Gender Bias in the Middle Level Classroom: The Intersection of Observation, Teacher Self-Perceptions, and Student Perceptions

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The middle level years (ages 9-15) are particularly critical for young adolescent students as they explore who they are, and how they fit into the world (AMLE, 2020). Developing an awareness and understanding of how genders are sometimes treated inequitably can have a significant impact on young adolescents' self-perceptions and developing sense of academic competency (Parker, 2010; Steensma et al., 2013). This investigation sought to incorporate student voice into the conversation by considering perspectives from both teachers and students, as well as documenting observable behaviors during regular classes. By intersecting these three data sources and analyzing for commonalities and disconnects, a more accurate picture of gender bias in middle level classrooms may result. Observational findings support existing research that teachers interact significantly more often with boys than with girls in general in both positive and negative ways. Teachers are aware and report that they do treat students of different genders differently but tend to focus on behavior/discipline as opposed to academic success. Student responses indicate that they perceive teachers to have a very stereotypical view of the content areas in which boys and girls excel, but this is not reflected in data collected from teachers about their own self-perceptions. Implications for classroom practice and further research are discussed.

Keywords: gender bias, middle level classrooms, student voice

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Since the early schools of colonial times, gender has been a determining factor of student potential resulting in systemic inequity of opportunity (Sadker & Zittleman, 2016). Even as an academic education became available for girls, teacher (and society) perceptions of their limited intellectual capacity have prevailed. A host of misconceptions and prejudices about the content areas at which males and females naturally excel continue to influence how teachers interact and respond to students differently. Current research findings indicate that both genders are limited by teacher biases narrowing their learning, choices, and opportunities (Carlana, 2019; Tiedemann, 2000).

The middle level years (ages 9-15) are particularly critical for young adolescent students as they explore who they are, and how they fit into the world (AMLE, 2020). Developing an awareness and understanding for how genders are sometimes treated inequitably can have a significant impact on young adolescents' self-perceptions and developing sense of academic competency (Parker, 2010; Steensma et al., 2013). The better we understand and are aware of gender bias and how it affects students, the more chance we have of adjusting behaviors and ensuring that equal opportunity to knowledge is available to every student regardless of gender.

The missing piece in the current literature is student voice. Developmental research on young adolescents tells us how important it is to listen to students and value their perspective. This helps us better understand how they are affected. Without this piece of the puzzle, we don't have a complete view of the issue of gender bias and how it may be impacting students. This study seeks to better understand instances and perceptions of gender bias in middle level classrooms. To this point, the conversation has been primarily dominated by teachers and researchers. We particularly wish to add the important voice of middle level students themselves to the existing literature.

Literature Review

Gender bias has been defined as "a preference or prejudice toward one gender over the other" (The League of Women in Government, n.d.). The American Psychological Association describes it as "any one of a variety of stereotypical beliefs about individuals on the basis of their sex, particularly as related to the differential treatment of females and males" (n.d.). Examples are inclusive of both positive and negative bias toward both genders, although negative bias toward females is most often cited. Gender discrimination is defined as "a situation in which someone is treated less well because of their sex" (Cambridge Dictionary, n.d.). The definition goes further adding, "usually when a woman is treated less well than a man." To further clarify, bias is a feeling or thought as opposed to discrimination which is when that feeling or thought is acted upon. This action may or may not be conscious and/or purposeful.

Gender Bias

The existence of gender bias (and discrimination based on that bias) in public school classroom practice has been longitudinally documented (Bellamy, 1994; Kimotho, 2019; Shmurak et al., 1994; Sadker & Zittleman, 2016). Gender bias manifests itself through various means: textbooks and curriculum (Blumberg, 2007), assessments (Read et al., 2005), and teacher expectations (Tiedemann, 2000). This investigation focuses primarily on gender bias through teacher interactions with middle level students. Existing research has identified observable behaviors that indicate bias in practice (Shepardson & Pizzini, 1991; Shmurak et al., 1994). Some of these are described as differences in amount of attention (Butler & Sperry, 1991), length of wait time (Shmurak et al., 1994), and frequency of response (Bellamy, 1994). Bellamy (1994) reported that female teachers responded to their male students more often than their female students, and that, in general, the majority of classroom conversation was executed with the

males. Furthermore, the concept of wait time is a focus in much of the relevant literature pertaining to perceived gender bias in the classroom. Male students are generally called on first, often asked higher-level questions, and given more wait time to answer (Shmurak et al., 1994). Sadker and Zittleman (2016) go so far as to suggest that "...male students frequently control classroom conversation" (p. 81). Sometimes, gender bias can be simply reinforcement of traditional gender stereotypes learned through societal modeling (Goldberg, 2016; Lynch, 2016). It is of note that much of the literature cited in this review is somewhat dated. We were not able to locate more recent studies reinforcing these original findings. Kimotho (2019) reports that stereotypes, and the biased perceptions based on them do still persist today. We hope to contribute more recent evidence with which to update this important area of study.

Teacher Influence on Student Experiences

In their classic work, *Pygmalion Effect*, Rosenthal and Jacobson (1968) demonstrated how powerful teacher expectations can influence students both positively and negatively. This work showed clear and significant impact on student performance based solely on teacher perceptions and how they interacted with students as a result. Grossman & Grossman (1994) state, "In general, females and males experience disparate educational outcomes and fulfill different gender-specific roles both in school and in the larger society" (abstract). Frawley (2005) suggests, "Girls experience school in qualitatively different ways than boys do" (p. 221). Butler & Sperry (1991) reported that schools and teachers are more responsive to boys, their learning styles, their needs, and their futures, than they are to female students. A recent study found that the longer girls are exposed to teachers with traditional gender views, the lower their performance on both math and verbal and tests becomes (Alan et al., 2019). Upon replicating earlier studies on teacher perceptions of gender roles to determine if the pattern held up over

time, Schwendenman (2012) concluded that, “a feminine role is perceived as counter to academic achievement” (abstract).

Impact on Students

The negative impact of gender bias and societal stereotypes on students and their learning is also well documented. Although often unintentional, these societal biases held by many teachers are known to have a narrowing impact on the level of success and content choices of both males and females. Many times, girls’ math skills and ambitions are undermined whereas boys' interests in the arts and language are negatively affected (Carlana, 2019; Tiedemann, 2000). Attitudinal research on the topic found that the average adult and young person believed that female students were not as competent as males, that female students lacked the ability to achieve in math and science, and that females could not succeed in a world that relied on analytical aptitude (Butler & Sperry, 1991; Carlana, 2019). This creates gender-based achievement gaps in various subjects, such as boys being led to believe that studying is for girls (Chemaly, 2015), or girls being led to believe they are less competent than boys in math and science classes because they are perceived to be less logical and analytical (Tiedemann, 2000). Shmurak et al. (1994) found that female students’ confidence in their personal mathematical abilities began to dip by the eighth grade. Rodriguez-Planas and Nollenberger (2018) report that male students begin outperforming females on math examinations as early as the end of elementary school. Math and the STEM subjects are areas in which academic disconnects between male and female students have been documented and closely monitored. Still, female students from backgrounds and cultures that tend to be more gender-equitable are more likely to be interested in these subjects; especially mathematics (Rodriguez-Planas & Nollenberger, 2018).

Student perspective

Most of what we already know about gender bias in the classroom has been collected through the lens of adults. Few studies have mined the perspective of the students themselves (Feldman, 2002). Valuing student voice, particularly during the middle school years, is vital in order to reach a balanced perspective that is accurately reflective of what is really happening in any context. Evidence suggests that including student voice significantly changes the conversation and provokes adults to think in ways that they would not have if the student perspective had not been included (Yonezawa & Jones, 2009). Developing an awareness and understanding of how genders may be treated inequitably in the middle level classroom can have a huge impact on the self-perceptions and developing sense of academic competency of students (Steensma et al., 2013). With this existing evidence in mind, this investigation seeks to balance the perspective by addressing the following guiding question:

How do the perceptions of teachers and students intersect with observable indicators regarding gender differences in middle level classrooms?

Methodology

Although much of what we know about gender bias has been gleaned from teacher perceptions and classroom observations, there has been little mention of student voice. This investigation adds the focus of student perceptions which is a crucial piece of the puzzle in understanding young adolescents' development of self-perceptions, individual choices, and academic competency. In her overview of the literature on student voice, Laux (2018) concludes "to continue to ignore these voices would be a disservice to students and educators alike" (p. 111).

Participants

Participants were recruited from a local middle school selected primarily for its proximity to the research university and the principal/faculty's willingness to participate in this investigation. There was a great deal of hesitancy on the part of many schools (both faculty and administrators) invited to participate. After many rejections (discussed in more detail in the Discussion section), the research team was glad to be able to carry out the investigation and thankful to the participating principal and faculty for agreeing. The participants were five seventh grade classroom teachers and one team of seventh grade students. All five teachers gave consent to participate, while more than half of the approximately 150 students returned consent forms signed by both the parent and the student. Of those who returned the consent forms, four teachers and 43 students actually participated in the respective surveys. This resulted in 80% participation from teachers, and about 29% participation from students.

The participant middle school is located in a rural/suburban area in the Eastern United States. The school population is primarily white, (91%) middle class, with 26% of the student population from low-income family backgrounds. It has been recognized by several standards as an exemplary middle school, most recently redesignated as a 'Schools To Watch' building by the National Forum to Accelerate Middle Grades Reform (https://www.middlegradesforum.org/schools-to-watch).

Data Collection

Our goal for data collection was to be able to mine data from three important sources to determine how they intersected and to identify inconsistencies among them. Data to address the guiding question were collected through two means: a specifically designed rubric used during classroom observations, and an anonymous electronic survey (one form for teachers and one for

students). The rubric employed a simple tally system to assess the frequency of observable behaviors identified in previous literature as indicating possible bias. Both surveys consisted of open-ended text box answers. Considering the use of both of these forms of data collection, this study employed a mixed-methods approach. This was done purposefully to support our intended analysis of comparing findings on the same phenomenon (gender bias in the classroom) from three separate sources to determine if disconnects existed.

Classroom observations were conducted by two researchers from the team who both sat in on one class period for each participating teacher. Specific observable behaviors were recognized, tallied, and simple field notes were taken when appropriate. All of the observable behaviors were simple, discrete, and have been identified by previous researchers as being indicative of behaviors reflecting gender bias in classrooms. The rubric was developed/modified from work previously done by Shepardson and Pizzini (1991) but simplified for the purpose of this particular investigation (Appendix A). Student perceptions and teacher self-perceptions were collected through an anonymous electronic survey, and data were stored within the secure website. The survey took about 5-10 minutes for each participant, as there were four questions for teachers and six questions for students (Appendix B). Survey questions were in open-ended, short answer format. The identity of participants was kept completely anonymous.

Data Analysis

Because the data were collected over a period of several weeks from various sources and consisted primarily of qualitative responses, a constant comparative process (Strauss & Corbin, 1990) was employed in which results were checked and examined as they were collected. Nowell et al. (2017) further describe ‘thematic analysis’ as a specific type of constant comparative process. As possible themes emerged and were identified, a color-coding system

was developed to determine if continuing data supported the early trends as well as to note new themes that may have emerged.

Tally totals from the observable behavior rubric were organized into a simple data chart for display and analysis (Appendix C). This summary data chart was then separated into two charts based on the gender of the teachers to compare. Responses to the teacher survey and the student survey were analyzed separately for themes, and then compared to determine intersections and disconnects between the two groups of stakeholders. Finally, all three data sources were considered together to address the guiding question.

Findings

Classroom Observations

Data charts reflecting the classroom observations are displayed in several formats (Appendix C). First, the data were separated out into male and female teachers to see if there were any differences based on the gender of the teacher. Although the male teachers chart seemed to indicate more teacher-to-student interactions in general, the balance of interactions between male and female students was much the same between the male and female teachers. Secondly, the data was combined into one chart representing all the teachers' interactions with students regardless of the teachers' genders. These data indicate clear and striking differences between how often teachers interacted with male and female students. The number of interactions with male students is significantly higher than with female students in all nine categories. Before discussing the impact of this, it is important to point out that, by chance, there were approximately twice as many boys (40) as girls (19) total in the entire participant sample. A fourth chart was designed that takes into consideration this significant imbalance. With this adjustment made to equalize the data with regard to the total number of boys versus girls,

teachers interacted with boys more often in eight out of nine categories. The only type of interaction that was more frequent with girls was ‘called on first for low level questions’, and that was only one more overall for girls than boys (eight/seven). For many of the types of interactions, the number of times they occurred with boys was close to or more than twice as many times as girls. Some examples are ‘called on first for high-level questions’, ‘academic praise’, and ‘academic scaffolding’. There was no indication of targeting boys or girls specifically for positive or negative interactions. Of the nine types of interactions, four could be interpreted as somewhat negative and five as somewhat positive. The overall pattern clearly indicates that the teacher attention, both negative and positive, was going overwhelmingly to the boys.

Teacher Survey

Following the classroom observations, an electronic survey was distributed to the team of consenting teachers. Four of the five teachers who signed the consent form responded to the survey. Immediately evident was a wide-ranging attitude seemingly toward participation in the survey. While three responses seemed thoughtful and very honest, one participant used the same short answer in response to multiple questions, and answered one question simply, “no.” The fifth teacher that originally consented did not participate in the survey at all even after several reminders. This could be because there was a necessary element of minor deception in consent prior to data collection to try and avoid skewing teacher behaviors if they were aware before the observations that the focus was gender bias. It is possible that two of the five teacher participants were uncomfortable with this once they saw the questions on the survey.

When asked if girls and boys excel in different areas, three of the four respondents focused on personal experience for their answers, using language such as, “I’m not sure … I only

teach …," "I have never had…," and "I have not observed…." In reference to a geography contest facilitated each year, one of the participants wrote that they "never had a female win." The latter clarified "that doesn't mean that girls can't do well but boys tend to be more interested in content." One teacher noted that, despite their awareness that the stereotype is for girls to excel in reading and boys to excel in math, the testing data for the subject in which they teach (as well as others) reflects comparable levels between the genders.

Three of the four respondents recognized and described ways that they treat students differently in their own practice based on the student's gender responding with "yes", "possibly", and "I do". Interestingly, comments from all three focus on behavior as opposed to academics. Responses contained language such as "nonproductive behavior", "discipline", and "misbehaving". One reported reprimanding boys "more quickly" than girls, and also commented that the boys really do "misbehave more often." The only reference to anything academic was one comment that boys needed more attention and supervision in selecting books for independent reading.

When asked to describe what gender bias might look like in a classroom, both academic and behavior examples were offered. Most examples were somewhat general and obvious such as, "thinking boys or girls can do better in a subject area", and "expectations of students academically and behaviorally." One response did suggest "picking one gender over the other to answer questions." Other examples are "prejudging" and "giving a free pass."

When asked to define gender bias, the responses were again wide-ranging in both content and insight. Two responses seemed to focus more on traditional societal stereotyping rather than the idea of thoughts and actions that diminish one gender over the other, for example "thinking one gender should behave in a certain way." Finally, one response demonstrated a keen insight

into the issue explaining, “Behaviors and mindsets that present themselves in the classroom often at a low level of consciousness that impact equity in the classroom.”

Student Survey

When asked about a favorite teacher, participant responses varied and there was no clear trend in terms of male or female teachers being favored by students over the other. The strongest theme was student appreciation of teachers who are fun. More than half of the participants described teachers being fun or funny, making learning fun, telling jokes, and making the students smile or laugh. One student even explained, “his jokes aren’t good, but that is what makes it funny.” Other frequent descriptors used by students are nice and kind. Some students offered more detailed examples such as, “listens to what I have to say,” “always smiling and talking to you,” and “can easily understand what I’m asking, saying, or talking about.” Only a few responses were related to academic issues such as pace, flexible due dates, and good teaching technique.

When asked what subject(s) teachers think girls are good at, responses clearly leaned in the direction of traditional societal stereotypes. A summary of the results can be found below in Table 1. More than half of the responses named one or more fields of literacy. English was named 15 times, and reading was named 17 times. When math was mentioned (nine times), it was rarely listed as a single subject without being paired with either reading and/or English, and often included qualifiers such as “maybe” and “but some aren’t.” There was only one mention of science, and it was prefaced with “maybe.” Family Consumer Science (FCS) was mentioned six times and twice described as “cooking.” Four respondents listed art, but social studies, tech ed, and physical education were not mentioned at all.

Table 1

Student Responses to What Teachers Think Girls Are Good At

	reading	English	math	writing	science	soc st	FCS	art	phys ed	tech ed
#	17	15	9	2	1	0	6	4	0	0

Five students responded that they did not know what teachers think about girls being good in specific subjects. Out of the forty-two responses, only three students stated that there was no bias when it came to teachers thinking girls are better at certain subjects than boys. One student did not comment on what teachers think as the question prompted, but instead, what they thought teachers *should* think: "I think teachers should think that boys and girls are good at all subjects yea maybe some girls and some boys struggle but I think that girls and boys should be treated equally or that teacher should not teach."

In comparison, when asked which subject(s) teachers think boys are good at, over half of the responses named math, science, or both. A summary of the results can be found below in Table 2. Math and science were each named 16 times. After these two content areas, the next most frequent strength suggested for boys was physical education with 11. This was emphasized by one student who explained, "Teachers think boys are good at physical subjects like gym." Social studies and tech ed were named by four and five students respectively. Interestingly, neither of these two classes were mentioned at all as subjects at which teachers think girls are good. Alternately, while FCS and art were listed as classes at which girls are good and English was prominently evidenced (16) for girls, none of the three of these subjects were even mentioned for boys.

Table 2

Student Responses to What Teachers Think Boys Are Good At

	reading	English	math	writing	science	soc st	FCS	art	phys ed	tech ed
#	2	0	16	1	16	4	0	0	11	5

The same five students that answered the previous questions about girls responded that they did not know what teachers think about boys being good in specific subjects. Again, only three students stated that there was no bias when it came to teachers thinking boys are better at certain subjects than girls.

Several comments seemed to indicate perpetuation of underlying societal stereotypes such as girls being more patient, boys 'messing up' or being less academically oriented than girls, and reinforcement of traditional gender roles. One student suggested that the reason teachers might think girls are good at math is because "they are more patient than boys are." Another suggested that teachers probably think boys are good at reading because "you really can't mess up while you read." One student explained that teachers think "girls are good at academic subjects and boys are good at physical subjects like gym." Finally, another stated that teachers think girls are good at "reading English and family consumer science (cooking)," and that teachers think boys are good at "everything else."

In response to being asked if they have noticed if some teachers call on girls more than boys or boys more than girls, the majority of the students answered that they did not notice teachers calling on one gender more than another. Some even praise the teachers for being able to "balance it out" and being "good at calling on a variety of girls and boys equally." Several students suggested that teachers call on whomever raises their hand (inferring this was regardless of gender). Only three reported noticing that teachers call on boys more, with one accurately

explaining “because there are far more boys than girls.” Six reported that girls are called on more often and offered reasoning such as girls “listen more” and “raise their hand more.” Several singular comments expressed concern about gender bias in both directions, but they seemed to be outliers.

When asked if they had ever been treated differently because of their gender, participant responses were mainly in agreement that they have not been treated differently because of their gender, with 76% answering with “no” or some variation of “no.” Six of the ten responses that answered “yes” to the question had answers involving boys, implying that girls are favored.

> ...as a boy, I feel like I get in more trouble because I am a boy. Most of the teachers in this world are females, and they favor their same gender.
>
> ...teachers think that boys are always the ones that are misbehaving…
>
> ...a girl will do something wrong they don’t do anything when a boy does something wrong the consequences are 10 time worse.

In contrast, there are several responses stating that boys are favored over girls.

> Yes, because one teacher was always praising the boys for something the girls had already done…
>
> ...although I positive that some teachers think of me differently because of being a girl and taking grade higher classes.

Some even recalled specific instances in gym class where they feel as if boys were favored over girls.

> ...but I do know it happens a lot in gym class, the teacher chooses boys for everything.

> ...[this teacher] knows all of the boys names but only knows a couple girl names. Also, in kickball he takes two steps closer when a girl is kicking because he thinks they aren't athletic but two steps back when a boy is kicking...

Few of the responses are pointed toward academic gender bias and focused more on behavior and discipline. Two of the responses noted that there was gender bias but did not specify which gender or in what instance.

When prompted with the final question of the survey, very few stated that they did not know what the term meant. The majority of the responses understood the gist of the term 'gender bias,' with answers that aligned closely with the definition "a preference or prejudice toward one gender over the other" (The League of Women in Government, n.d.).

> Gender Bias would be if somebody treating someone differently because of being a boy or a girl.
>
> Treating one gender different from the other.
>
> It means that someone prefers one gender over another and will treat that gender better or pick them over another gender.

Of the participants who didn't know what 'gender bias' meant, there was a large range of answers.

> i think change gender
>
> It means you are both genders and you sometimes act like a girl and sometimes act like a boy to.

Two of the participants even responded with "discrimination against women."

Similar to the other questions, there were some outliers that were more articulate, detailed, and passionate.

> I think that gender bias means that you choose one gender over the other like if you are a teacher that is a man and they say that boys are better and smarter then girls that is being gender bias and I personal think that is wrong because both boys and girls are both perfect and no gender is more special then the other one they both are good and if people say boys are better of girls are better then that is just plane wrong to look at somebody and say that the other gender is better its just wrong.
>
> Gender bias is the same thing as sexism. Sexism is where someone thinks that a gender is better than another or discrimination because of your gender. I think people think that a girl has to be polite, wave, and say hi, and if you don't do that then you are frowned upon and aren't a good girl.

Summary of Findings

Responses among the three sources reflect distinct and sometimes startlingly opposed perceptions of the same phenomenon. A summary of the results can be found below in Table 3. Each source (classroom observations, students, and teachers) demonstrated a relatively singular voice as a group, but in most cases, was not aligned with the other data sources. Examples are teachers versus students on which content areas teachers think girls and boys are good at, and observations versus student perceptions on teacher interactions with students.

Table 3

Summary of the Most Significant Findings

	classroom observations	teacher self-perceptions survey	student perceptions survey
Teacher interactions with students	Significantly biased toward male students	Mostly balanced, but males sometimes warrant more attention due to behaviors	Equally balanced
Teacher preconceived notions of aptitude in various content areas		Not aware of or noticed any particular gender trends	Significant bias toward traditional societal stereotypes
Teachers treat students differently based on gender	Significantly more attention to boys, both positive and negative	Yes, but primarily based on behaviors as opposed to academics	Mostly equally balanced
Definition of gender bias and what it looks like in a classroom		Wide-ranging in content and insight; included both behavioral and academic indicators	Most knew what it is and focused on 'fair treatment'

Discussion

The most striking finding from this investigation confirms what we already knew from previous research; that teachers interact with boys much more often than they do with girls. Although this is not new information, the magnitude to which this happened during actual observations is still startling. With data adjusted for the fact that there were approximately twice as many boys in the participant group as girls, teachers interacted with girls a total of 23 times, while the total number of interactions with boys was 48. Based on these numbers, the fact that the teachers (three out of the four that participated) stated that, to their awareness, they were interacting with both genders equitably is concerning. Further, the majority of students were unaware of the inequity of teacher attention between boys and girls as well, with several students

commending teachers on their balance of attention. It brings up the question of how this situation is affecting each gender subconsciously and over time.

Another finding that reinforces currently existing research is the common misperception that girls are better in literacy areas and boys are better in math and science fields. The new contribution to the literature from this study is that this information came directly from the students themselves. They clearly stated as a group that it is their perception that the *teachers* think this. This is a significant disconnect since the teachers were clear as a group that they do not think students excel in specific content areas based on gender. This raises the vital question of where the students are getting this perception from and is it accurate or not despite what the teachers have self-reported.

Finally, both teachers and students were in consensus to some degree that the *type* of attention boys were getting was more often focused on issues of behavior rather than academics. Perspectives on the details differed somewhat in that teachers and some students suggested that this could be because boys are more likely to "misbehave" or "mess up" while girls are more "patient." On the other hand, several students noted specific examples of common incidents in which girls "got away" with things for which boys would be reprimanded. Other student responses reported bias toward girls during physical education classes. All of these examples raise concerns about perpetuating gender stereotypes for both boys and girls that may limit their abilities and choices both on a daily basis as well as over time as they make life decisions.

One final issue to point out is the difficulty this research team had in finding a school willing to participate in this investigation. Even with an approved university IRB protecting all participants, it took almost a year of going through eight different schools who declined to be involved before one was found who agreed to participate. These schools included a range of

socio-economic status, ethnic diversity, and population density (rural/suburban/urban) so demographic differences did not seem to be a determining factor. Reasoning given for choosing not to participate included concern or fear of upsetting teachers with the possible findings, provoking students to think about the topic, or teachers refusing to sign the consent due to unknowns. This lack of willingness to look at our own practice to see how well we are serving students, as well as the hesitancy to empower middle level students to think and voice their perspectives was very concerning to this research team. We commend our participating school building for their courage in choosing to reflect on their own practice, and their candor during the data collection process. We encourage other educators to follow their lead. The more we know, the better we can serve our middle level students.

Limitations

Although teacher participants signed a letter of consent prior to classroom observations explaining that the research project was investigating 'classroom environments and how they affect students,' further detail that the target focus was on behaviors possibly reflecting gender bias was not disclosed before the observations. This initial omission was necessary in order to collect data minimally affected by participant knowledge of the specific focus of research and probable adjustment of behaviors described as the Hawthorne Effect (Cook, 1967). Although minimized by the study procedure described, this phenomenon was still a factor in that participants were aware that the classroom observations were part of a research study.

Another limitation to consider was the minimal number of classroom observations conducted. The research team had a very difficult time recruiting a school that was willing to participate in the investigation (further detailed in Discussion). When this school agreed to allow us to do classroom observations, we felt an obligation to keep them minimal and as noninvasive

as possible. Each of the five teachers were observed once all on the same day. While that gave us a snapshot of classroom interactions between teachers and students, it was not extensive. We did have two researchers observing and documenting independently of each other. We then compared their data observations to ensure consistency.

Lastly, findings are specific to the population demographic described in the Participant section; primarily white, middle class, rural/suburban. While this investigation focused on gender, it is never possible to isolate that variable completely. We can theorize these findings to other populations, but additional research would need to be done specifically with other demographics for the results to be valid.

Conclusion and Implications for Future Research

Based on these findings, further investigation of the awareness of both teachers and students of gender bias indicators through classroom interactions is warranted. When neither teachers nor most students are consciously aware that boys are getting significantly more attention, it cannot help but have a subconscious effect on girls. The striking contradiction between teacher perceptions and student perceptions of which content areas teachers think boys/girls excel raises the question of what the basis of that disconnect is. Further research is also warranted to update findings from the 1990s and 2000s on specific classroom behaviors that cannot help but have an impact on the content area choices, academic confidence, and self-esteem of both genders, but particularly girls. Findings from this investigation seem to be a call to arms for school districts to provide staff development to make teachers aware of both their own behaviors that send an unconscious message to students as well as the disconnects between their perceptions and student perceptions. As a research team based at a regional public

university historically known for our teacher education programs, we wonder in what ways can this information be communicated to pre-service teachers before even stepping into a classroom.

Finally, we encourage the addition of student voice into all areas of research within the field of middle level education and beyond. If we do not empower students to raise their voices, listen to what they tell us, and add their perspective to the conversation, then we don't have all the pieces of the puzzle to solve problems and we are not utilizing one of our greatest resources; our young adolescents themselves.

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Appendix A

Observable Behaviors

Gender of teacher:_____

Girls:_____ Boys:_____

	Girls	**Boys**
First Student Called On High Level Questions		
First Student Called On Low Level Questions		
Academic Praise		
Non-Academic Praise		
Academic Criticism		
Non-Academic Criticism		
Academic Facilitate (scaffolding)		
Academic Short Circuit (not scaffolding)		
Extended Single Student Focus		

Field Notes:

Appendix B

Survey questions for students

1. Think of your favorite teacher. Why is that person your favorite?
2. What subjects do teachers think girls are good at?
3. What subjects do teachers think boys are good at?
4. Have you noticed if some teachers call on girls more than boys or boys more than girls?
5. Have you ever noticed being treated differently by a teacher because of your gender? How do you know?
6. What does 'gender bias' mean?

Survey questions for teachers

1. Do girls and boys tend to excel in different subject areas? If so, explain.
2. Have you ever noticed yourself subconsciously responding to one gender differently than another? If so, how?
3. What might gender bias look like in a middle school classroom?
4. How would you define gender bias?

Appendix C

Female teachers (2)		
	girls (19)	boys (40)
called on first for high level questions	4	10
called on first for low level questions	0	3
academic praise	1	4
non-academic praise	0	0
academic criticism	0	3
non-academic criticism	0	1
academic facilitate (scaffolding)	0	6
academic short circuit (cutting off)	0	2
Extended single student focus	0	0

Male teachers (3)		
	girls (19)	boys (40)
called on first for high level questions	3	20
called on first for low level questions	8	11
academic praise	2	7
non-academic praise	0	0
academic criticism	0	2
non-academic criticism	0	6
academic facilitate (scaffolding)	3	9
academic short circuit (cutting off)	2	10
Extended single student focus	0	2

All teachers together		
	girls (19)	boys (40)
called on first for high level questions	7	30
called on first for low level questions	8	14
academic praise	3	11
non-academic praise	0	0
academic criticism	0	5
non-academic criticism	0	7
academic facilitate (scaffolding)	3	15
academic short circuit (cutting off)	2	12
Extended single student focus	0	2

All teachers together (adjusted to balance gender groups)		
	girls (19)	boys (20)
called on first for high level questions	7	15
called on first for low level questions	8	7
academic praise	3	5.5
non-academic praise	0	0
academic criticism	0	2.5
non-academic criticism	0	3.5
academic facilitate (scaffolding)	3	7.5
academic short circuit (cutting off)	2	6
Extended single student focus	0	1