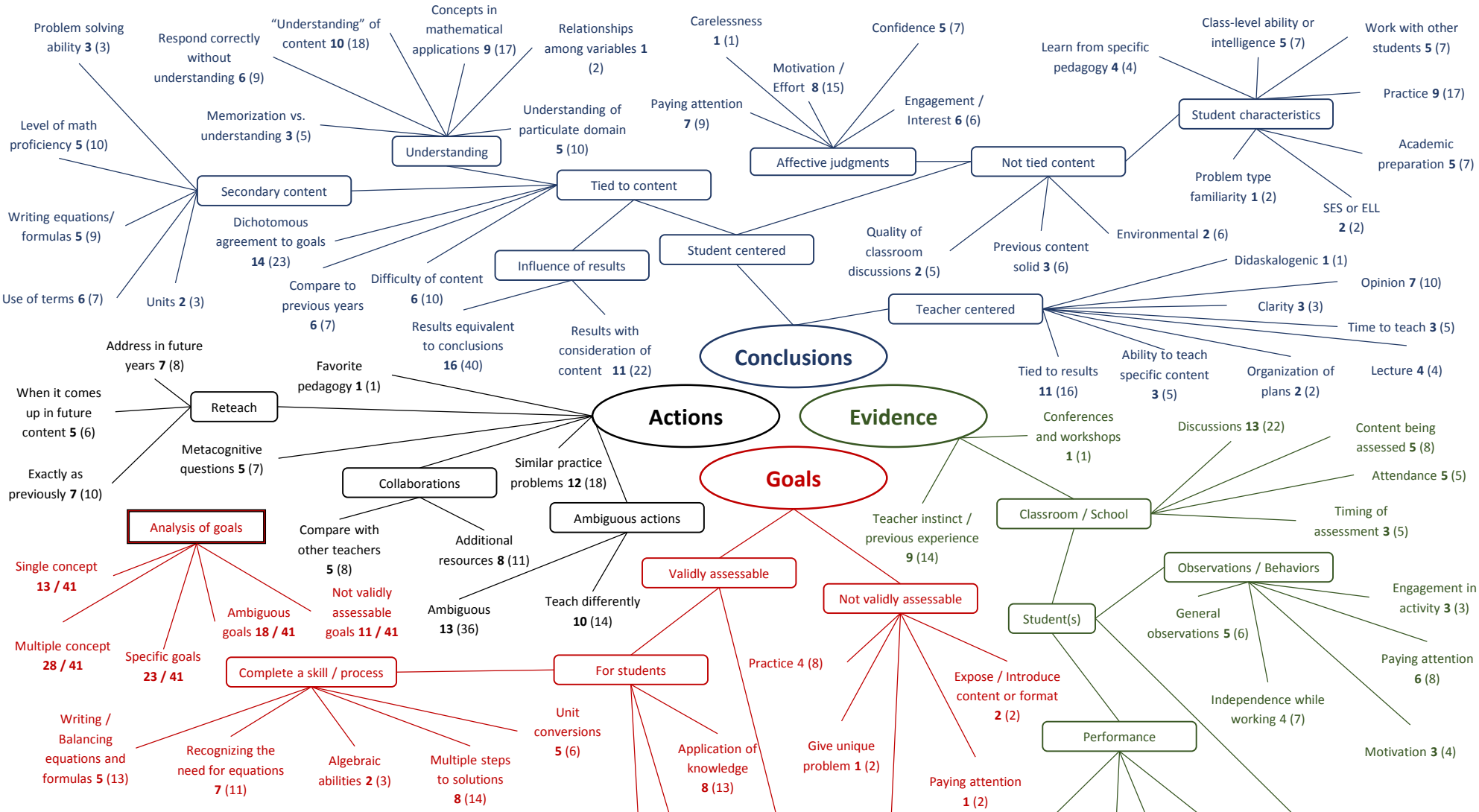
Coding Organization Chart



Interpreting the Chart

This graphic shows the coding scheme for the research project. The four main steps of data driven inquiry are shown in the center with organized groupings coming off of each branch. Each individual code (text with no boxes around it) ends with the frequency of that code. The bolded number refers to how many of the teachers (19 total) exhibited that code; the number in parentheses indicates how many times that code was exhibited throughout all transcripts.

Example interpretation of "Motivation / Effort **8** (15)" in "Conclusions" theme
Following "Conclusions" to "Student centered" to "Not tied to content" to "Affective judgments" links to five different types of affective judgments teachers made that weren't directly tied to the content they were assessing (as described by their goals). Further, eight different teachers made some sort of judgment about the motivation and/or effort that their students put into an assessment or assessment item. Some must have made this type of judgment at least twice because this code appeared a total of fifteen times.

Code	S	R	Description
Conclusions			
Student centered			
Tied to content			
Compare previous to previous years	**6**	7	In making an action or conclusion, the teacher may compare the results from a previous year to the current year.
Dichotomous agreement to goals	**14**	23	The answer must be SOLELY yes/no and say nothing about actual understanding of chemistry.
Difficulty of content	**6**	10	Usually in this context, conclusions about the difficulty are made because of developmental level alluded to by the age of the students.
Influence of results			
Results equivalent to conclusions	**16**	40	Criteria: 1) No chemistry content is mentioned. 2) Some class-level criteria is mentioned. 3) Goals have to be centered on chemistry content.
Results with consideration of content	**11**	22	This is when teachers state a conclusion as a result (i.e. "90% students got it correct"), but also include something, anything about the content being assessed.
Secondary content			
Level of math proficiency	**5**	10	Teachers will conclude about their students' mathematical abilities if math is required for the problem at hand.
Problem solving ability	**3**	3	Any conclusions made about the students' ability to solve problems.
Use of terms	**6**	7	Using the terms in chemistry correctly or general communication issues as conclusions.
Units	**2**	3	When a teacher will make a conclusion about units, but that is removed from the central idea of the assessment.
Writing equations / formulas	**5**	9	When a teacher will make a conclusion about writing equations / balancing formulas, but that is removed from the central idea of the assessment.
Understanding			
Concepts in mathematical application	**9**	17	Any conclusion made about the students' ability to understand the concepts when they are completing a mathematical problem.
Memorization vs. understanding	**3**	5	Any conclusions that are made about memorizing content versus learning and understanding concepts.
Respond correctly without understanding	**7**	10	These conclusions are for students that can get the problem correct (partially or entirely) and still not understand the concepts behind the problem.
"Understanding" of content	**10**	18	Teachers that conclude that their students generally understand the content, but it's most likely uncertain as to what that means.
Understanding of particulate domain	**5**	10	Any conclusions made about students' ability to understand the particular domain of chemistry.
Not tied to content			
Environmental	**2**	6	Conclusions about school, classroom, or administrative environment.
Previous content solid	**3**	6	Conclusions about the ability of students to recall skills and knowledge that they've already covered in class.
Quality of classroom discussion	**2**	5	Any conclusions pertaining to classroom discussion
Student characteristics			
Academic preparation	**5**	7	Teachers will mention that students have had or have not had previous classes that help them prepare for the current content
Class-level ability or intelligence	**5**	7	This code is specifically for the whole class' ability or perceived intelligence.
Learn from specific pedagogy	**4**	4	Conclusions about student ability or likelihood to learn from a specific pedagogical strategy.
Practice	**9**	17	Conclusions about the effect of practicing inside or outside of classroom on the performance on the assessment.
Problem type familiarity	**1**	2	When a teacher concludes that students do not have the appropriate exposure to a certain type of problem.
SES or ELL	**2**	2	Conclusions about the effect of socio-cultural demographics on performance on the assessment.
Work with other students	**5**	7	Conclusions about the students' ability to work in groups or pairs in completing an activity.
Affective judgments			
Carelessness	**1**	1	Anytime that a teacher makes a conclusion about the carelessness of a student or group of students.
Confidence	**5**	7	Any conclusions made about students' confidence.
Engagement / Interest	**6**	6	A conclusion about the engagement or interest level of the students.
Motivation / Effort	**8**	15	A teacher will make conclusions about students' motivation or effort put in on a particular assessment.
Paying attention	**7**	9	When the teacher concludes about the level of attention their students are giving.
Teacher centered			
Ability to teach specific content	**3**	5	Conclusion about their own ability to teach a specific content.
Clarity	**3**	3	Conclusions that teachers will make about their clarity in instructions or teaching.
Didaskalogenic	**1**	1	Conclusions that a teacher is causing misconceptions in their students.
Lecture	**4**	4	Any conclusions made about lecturing and the impact of such style of teaching.
Opinion	**7**	10	When a teacher concludes in a manner that is similar to "I like this activity" or "I think this was a good activity."
Organization of plans	**2**	2	Any conclusions made about the organization and "well-put-togetherness" of the unit.
Tied to results	**11**	16	These show a direct dependency on the student results. As an example, if a teacher says that s/he knows that if scores are low, a different approach is required.
Time to teach	**3**	5	All conclusions regarding how much content teachers have to get through in a limited about of time.
Evidence			
Teacher instinct / previous experience	**9**	14	If a teacher uses phrases like "I just know that from my experience" or "my gut feeling is that..." to make conclusions and actions.
Conferences and workshops	**1**	1	Professional development experiences that teachers cite as their source for a conclusion.
Classroom / School			
Content being assessed	**5**	8	Teachers may realize that they're throwing a lot of content at their students and take this into consideration for the conclusions and actions that they make.
Discussions	**13**	22	Teachers will refer to classroom discussions or whiteboarding time in making or justifying their conclusions or actions. This also includes a general "work time."
Timing of assessment	**3**	5	The time at which the assessment is given can impact conclusions and results, especially half days, breaks, absences, etc.
Attendance	**5**	5	Using the attendance record of a student or group of students to make conclusions or actions.

Code	S	R	Description
Student(s)			
Academic background			
English comprehension	**3**	4	Teachers will occasionally use a students' ESL status or language challenges in their conclusions or actions.
Previous coursework	**7**	8	When a teacher uses evidence that is based on students' previous courses that they have or have not taken.
Problem type familiarity	**5**	8	When a teacher uses evidence that the students are or are not very familiar with a certain type of problem to make a conclusion.
Observations / Behaviors			
Engagement in activity	**3**	3	When teachers use the level of engagement their students have in an activity.
General observations	**5**	6	Teachers general observations such as reading peoples' faces or making a qualitative judgment.
Independence while working	**4**	7	The teacher will say that a student's level of independence should be considered when making conclusions or justifying performance.
Motivation	**3**	4	The specific classroom observation of motivation and fatigue on assessment.
Paying attention	**6**	8	When a teacher uses the level of attention that people are paying in order to make a conclusion.
Performance			
Performance on future assessment(s)	**13**	20	Teachers that use performance on future assessments to justify conclusions made in the current assessment.
Performance on previous assessment(s)	**5**	6	Teachers that use previous similar assessment data to verify conclusions made in the current assessment.
Practice	**10**	16	Teachers will use the amount of time spent or the quality of the practice that they received in order to make their conclusions.
Previous students' performance	**9**	12	The use of an individual's or previous class' overall course performance by a teacher to make conclusions or actions.
Goals			
Non-assessable			
Expose / Introduce content or format	**2**	2	If a teacher wants to expose students to a particular format or introduce to new content.
Give unique problem	**1**	2	When a teacher wants to assign a problem because it is unique.
Paying attention	**1**	2	When a teacher assigns something to see whether or not the students were paying attention.
Practice	**4**	8	This refers to the goal of having their students practice.
Who is doing the homework	**1**	1	When the goal of a teacher is to see who is and who is not doing the homework.
For others			
External factors	**3**	4	Goals of assessment are due to lack of time, administrative pressures, test preparation, or standards.
Instructional			
General quality of teaching	**9**	14	If a teacher says that they will give an assessment to see "what they can improve" or "what they need to do next," etc.
Move forwards / backwards	**9**	12	This code applies to teachers who say that they use the assessments to know whether to move forward or backward with the content.
For students			
Application of knowledge	**8**	13	Teachers will say that they're goal is for students to apply their knowledge to a new scenario, although "apply" could mean a range of things.
Explicitly dichotomous	**8**	11	If a teacher uses "whether or not," "to see if they can or can't do it," as opposed to "to what degree" of understanding, learning, knowledge, or like terms.
Knowledge of fact or equation	**10**	25	When a teacher seeks to gauge students knowledge about something as opposed to understanding. Linguistic.
Complete a skill / process			
Algebraic abilities	**2**	3	When the teacher specifically mentions student's algebraic capabilities as their goal for the assessment.
Multiple steps to solutions	**8**	14	Teachers will list the goal of their item or assessment as they want to see how well students can solve multiple-step problems, not necessarily considering accuracy of algebra.
Recognizing the need for equations	**7**	11	If the teacher says that their goal includes either recognizes the need for or remembering a specific equation.
Unit conversion	**5**	6	When a teacher will set a goal related to unit conversions in the context of another concept. If the assessment is about unit conversions, it doesn't get coded here.
Writing / Balancing equations and formulas	**5**	13	When the teacher lists either writing or balancing equations of chemical formulas as one of their goals.
Analysis of goals			
Assess multiple concepts	**28**	-	Number of assessment items that assess multiple concepts as determined by experts (out of 43 total items, separate study).
Assess single concept	**13**	-	Number of assessment items that assess single concept as determined by experts (out of 43 total items, separate study).
Specific goals	**23**	-	Number of assessment items that assess specific goals as determined by experts (out of 43 total items, separate study).
Ambiguous goals	**18**	-	Number of assessment items that assess ambiguous goals as determined by experts (out of 43 total items, separate study).
Not validly assessable goals	**11**	-	Number of assessment items where set goals are not validly assessable as determined by experts (out of 43 total items, separate study).
Actions			
Favorite pedagogy	**1**	1	When a teacher wishes to teach or reteach according to their favorite or the strategy they perceive to be the most effective as the reason for their action.
Metacognitive questions	**5**	7	When the teacher asks their students why they think they got the problem incorrect or where they need help. Teachers ask students to think about where they went wrong.
Similar practice problems	**12**	18	Teachers will identify a common error and as a result will want to give additional practice on that type of problem or a similar skill.
Ambiguous actions			
Ambiguous	**13**	36	Times that a teacher says that they will "reteach" or "recover" or "clarify," but do not specify how.
Teach differently	**10**	14	Anytime a teacher would say that s/he is going to teach the students in a different manner than before.
Collaborations			
Compare with other teachers	**5**	8	When the teachers use collaborations with other teachers to compare performances on similar or same assessments.
Additional resources	**8**	11	When teachers use other teachers or resources (chat groups, websites, list servs, books, etc.) for gaining ideas for how to teach a particular content.
Reteach			
Address in future years	**7**	8	Teachers identify common errors, but decide that it is not worth it or they don't have the time to go and address for the current group of students.
Exactly as previously	**7**	10	When a teacher reteaches the content in the exact similar manner as was originally taught. Exact here refers to the pedagogy strategy used.
When it comes up in future content	**5**	6	When a teacher will address shortcomings of the current content in future material.