From the Field: Practical Applications of Research

The Practical Use of Qualitative Research Software in the Analysis of Teacher Observation Documents in the School Improvement Process

- by Rory J. Manning, Ed.D.

Background Information

It is well documented that classroom observation reports are used by school leaders as just one piece of the clinical supervision process of teachers (Cohen and Goldhaber, 2016). While the frequency of classroom observations might vary between school districts, recent regulations on Annual Professional Performance Review (APPR) have added more consistency to this process in New York State (USDOE, 2014). The challenge for school leaders has been to gain actionable data from observation reports in the school improvement process. Until recently, observation documents were filed as they occurred providing difficulty for school leaders to make connections between observations of individual teachers. Likewise, school district leaders were unable to elicit trends across classrooms without intentional, time consuming review of observation documents. The increasingly ubiquitous use of computer based software in the classroom observation process presents an opportunity for this analysis (Goldring et al., 2015). While most programs allow for quantitative analysis of observation scores and individual component ratings, none provide for the qualitative analysis of evidence collected by school administrators in the observation process. This paper attempts to initiate a process by which data from classroom observation reports can be systematically and efficiently analyzed through the use of available qualitative research software.

QSR International's NVivo® (NVivo) software program is a well-recognized tool that is widely used by qualitative researchers around the globe (QSR International, 2018). Unstructured qualitative data inputs are systematically organized by the researcher within the software to provide opportunities for analysis and to develop connections between data that provide deep insights only possible through qualitative methods. This paper will explore the use of NVivo in the qualitative analysis of evidence collected by school administrators in the classroom observation process and the practical applications of such data analysis in the school improvement process.

Recent Evolution of Teacher Evaluation

The implications of APPR legislation of 2010 were felt across the State. For the first time, the performance of students was to have a direct impact on evaluation ratings of classroom teachers and principals. A lesser publicized aspect of the legislation was the standardization of the classroom observation process across NY State public schools. School districts had to develop and submit their APPR plans which included a minimum number of classroom observations per teacher and a rubric chosen from a very small list of approved rubrics to use in the teacher evaluation process. Each rubric consisted of components of effective teaching that were to be measured in the classroom observation process. Training for school districts on the use of the approved rubrics was provided by the state and local BOCES and was very prescriptive. As is standard practice in the use of rubrics, evidence was to be collected during the classroom visitation that was to be subsequently aligned with one or more components of the rubric. The administrator would then rate the evidence for each component on a HEDI scale (Highly Effective, Effective, Developing, Ineffective). The ratings for each component would be calculated to obtain an overall rating for that observation report. This score would serve as one part of the overall annual evaluation rating for the teacher. An additional component of the legislation required districts to provide annual training for their lead evaluators to ensure interrater reliability. This training would promote consistency across observers within buildings, districts, and, theoretically, across the state.

Data, Data, Everywhere, All Filed in a Drawer

While the APPR process became more standardized across districts as a result of the new legislation, it also resulted in an increase in the number of classroom observations for some districts. This created both a burden and an opportunity. The burden of completing multiple observations on all teachers in districts with limited personnel resources created a focus on compliance with the largely unfunded mandate (LHCSS, 2013). At the same time, an opportunity formed in that there was now more

data available to use in the school improvement process. As stated previously, evidence being collected and sorted within components of a standardized rubric presents a rich collection of data that could provide powerful insights into instructional practices by classroom, building, department, and across the school district.

In order to more efficiently complete the numerous classroom observations, many school districts turned to computer based solutions (Goldring et al., 2015). These platforms allow school administrators to efficiently collect evidence during a classroom visit and then align the evidence into the components of the rubric. After the observation process is reviewed and finalized, a score is generated and the report is filed. This report and the valuable data it holds may never be seen again. Thus, the question of this research comes to light. How can computer software be used in the qualitative study and analysis of available evidence of classroom instruction in the school improvement process? Essentially, how do we get the information out of the drawer and transform it into actionable data points for use in the change process?

Figure 1. Domains 2 and 3 of the Danielson Framework for Teaching

Domain 2: Classroom Environment	
Component 2a:	Creating an Environment of Respect and Rapport
Component 2b:	Establishing a Culture for Learning
Component 2c:	Managing Classroom Procedures
Component 2d:	Managing Student Behavior
Component 2e:	Organizing Physical Space
Domain 3: Instruction	
Component 3a:	Communicating with Students
Component 3b:	Using Questioning and Discussion Techniques
Component 3c:	Engaging Students in Learning
Component 3d:	Using Assessment in Instruction
Component 3e:	Demonstrating Flexibility and Responsiveness

Setting

The data presented here are from a low-need school district (District) located within a suburban setting of New York State from the months of September through February of the 2017-2018 school year. The District is comprised of approximately 3,100 students and 183 teaching faculty in four buildings; a primary school, elementary school, middle school, and high school. During that time there were 332 classroom observations conducted by 15 lead evaluators. The District employs the use of the Danielson Framework for Teaching in the classroom observation and teacher evaluation process. The components of the Danielson Framework for Domains 2 and 3 used in this study are provided in **Figure 1.**

Methodology

For this paper, a content analysis will be discussed as a means of demonstrating the application of NVivo qualitative research software in the analysis of classroom observation data. Various qualitative methodologies could be employed depending on the infinite possibilities of desired outcomes and organizational needs. Here, we will explore an issue most widely known to school districts in annual training for inter-rater reliability. One critical aspect of inter-rater reliability that is not studied is the proper alignment of the evidence within the rubric. This requires qualitative analysis of both the Danielson Framework and the text evidence. In the analysis of the Danielson Framework, the researcher developed a list of key terms from each component of Domains 2 and 3 to be used in this study. These key terms were developed from a review of the performance indicators of each element described by Charlotte Danielson. The key terms are provided in **Figure 2.**

Evidence data from the components of Domains 2 and 3 of the Danielson Framework were then extracted from the computer-based evaluation system employed by the District. This dataset was then imported into NVivo. Case classifications of "department", "building", and "administrator" were applied to further organize the data. Auto-coding was used to code the evidence in the various components (2a, 2b, etc.) of each Domain. The researcher then coded for the presence of each of the key terms indicated in **Figure 2** and employed a matrix query to develop the adapted output shown in **Table 1**. The numbers within the table indicate the frequency each term was coded within each component. To be clear, the numbers themselves do not indicate "right" or "wrong" in the alignment process, rather it is the text behind the numbers that tells the story in the analysis. The power of NVivo in this process is that the software automatically hyperlinks all cells within the matrix directly to the text evidence. This allows for the exploration of the text data necessary in true qualitative analysis. Through proper qualitative analysis, the data organized in this way can provide school leaders with powerful insight into the observation practices of school administrators as well as insight into instructional practices. Since the case classifications of "department", "building", and "administrator" were applied, the data can be further disaggregated. For the purpose of this study, we will explore these items at the District level.

Analysis

The matrix shown in **Table 1** provides a visual representation of the use of key terms by school administrators in each component of the rubric. As stated previously, the mere presence of a key term in a specific component does not indicate "right" or "wrong" practice. The sole purpose of this analysis should be the intentional use of the data to drive conversations for the purpose of school improvement. The single outcome district leaders should have from these

Figure 2. Danielson Framework for Teaching Key-Word List for Observation Analysis	
Domain 2: Classroom Environment	**Domain 3: Instruction**
2a: Creating an Environment of Respect and Rapport Interactions Respect Disrespect	3a: Communicating with Students Communicate Directions Procedures Strategies Interests
2b: Establishing a Culture for Learning Expectations Participation Persistence Commitment Demonstrate Effort Understanding	3b: Using Questioning and Discussion Techniques Thinking Questions Discussion Respond Justify Open-ended Wait time
2c: Managing Classroom Procedures Management Groups Transition Materials Supplies Routines Seamless Efficient	3c: Engaging Students in Learning Learning Tasks Instructional Outcome Engaged Intellectual Reflect Improve
2d: Managing Student Behavior Behavior Appropriate Conduct Misbehavior	3d: Using Assessment in Instruction Assess Assessment Feedback Monitor Circulate Criteria
2e: Organizing Physical Space Safe Furniture Arrangement Arranged Technology	3e: Demonstrating Flexibility and Responsiveness Teachable Moment Adjust Confusion

discussions is the purposeful documentation of instructional practices aligned with building and district instructional goals.

The qualitative method used here is designed to reduce the massive amount of data (332 observation reports each with evidence across 10 components) into a more manageable set of data for analysis. This data reduction process is standard across all qualitative methodological approaches. The visual representation of the data shown in **Table 1** was modified by the researcher to allow the reader to visualize the patterns, themes, and discrepancies to be used in the analysis. A quick review of the data reveal that, with few exceptions, the key terms align well with their assigned components. From here, school leaders are able to use NVivo to explore the text behind the numbers. The potential for deep insights into administrative and instructional practice are limitless. For the purpose of demonstration, we will explore one component in this study as an example of how district leaders may use qualitative analysis to explore how instructional practices are being documented by administrators. Within component 3c (Engaging Students in Learning), the key term, Learning Task, is identified. The documentation of the learning task by in the classroom observation process and subsequent analysis in the process being described here can be instrumental in evaluating the progress of instructional goals. It should be stated that it is not sufficient to expect that this will occur without proper training and coordination of administrative observation practices.

Once properly coded in NVivo, text from the evidence collected in classroom observation reports can be extracted for analysis. In this particular example, text coded as "Learning Task" was extracted. Seven prototypical quotes from some of the 60 items coded at "Learning Task" are provided in **Figure 3**. It is important to note that some of the text has been modified for context and anonymity.

Figure 3. Prototypical Quotes from Text Coded as "Learning Task"

Prototypical Quote #1: High School English Class, Component 2d

"Students remained engaged in the learning tasks throughout the period. Ongoing collaboration within the group allowed for constant discussion. Ms. Teacher consistently circulated the room to ensure students continued with the task at hand. In addition, Ms. Teacher both posed questions and gave feedback as she circulated the room, enhancing discussion and alleviating some off task behavior."

Prototypical Quote #2: Middle School English Class, Component 3c

"Students were required, as a group, to select the posted phrase that stands out the most and explain why. Students were observed selecting their phrase, debating, and completing their task. The pace of the lesson was well established. Mrs. Teacher kept time of the lesson and kept students on task and apprised of their time limits. Students shared their group decisions. Students listened to an audio reading of part of the short story and were required to highlight as appropriate. Mrs. Teacher stopped the reading to have students identify literary elements as they appeared in

Table 1: *Frequency of Identified Key Terms in the Components of the Danielson Framework*

Component	Keywords	2a	2b	2c	2d	2e	3a	3b	3c	3d	3e
Comp 2A	Disrespect	2	0	0	1	0	0	0	0	0	0
	Interaction	32	8	10	5	4	11	10	7	7	0
	Respect	40	6	3	18	0	2	2	4	0	2
Component 2B	Expectations	2	33	13	11	1	16	3	7	3	1
	Participation	15	17	6	6	4	2	7	14	11	0
	Persistence	0	2	0	1	0	0	0	0	0	1
	Commitment	0	2	0	1	0	0	0	0	0	1
	Demonstrate	19	32	11	3	6	16	10	19	10	7
	Effort	20	13	1	7	0	1	3	4	3	0
	Understanding	7	11	3	6	0	12	10	9	17	7
Component 2C	Efficient	0	0	7	0	4	0	0	1	0	0
	Group	4	6	7	2	3	4	5	6	6	3
	Management	2	1	10	5	0	1	0	8	1	5
	Materials	0	7	31	2	18	4	3	9	1	1
	Routines	0	8	78	2	2	2	1	2	0	1
	Seamless	1	3	34	1	4	4	0	3	1	0
	Supplies	0	1	6	0	5	3	4	2	0	0
	Transition	0	3	47	5	9	10	0	6	1	1
Component 2D	Appropriate	7	2	15	26	5	4	5	25	4	2
	Behavior	12	7	3	45	2	4	4	3	2	1
	Conduct	0	5	6	4	1	3	0	2	0	1
	Misbehavior	0	0	0	11	0	0	0	0	0	0
Component 2E	Arranged	2	0	5	1	36	3	0	2	2	0
	Furniture	0	0	0	0	8	0	0	0	0	0
	Safe	2	0	4	1	33	0	1	1	0	0
	Technology	0	4	3	1	10	4	0	10	1	2
Component 3A	Communicate	12	23	2	2	6	47	12	8	2	5
	Direction	2	8	20	6	6	30	2	3	4	1
	Interests	14	12	3	2	2	11	15	23	5	33
	Procedure	3	11	85	3	14	32	7	8	5	3
	Strategies	9	10	9	4	1	20	14	14	10	9
Component 3B	Thinking	2	6	2	1	1	8	20	12	7	4
	Discussion	6	5	4	2	4	8	19	12	4	2
	Justify	0	0	0	0	0	1	2	2	1	1
	Open ended	0	2	2	2	2	6	20	4	3	0
	Questions	4	7	4	6	1	10	11	10	3	2
	Respond	11	9	5	9	2	10	19	9	7	8
	Wait Time	0	0	1	0	0	1	8	3	0	0
Component 3C	Learning task	4	6	5	6	5	3	2	25	2	2
	Improve	2	6	0	0	0	4	5	7	1	2
	Instructional Outcome	0	0	0	0	0	0	0	1	0	0
	Intellectual	3	0	0	0	0	0	0	2	0	0
	Engaged	4	9	5	6	2	5	13	25	1	5
	Reflect	4	12	3	2	1	4	4	35	9	3
Component 3D	Assess	1	1	2	0	2	2	7	10	48	1
	Assessment	2	2	0	0	0	1	0	19	39	0
	Circulate	1	2	2	4	7	2	1	1	2	0
	Feedback	14	12	3	3	0	13	7	9	47	8
	Monitor	2	1	9	20	3	1	0	1	11	8
Comp 3E	Adjust	0	2	1	2	8	3	1	4	5	18
	Confusion	3	3	1	0	0	5	2	2	1	2
	Teachable Moment	0	0	0	0	0	0	1	1	0	4

the story. Instructional materials and instructional activities strongly supported the learning task. Mrs. Teacher's strong understanding of the use of instructional technology was evident throughout the lesson. On the Chromecart, Mrs. Teacher displayed some expectations for annotating. The slides provided for students were appropriate and important to class discussion. Teacher: "The slide displayed is a crest. Draw a circle around something you see and explain what it means to you." Not only does this engage students, but it also requires them to synthesize what they have read and make an inference. Teacher: "Here Poe uses a lot of imagery to help you see what he is talking about. Go ahead and draw what he is talking about. All of your clues are in that paragraph. Remember, you can insert images." Students drew images of what they saw in their head. Following that, Mrs. Teacher showed students an actual clip of the catacombs Poe was talking about. Closure was provided."

Prototypical Quote #3: Primary School, Component 3e

"Learning tasks were differentiated based on student ability levels. It was clear that the topics were formulated with student ability and motivation in mind. The teacher used an extensive repertoire of instructional strategies. The teacher, with the support of the students, created a model for the assignment using the book they read. The teacher conducted mini conferences with students. Students collaborated and learned from each other. The teacher used whole group instruction, individualized and small group instruction to support student needs. "

Prototypical Quote #4: Middle School Science, Component 3c

"Once the station activity began, Ms. Teacher acted as a facilitator of learning by keeping time and providing logistical directions. Students were completely engaged in acquiring their own knowledge based on the station requirement. Stations included a reading station and a writing station. All stations were created to require students to engage with the content at a very high level and create meaning by connecting the learned content. The pacing of the lesson was appropriate to the activities. Ms. Teacher kept accurate time of each station. Enough time was provided for learners to complete the learning tasks. The structure of this lesson was extremely strong and appropriate for the level of learning expectations. Ms. Teacher incorporated the new expectations for learning under the Next Generation Science Standards. Based on student responses observed in this lesson, this is a very effective framework for lesson design. Students were excited by each different station activity. "Oh, it's a matching game." "Oooh, can I spray the water bottle?" All stations were designed with precision, clear learning objectives, variety, and high expectations for thinking and application. Following the station activity, Ms. Teacher said, "Once you get back to your seats, follow the directions on the Smart board. Turn and talk to someone from a different lab group. What information did you learn? Do you have any new questions? "Closure was provided by giving students an exit slip. "On an index card, write down three things you've learned about watersheds.""

Prototypical Quote #5: Middle School Reading, Component 3c

"The students were engaged in the learning task and the pacing of the lesson was appropriate. The teacher's scaffolding of the lesson prepared students for independent work and small group activities. The teacher started with introducing each type of text structure, giving an example, and having students identify the key words that triggered which text structure it was. Students then watched a music video to reinforce the newly introduced content. The teacher posted task cards around the room; students had the opportunity to move around the classroom and apply what they had learned in the teacher guided activity. The teacher ended the class by having one student share their answer on the task card and responding to the exit question, "Tell me what informational text structure means?" and "Why do we need to learn about it?""

Prototypical Quote #6: Primary School, Component 3c

"The teacher noted that the group that she was working had a great handle on skip counting. She challenged the group to complete the deep thinking activity noting they were ready for a higher level learning task. She supported the students by having them underline the parts so they could solve the problem independently. The teacher broke it down into two parts and then stepped back; students were able to solve the problem with accuracy and share the strategy they used to solve it. The teacher shared that she didn't think of one student's method and loved the way they approached it. Students were given an exit ticket; draw a picture to solve the problem. Students were expected to apply the new strategy they had learned."

Prototypical Quote #7: Middle School English, Component 3c

"Students followed along as the poem, "O Captain! My Captain!" was read by a narrator. Following the discussion on symbolism found in the poem, students were given ten minutes to annotate and understand each stanza based on guiding questions provided by Mrs. Teacher: "What words or phrases stand out as I read?" "What do the author's words cause me to see/feel?" "What information is described in detail?" Once given the guiding questions, students worked in their table groups to complete the learning task as outlined by Mrs. Teacher. During the group discussion, students were on task and engaged. This was evidenced by the conversation observed in each group. Students' responses included: "It's the author's words that describe in detail."

"The ship is the Country." "They are celebrating the captain." "I understand what you are saying." The structure, as planned by Mrs. Teacher, allowed students to see the new learning in context of the broader unit learning. Activities supported the instructional aim. Each group was given an opportunity to display their work by sharing their annotation and thinking about a stanza. As closure, students were asked to develop three text-specific questions. Before they began, Mrs. Teacher reminded students of the established learning goal and explained that their questions must be related to that, bringing the lesson full circle. Students shared one question with the group. Appropriate ELA learning standards were addressed as outlined in the lesson plan. After students shared their questions, each student shifted their question paper to the left. The student who received the paper selected one question to answer *as homework. Guidelines for answering the question were provided."*

While it is not possible to provide the full text of all items coded at "Learning Task" within the length of this paper, the prototypical quotes in Figure 3 provide a glimpse at the insight school district leaders can gain from this analysis. The data collected here through this cursory analysis could drive initial conversations with administrators in their professional development. From this analysis, the following questions can emerge:

- √ *What is the proper way to document the instructional learning task?*
- √ *What is the value of documenting the learning task within a classroom observation?*
- √ *Where do we align evidence around the learning task within the rubric?*
- √ *How do we document the difference between what a teacher indicates as the learning task on a lesson plan versus what the students are actually doing during a lesson?*
- √ *Once we spend time documenting the learning tasks through the observation process, can we use this information to develop meaningful instructional goals supported by professional development for our faculty?*

These questions and more can drive crucial conversations with lead evaluators and profoundly shape the documentation of progress of instructional goals within the school improvement process. The thought of expanding this process to the other key terms across all components reveals the potential power of this analysis for school district leaders.

Conclusion

As indicated several times throughout this paper, the purpose of this analysis is not to reveal "right" or "wrong" in the observation process. Rather, this analysis provides meaningful data for use in the change process. The power of the qualitative research software to organize the data and allow the user to perform queries reveals limitless possibilities of analysis. School district leaders can use this information to develop instructional goals, train administrators how to document the occurrence of the instructional goals within classrooms, and then monitor progress on the implementation of those goals. Unlike other initiatives, this program of analysis capitalizes on a process that currently exists across all schools in New York State. It's time to take the data out of the drawer.

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