Flag YES that tracks data about my special education student population. Because this information is tracked by the Special Ed coordinator in a different system from the remainder of our student data, only information for those students who are classified as Special Ed are included. I need to see the percentage of students out of the total school population who are in this program for the 2004-2005 school year.

- 1) Select a Count of Students as the Measure.
- 2) Select 2004-2005 as the Time Period.
- 3) Drag and drop Organization – County – *your County* into the Rows
- 4) Run the Query. This simple student count will give us the total student population count which will be used later in our custom formula.

Rows: Organization.County;	
Columns:	
Background: Count [Linked]; 2004-2005; Results;	
Constraint:	
Organization.County	Empty
FRANKLIN	9,530

- 5) Drag and Drop the SPED Other Info, SPED Flag YES coordinate to the Rows.
- 6) Run the Query. View the results. We'll now add the custom formula.

Rows: Organization.County; SPED - Other Info.SPED Flag;	
Columns:	
Background: Count [Linked]; 2004-2005; Results;	
Constraint:	
Organization.County	SPED - Other Info.SPED Flag
FRANKLIN	SPED Yes
	1,409

- 7) Right-click within the results area and choose *Display / Edit Custom Formulas...* Once the Edit Custom Formulas window opens, click **Add**.

- 8) In the *Title* field, enter an appropriate title for the formula such as % of Total in Special Ed Programs .
- 9) In the Formula field, beside the Value text, enter the following: /9530. (Or the total for your County) This will divide the cell's value by the total student population figure.
- 10) In the Quick Format dropdown list, select Percentage. This will show the calculation as a percentage rather than as a decimal figure. Click Close and view the results.

Rows: Organization.County; SPED - Other Info.SPED Flag;		
Columns:		
Background: Count [Linked]; 2004-2005; % of Total in Special Ed Programs;		
Constraint:		
Empty		
Organization.County	SPED - Other Info.SPED Flag	
FRANKLIN	SPED Yes	14.78 %

If you wanted to display more information in the query such as the original number of special ed students and the value for the total student population as well, you could just add additional formulas to the query. If we start with our original query which displayed a count of the special ed students, we can add three separate formulas that will provide for a more detailed query.

- 1) To return to the original query, right-click in the results area and select the option that displays the title of the custom formula we added previously (*% of Total in Special Ed Programs*). This will delete the custom formula.
- 2) To apply multiple custom formulas, right-click in the results area and select *Display / Edit Custom Formulas...* After clicking **Add**, enter the following formulas.
- 3) For the first formula, enter Special Ed Population as the Title and select *Whole Number* from the *Quick Format* dropdown list. Click **Add**.

- 4) For the second formula, enter Total Student Population as the Title and enter 9530 (or the *Total for your County*) in the Formula box. Select *Whole Number* from the *Quick Format* dropdown list. Click **Add**.

- 5) For the third formula, enter % of Total in Special Ed Program as the Title and enter /16755 beside Value in the *Formula* box. Select *Percentage* from the *Quick Format* dropdown list.

- 6) After entering all of the formulas, click **Close** and view the results.

Rows: Organization.County; SPED - Other Info.SPED Flag;
Columns: Total Student Population, Special Ed Population, % of Total In Special Ed Program;
Background: Count [Linked]; 2004-2005;
Constraint:

		Results		
		Total Student Population	Special Ed Population	% of Total In Special E...
Organization.County	SPED - Other Info.SPED Flag			
FRANKLIN	SPED Yes	9,530	1,409	14.78 %



You could add the SPED Flag Yes member by adding it through the Constraints Wizard if you didn't want it to display as part of the query coordinates. The result is displayed below. Notice the constraint takes the place of the Row coordinate above.

Rows: Organization.County;
Columns: Total Student Population, Special Ed Population, % of Total In Special Ed Program;
Background: Count [Linked]; 2004-2005;
Constraint: ([SPED - Other Info].[SPED Flag] IS [SPED Yes])

		Results		
		Total Student Population	Special Ed Population	% of Total In Special E...
Organization.County				
FRANKLIN		9,530	1,409	14.78 %

Glossary of Terms

Age Norms

The distribution of test scores by age of the test takers. For example, a norms table may be provided for nine-year-olds who were administered a certain assessment. This age-norms table would present such information as the percentage of nine-year-olds who scored below a certain point on the test.

Aggregations

Combining the results of all groups that make up the sample or population. For example, an aggregate query that looks at student population would include district-wide counts, not broken down by building, ethnicity, etc.

Attributes

In the VT EDW, Attributes are different characteristics of Objects. That is, an Attribute is a descriptive or quantitative element of an Object that is itself made up of Members. For instance, the Object “Student” may have an Attribute “Gender,” the members of which are “male” and “female.”

Axis

Axis refers to how data is positioned in a query (i.e., rows, columns, or background).

Background

When data is chosen for display in the background, that member name will appear above the Columns heading of the table in the data viewing area.

Column

When data is chosen for display as a column, that data selection will appear in the Columns heading of the table in the data viewing area.

Constraint Expression

A Constraint Expression limits the results of a new query and adheres to a formal syntax: *[Object Name].[Attribute Name] | operator | value*. Constraint Expressions use the mathematical operators <, >, =, !=, <=, >=, +, -, *, /, % and the Boolean operators AND, OR and NOT.

For instance, to limit a query to Grades 3 and below, enter the constraint *[Students].[Grade Level] <= 3*. In this expression, *[Grade Level]* corresponds to the Attribute named 'Grade Level' that belongs to the Object group named *[Students]*. Equally valid would be *[Schools].[School Name] = 'Holly Elementary School'*. This expression limits the query to those schools where the school name equals 'Holly Elementary School'. A text string, such as Holly Elementary School, must be set off by single quotation marks.

Correlation Coefficient

A measure of the degree to which two values are linearly related. A number between -1 and 1, measuring the linear relationship between two variables:

A value of 1: a perfect linear relationship, with a positive slope between the two variables.

A value of -1: a perfect linear relationship, with a negative slope between the variables.

A value of 0: no linear relationship exists between the two variables.

Count

A measure that is the number of scores matching the dimensions and members selected. For example, a count of students in a school tells you how many students are in the school.

Data discovery

The process of understanding the dynamics of your organization by starting with highly aggregated information and moving into more detailed data. TetraData discovery options enable viewing higher and lower levels of organizational data.

Data mining

Techniques for finding patterns and trends in large data sets. The process of automatically extracting valid, useful, previously unknown, and ultimately comprehensible information from large databases.

Data warehouse

A database built to support information access. A data warehouse is typically fed from one or more transaction databases. The data needs to be cleaned and restructured to support queries, summaries, and analyses.

Diagnostic Test

A test used to "diagnose" or analyze. A diagnostic test works to locate an individual's specific areas of weakness or strength, to determine the nature of his or her weaknesses or deficiencies, and, if possible, to suggest their cause. Such a test yields measures of the components or subparts of some larger body of information or skill. Diagnostic achievement tests are most commonly prepared for the skill subjects.

Discrete

An option on the distribution measure that makes the resulting divisions discrete rather than continuous. For example, quartiles of 0-24, 25-49, 50-74, 75-100 are discrete, while divisions of 0-25, 25-50, 50-75, 75-100 are not.

Distribution

A *Distribution* of scores or other measures has a distinctive bell-shaped appearance when it is displayed on a graph. In a normal distribution, the measures are distributed symmetrically about the mean. Cases are concentrated near the mean and decrease in frequency, according to a precise mathematical equation, the farther one departs from the mean. The assumption that many mental and psychological characteristics are distributed normally has been very useful in test development work.

Eliminate

Eliminate is a data-discovery method that removes selected items from the current display of data.

Expand

Expand is a data-discovery method that enables viewing lower levels of a dimension's hierarchy. When you expand a collapsed item, all the items in the level immediately below it in the hierarchy appear in the current display of data.

Hierarchy

A set of data with pre-defined sub-sets that allows the user to drill-down to the student level.

HTML

HyperText Markup Language. The coding system used to create WWW pages. A page written in HTML is a text file that includes tags in angle brackets that control the fonts and type sizes, insertion of graphics, layout of tables and frames, paragraphing, calls to short runnable programs, and hypertext links to other pages. Files written in HTML generally use an .html or .htm extension.

Linear Regression

A regression is often depicted as a line drawn through the points on a scatter plot. This summarizes the relationship that exists between variables. A downward sloping line indicates a negative relationship. An upward sloping line indicates a positive relationship.

Mean

A value that is determined by dividing the sum of a set of terms by the number of terms (the average).

Measures

Measures, or Aggregations, are quantitative values. Some examples of measures are Grade, School, Gender, and Ethnicity. Measures are analyzed against Objects. For example, you can analyze the measure Mean Score against Grade or Gender.

Median

A value in an ordered set of values below and above which there is an equal number of values or which is the arithmetic mean of the two middle values if there is no one middle number.

Members

Members, also referred to as items, are the elements of an Attribute. Members appear in the Objects Panel when you select an Attribute.

Multidimensional analysis

Multidimensional analysis is a process of analyzing data that is organized according to the variables (such as Grade, Lunch Status, Time, and so forth) that decision makers find most useful in looking at their organizations.

Normal Curve Equivalent

Normalized standard scores with a mean of 50 and a standard deviation of 21.06. The standard deviation of 21.06 was chosen so that NCEs of 1 and 99 are equivalent to percentiles of 1 and 99. There are approximately 11 NCEs to each stanine.

Normal distribution

A distribution of scores or other measures that in graphic form has a distinctive bell-shaped appearance. In a normal distribution, the measures are distributed symmetrically about the mean. Cases are concentrated near the mean and decrease in frequency, according to a precise mathematical equation, the farther one departs from the mean. The assumption that many mental and psychological characteristics are distributed normally has been very useful in test development work.

Norm-referenced test

Any test in which the score acquires additional meaning by comparing it to the scores of people in an identified norm group. A test can be both norm- and criterion-referenced. Most standardized achievement tests are referred to as norm-referenced.

Norms

The distribution of test scores of some specified group called the norm group. For example, this may be a national sample of all fourth graders, a national sample of all fourth-grade males, or perhaps all fourth graders in some local district.

Objects

Objects describe attributes (categories) of a measure. For example, objects of a Mean Score measure might include Gender, Grade, Course, and School. Attributes of a dimension are called members or items.

ODBC

Open database connectivity is a Microsoft standard, now adopted by most database programs, that allows a database, spreadsheet and other programs to link to ODBC compliant databases. It then allows for the importing/exporting of data.

Percentile

A point on the norms distribution below which a certain percentage of the scores fall. For example, if 70% of the scores fall below a raw score of 56, then the score of 56 is at the 70th percentile. The term “local percentile” indicates that the norm group is obtained locally. The term “national percentile” indicates that the norm group represents a national group.

Quartiles

One of three points that divided the scores in a distribution into four groups of equal size. The first quartile, or 25th percentile, separates the lowest fourth of the group; the middle quartile, the 50th percentile or median, divides the second fourth of the cases from the third; and the third quartile, the 75th percentile, separates the top quarter.

Query

Queries are requests for data about measures and attributes that you select. The results of your queries are displayed on the screen.

Raw score

A person’s observed score on a test. While raw scores do have some usefulness, they should not be used to make comparisons between performances on different tests, unless other information about the characteristics of the tests is known.

Row

Represents one occurrence of an entity (record). When data is chosen for display as a row, that data selection will appear in the row heading of the table in the data viewing area.

Scaled score

A mathematical transformation of a raw score. Scaled scores are useful when comparing test results over time. Most standardized achievement test batteries provide scaled scores for such purposes. Several different methods of scaling exist, but each is intended to provide a continuous score scale across the different forms and levels of a test series.

SQL

Structured Query Language is the standard database language used by database programs. In most database programs, actions one takes to add and retrieve data are converted behind the scenes to SQL commands to communicate your requests between and among database tables.

Standard deviation

A number that indicates the amount of variation across all test scores and is calculated for each test.

Stanines

Expressed as a nine-point normalized standard score scale with a mean of 5 and a standard deviation of 2. Only the integers 1 to 9 occur. The percentage of scores at each stanine is 4, 7, 12, 17, 20, 17, 12, 7, and 4, respectively. While stanines are popular, they are actually less informative than, say, percentiles. For example, for three students with percentiles of 39, 41, and 59, the first would receive a stanine of 4, and the next two stanines of 5. We would thus be misled into inferring that the latter two students were the same, and different from the first with respect to the characteristic measured, when in reality the first two individuals are essentially the same, and different from the third.

Table

A data structure for relational databases, comprised of rows and columns, like a spreadsheet. The Table is displayed in the data viewing area.

Threshold

A *Threshold* is a value used to divide the results of a query into two groups - one group whose test scores are less than the threshold value and one group whose test scores are greater than or equal to the threshold value.

Variance

The square of the standard deviation.



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