

Differentiated instruction with students' specific needs in mind

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“For me, teaching is like running marathon, though tiring, but rewarding and meaningful. The good teacher should meet the specific learning needs of students.” This is part of the interview with Ms. Harlan from my school observation at Apollo Middle school. I along with another two of my cohort students (Ben and Hanyi) came to observe Ms. Harlan's 8th grade math class for the second time on February 19th. It is the same class as I observed the first time, consisting of 25 students, 11 female, 14 male, among them 9 Caucasian American, 10 African American, 9 Latin American and 1 Asian American student. The classes we observed were revision sessions on slope and the qualitative graph respectively. Besides, we conducted two pre-class interviews with Ms. Harlan, two after-class interviews with her, and an after-class interview with her two students.

Bearing the question ‘what's the good teaching?’ in mind, I will analyze my classroom observation as well as the interview data from four different lenses, which are teacher's belief, relationship, identity and pedagogical content knowledge. Because I think that these four lenses are interconnected and tangible in terms of contributing factors of good teaching. They are more accessible through the interview and observation. I will use these data and the relevant literature from course readings to check the consistency between Ms. Harlan's interview claims and her teaching practices as well. As a pre-service teacher, I could have a better understanding on the applications of teaching theories from the observation and interview. Meanwhile, I will try to learn from Ms. Harlan, in particular, her teaching and interacting with her students, and gain the relevant hands-on experiences for my future teaching.

Teachers' belief and practice

The beliefs teachers hold influence their perceptions and judgments, which, in turn, affect their behavior in the class, or that understanding the belief structures of teachers and teacher candidates is essential to improving their professional preparation and teaching practices (Pajares, 1992). Ms. Harlan told us in the interview that she cared about her students, and she thought that good teacher should meet the specific learning needs of the students. In her class, I observed that she adopted the differentiated instruction to different groups of students. Usually she divided the class into three different groups based on students' quiz results. For the group one that failed the quiz of qualitative graph, she provided them with the extra instruction at the back of the classroom. She drew the graph on the whiteboard to explain to students, she checked their understanding from time to time and answered their questions, until every student in the group understand. Then she will assign the group relevant drills to reinforce their skills in solving the qualitative graph problems. Group two students are those who passed the quiz with flying colors, she arranged them to sit at another corner of the classroom and assigned them the new math concepts and exercises for them to work on the computer independently. She allowed the students in group two to discuss with each other when they met difficulties and she would also be of their help. Ms. Harlan assigned the third group to take the quiz online in the front of the class.

During the instruction, Ms. Harlan walked around the class to check each groups' learning. Ms. Harlan found out that most of the students in the first group got the right answers from the online drills. She made another explanation to the ones in the group who still did not understand the qualitative graph and assign the other students to work on more difficult drills. I noticed that students in group two were busy learning math online independently; occasionally they talked to each other about the math problems. Ms. Harlan came up and helped them out

from time to time. Some of the students from the third group asked for further explanation on qualitative graph as well after they finished the quiz, at their request, Ms. Harlan made another detailed explanation to them as she did for students in group one. However, one problem arose in the middle of the class. Three students from the third group who finished the quiz did not follow Ms. Harlan's instruction, which was doing the drills online. Instead they logged online for fun. Ms. Harlan found out and banned their use of computer for this class session, and asked them to do math drills on textbook. They all protested. Two students grabbed the textbook reluctantly and worked on the textbook; only one student did not follow the suits and talked to his neighbor who was punished as well. His talking with his neighbor distracted students next to them. They started talking to each other on irrelevant issues as well. Some students from the other groups were influenced too. Ms. Harlan came to these two male students and asked them to work on their textbooks, and required the whole class to focus on their study and stopping talking about irrelevant stuff. The two male students argued with Ms. Harlan and pleaded her that they wanted to work on the computer and promised they won't log online for fun again. However, Ms. Harlan rejected their requests and said no one could get away with them if they broke the rules. These two male students felt upset and boycotted the rest of the class by talking and goofing off. Ms. Harlan came to them twice and persuaded them to go back to work on the textbook, they ignored her instruction intentionally. Ms. Harlan did not have enough time to monitor and deal with these two unruly students since she need to check other students' learning. I asked her after class why she left the two students alone, she told us that she did not have enough attention and time to deal with students who were disruptive in her class. She stressed that they were teenagers and were irrational in reasoning; she needed to leave them alone as long as they did not disrupt the class for the time being. But she would talk to them after class. From my perspective, Ms. Harlan did

live up to her belief by caring for students and adopting differentiated instruction and extra help to students of different learning needs. She had some difficulties in managing the class and caring for each student due to the time limit and her limited attention, which she could not resolve on her own. She told us that she often assigned the students who got a 100 in quizzes to be her assistant to help other students out, or ask the other teacher to help in the class.

#### Relationship and practice

According to Gee's theory of discourse analysis (Gee, 2011), the relationship between teachers and students are very important in scaffolding and facilitating students' learning. Ms. Harlan told us that she had already built a good relationship with students, if not students may not listen to her and the class could turn into a disaster. Building healthy relationships will inevitably influence the quality of instruction and programming. In other words, students correctly identify meaningless or absent instruction as a lack of concern and respect (Jimenez & Rose, 2010). From my observation, I find that Ms. Harlan did appear on good terms with students. She had casual and smooth conversations with her students and joked with them during the break. Almost all the students followed her instruction and studied hard on math in her class. The class setting is very relaxing and is more of student-centered learning, Ms. Harlan did not do the lecturing all the time, usually she teaches students the basic concept of math problems and the skills of how to solve the problems, and then she would assign different online drills to students of varied math levels. Students did the math drills online by themselves; the website will also provide them with the feedback and guidance. Ms. Harlan will also walk around the classroom, checks each student's learning and answers their questions.

The good relationship between teachers and students could also empower students to learn on their own and at their own pace, in addition, make students feel more responsible about

their own learning. With the presence of computers and the internet access, students were doing the online math drills in the class most of the time; they figured out the math problems and could get the timely feedback as well. If they could not solve the problem by themselves, they could turn to Ms. Harlan or their peers for help. Ms. Harlan usually will appoint the students who got the 100 in the quiz to be her assistants and let these student- assistants to help their peers who need extra help. The two students we interviewed said that they felt that they were more in charge of their own learning online; in the meantime, they are also very proud of being the Ms. Harlan's assistants and help their peers out. Besides, peer learning could not only strengthen the interaction between students and enhance their relationship, but also could promote a sense of competition and improve students' confidence and capabilities in learning. From our observations, students did have lots of communications and interactions during the class, for instance, students would ask their peers on how to solve the problems or check each other's understanding on certain skills. In some way, the communication among students could be much more effective than teacher instruction, since students share similar cognitive abilities and learning mechanisms.

#### Identity, social language and practice

After reading Gee's article named "Identity as an analytic lens for research in education", I agreed with him that people could assume the four different types of identities under different circumstances. I found it very interesting and helpful to apply the identity theory to shed light on my analysis of Ms. Harlan and her instruction performance. Nature identity is a state developed from forces in nature (Gee, 2000). Ms. Harlan told us that she wanted to be a teacher when she was young, she did tutoring and student teaching during her undergraduate and graduate studies. She wanted to help people out and love being with students, that's why she chose to be a teacher.

Alsup said that “metaphors are a way in which human beings create their identities and explain these identities to themselves and others; hence metaphor can determine how people interact in different settings, such as classroom.” Ms. Harlan likened teaching as the marathon, though very tiring but rewarding and meaningful. She told us that she usually gets up around 6 in the morning and going back home around 8 on workdays. She admitted that it was tiring and stressful, but she loved teaching and her students, and never regretted about her career choice. For example, she kept walking around the classroom and helping students out like running marathon for 300 minutes in a row every workday. She did appear cheerful and happy during the instruction and interaction with students, keep cracking jokes with students when students were upset over math problems. She said that students were the little sponge or bud waiting to grow eagerly but had to go through the twists and turns. She told us that half of the students in her class were from low socio-economic status and they did not have the family support in their study. Ms. Harlan would help her students’ learning by providing more relevant background knowledge. In her math class, she did use some relevant video clips to lead students in on the concept of “slope” and “qualitative graph”, which students understood and enjoyed the video clips very much before they began learning the actually mathematical concepts.

The institution identity is a position endorsed by authorities within institutions (Gee, 2000). Ms. Harlan was hired by Apollo middle school as a math teacher, she taught 8th grade. Her students called her Ms. Harlan during the class to show respect, and most of them followed her instructions in the class. From Freire’s pedagogy of oppressed, sometimes Ms. Harlan acted like an oppressor with regard to managing the class and pushing her students to learn and do the drills on their own. For instance, when the two students who finished the quiz, and surfed online for fun, when she found out, she punished them by forcing them to work on textbook regardless

of their boycotting. She was adamant and kept telling them to obey her rules or they will face the consequence. At that moment, even I felt like she was the oppressor and the two students were the oppressed that had no say in their choice in the class. The observations in the class indicated that she was nice and encouraging to her students. Her adamancy in punishing the rule-breakers toppled her impression in my mind, since we observed that she was in good relationship with her students and might be lenient on students' mistakes. As a matter of fact, Ms. Harlan would also be strict with her students and even punished them for their wrongdoings.

As for discourse identity, it is an individual trait recognized in the dialogue with other individual (Gee, 2000). Ms. Harlan's delivery of instruction and demeanor in the class, including the way she taught and interacted with her students, made us feel like she was indeed a professional teacher. She spoke very Standard English in a loud and clear way. She wore a smile, moved gracefully and kept eye contacts with the students. Besides, she knew what should do when the emergency arose in the class. For instance, she quickly thought of another way to resume the instruction when the internet was down in the class. She knew how to strike a balance between meeting students' specific learning needs by adopting the differentiated instruction. When students were not cooperating with her or when they broke the class rules, she knew how to deal with them without letting them disrupting the class. Though she did not handle the issue of unruly students very well due to her limited attention and time, she did demonstrate a deft mastery of being a professional teacher. During the class break and our interview, she looked relaxed and happy, spoke with a bit of southern accent, and cracked up jokes whenever she sees fit which made her communication with students smooth and nice.

Speaking of the affinity identity, it refers to experiences shared in the practice of affinity group (Gee, 2000). She told us during the interview that her unremitting passion for math makes

her a math teacher, besides, she loves working with her other colleagues who teach math in the same school with her. They prepared the class together and made a website for the math class, from which students could learn and practice math on their own. I think that makes her, her math colleagues and people who love math and teach math somewhere into the same affinity group. Apart from that, Ms. Harlan also loves playing basketball, now she serves as a basketball coach in Apollo Middle school, which could put her in another affinity group- people who loves basketball and coaches others on how to play basketball. Due to the limited time in the observation and communication with Ms. Harlan, I do not know what else affinity group Ms. Harlan might be in. But I am sure Ms. Harlan would have other interests as well. Her passion for math influenced her students, since students in her class did work hard on math or maybe due to the upcoming standardized test. During the interview, the students told us that math was their favorite subject and they like Ms. Harlan and the math website very much. Besides, they were proud to be her math assistant, to some extent; I think that Ms. Harlan made a difference in their studies in math.

Analyzing Ms. Harlan instruction from the perspective of discourse analysis (Gee, chapter 8), I found that her use of social languages are very salient in terms of significance, practices, identities, relationship, connections. As for Ms. Harlan's discourse, I found that she was quite adept at switching her identities both as a teacher and the students' friend. Ms. Harlan talked to us in Standard English with a bit southern accent during the interview and instruction, which sound more formal and made her students and us understood her easily. However, she sounds more like local people using lots of colloquial language in the conversations with students during the break, since most students speak English with a bit southern accent. She did not give much lecturing in the class during my observation; however, her demeanor and the way

she teach indicate that, she was very confident and articulate in delivering the instruction as an experienced teacher; she was smiling and interact with the students very smoothly. She knew what to do when the internet was down or when students broke the class rules, and managed the class in a very effective way; meanwhile, from the reading of Rust and Garland, “experienced teachers will learn to address the class management issues and will raise the issues of curriculum and assessment”. From the interview with Ms. Harlan, she did not talk about the class management issue; however, she managed the class quite well from my observation. She did talk a lot about her math class curriculum and the assessment; in particular, the importance of the divided group and the alignment of her instruction with the standardized test, this is consistent with the course reading I did.

#### Pedagogical content knowledge and practice

Our two class observations present us with slightly different pictures. The first one was that the internet was down for half an hour. Ms. Harlan was at a loss of what to do, later she did nothing except pushing students to finish the drills listed on the whiteboards and checked the answers with the students. According to the 2nd week reading (Grossman, chapter1), I was sure that Ms. Harlan’s subject matter knowledge was qualified, since she has been certified as math teacher and student teaching for a couple of years, and a math teacher for four years in Apollo Middle School. However, her pedagogical content knowledge as well as the general pedagogical knowledge needs improvement. From my perspective, she didn’t know how to teach math, all her instruction content was the memorization and drills without teaching students the rules of math and skills of how to solve the math problems. Besides, her teaching belief was to meet her students different learning needs, ironically, her instruction in my first class observation apparently could not accommodate the specific needs of students.

However, during our second class observation, Ms. Harlan seemed to know very well how to accommodate students' specific learning needs. As usual, she divided the students into three different groups based on students' prior quiz results. Then she provided differentiated instruction to students at different math levels. Differentiation of instruction is a teacher's proactive response to learners' needs (Tomlinson, 2003). The students we observed are minors and they are in the process of maturing physically, emotionally and intellectually. The differentiated instruction with the help of technology could personalize the learning for students with varied learning needs. The collaborative learning with the help of student assistants and independent problem solving projects, which are excellent activities for students' the growing brain, affect level and their future professions in the world of work (Tomlinson, 2003). After Ms. Harlan adopted differentiated instruction in her qualitative graph class, 98% of the three groups of students got the perfect scores from the online drills. I think that the differentiated instructions did help students learn effectively. However, there is still another thing worthy concern, which is that all the questions and online exercises are in the format of multiple choice question. This format wouldn't train students' logical thinking and practical skills on solving the math problems effectively, on the contrary, the multiple choice question format could increase students guessing rate. It runs contrary to the essence of teaching math. We raised our concern to Ms. Harlan, she objected the multiple choice question format and agreed that it would not be conducive in training students' math abilities. However, she told us that she needs to be realistic and help students familiarize with the test format and teach them how to master the test-taking skills for the upcoming standardized test. She added that after the standardized tests, she and another math teacher would design the other question formats on the website, like short answer question or question format that requires students to demonstrate their logical thinking and problem-solving

skills. I would say Ms. Harlan's pedagogical content knowledge and knowledge of context are very strong, she knows what's best for students to pass the standardized test and what students need to learn besides taking the test. In her class, she made students to learn independently and provided timely assistance when they need. What was more, she provided the differentiated instruction to students of varied levels, which was consistent with her vision of good teaching.

#### Limitations of the observation

Due to the time limits of our observations and some conflicts between our schedule and the Ms. Harlan's schedule. We had conducted only three class observations, four interviews with Ms. Harlan and one interview with her two students. The data we gathered are limited in presenting a more accurate picture of Ms. Harlan's belief in teaching, her relationship with students and colleagues, her multiple identities as a teacher, a students' friend, a peer of her math colleagues, a basketball coach. If we could observe her class for the whole semesters, conducting multiple interviews with her students and colleagues, we could have a better understanding as a teacher and other identities. Meanwhile, from Berliner's reading that 'experience should provide experts more capability for making better assumptions and hypotheses about classroom phenomena and student behavior, assumptions and hypotheses that are not obvious to novices'. As a pre-service teacher not an expert, I may still lack of capability to make objective prediction and judgment of the class observations of Ms. Harlan and her teaching approaches.

#### Conclusions

Based on my observations, interviews with Ms. Harlan, I find that Ms. Harlan's vision of good teaching was practiced and fulfilled in her class room teaching and communications with students. Her practices in classroom are consistent with what she said during the interview. During the interview with her students, I also find that Ms. Harlan's class was well-received by

her students, her students liked her, and they also liked the website she created for the class.

They find the website very useful in helping them learn the math independently and could provide them with timely support. I want to become a teacher like Ms. Harlan and strive to put my vision of good teaching into future class.

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