

Differences in Interaction of Female Students with other Female and Male Students

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Abstract

The purpose of this study is to determine the differences between interactions of female students with other female students and with female students and male students. Among three classes of College Preparatory Biology, for three lab activities, groups were divided into heterogeneous groups based on sex. For the additional three lab activities, groups were then divided into homogeneous groups based on sex. Observations of the female students were recorded. Many differences in the interactions of females in the homogeneous groups were seen. The homogeneous female groups tended to act in a much more collaborative style. This could be attributed to the early social nature of boys and the environment that they create.

Introduction

Recently, while I was teaching a college preparatory biology class, I began to notice that there were differences in certain class dynamics. I became interested in what elements played a role in the differences of these class dynamics. I began to look into a number of factors: from cultural backgrounds of the students that comprise the different classes, to something as simple as the time of day that I was teaching. One interesting thing that had been directly confronting me is the difference in the way that female students interacted with other female students and male students in the class.

In my first and ninth period college preparatory biology classes, there was an even one to one ratio between males and females. However, in my period five biology classes, the male to female ratio was approximately four to one in a class of twenty-five. One major difference noted

in the girls of this class verses all of the other classes was the willingness of the girls in this fifth period class to speak and take charge of classroom discussion. Because of this observation, my question had become refined: if the environment had changed in such a way in that the overwhelming male influence of this class was taken away, would the girls in the class act differently than they do now?

There have been many studies conducted into the realm of the biological and cognitive differences between males and females (Eisenberg et al, 1996, LeDoux, J.E. 1996). Included in these investigations are the differences between the cognitive developments of girls as opposed to boys (Santrock, 2004, Feldman, 2005). Some research suggests that girls develop language and verbal skills before certain visual-spatial skills as opposed to boys who develop these visual-spatial skills much earlier (Santrock, 2004, Feldman, 2005).

In the secondary setting verbal difference between males and females is apparent. Boys tend to act out more often and are more confrontational (Strauss, 2005). Some males are even tending to become, in some instances, more verbally aggressive (Lopez, 2003). This alone could, perhaps, create a classroom environment that is (while seeming unthreatening to the male science teacher) threatening and unwelcoming toward the female student. There is no contest that differences occur when it comes to the type of reactions elicited by males and females under stressful conditions. Many studies conclude everything from the nonverbal, such as facial expressions, interpersonal distance, touch, and gaze, are interpreted differently by females (Mayo and Henley, 1981; Hall, 1984). What may seem as a non-hostile environment to a young high school boy could be interpreted differently to a girl. Girls prefer to be in a safer place where they do not have to fear communicating their ideas to others and risk possibly becoming ridiculed (Strauss, 2005).

It is because of this difference in perception, in addition to the collaborative nature of science, that I decided to observe if differences exist in the interactions of females in lab groups composed of homogeneous, all girls groups, to that of heterogeneous, coed lab groups. Knowing how girls interact with each other and with other males, can help all science teachers in creating labs and lessons that are more “female friendly.”

Procedure

In order to change the classroom environment in such a way as to extract all male influence from the classroom the following mini-experiment was employed:

Student-Student Interaction Procedure:

The three classes observed for this mini-experiment was the class “College Preparatory Biology,” a sophomore level course. During lab periods lab assignments were given to the class as per indicated by each individual class schedule. For each lab period the three classes was broken down into 6 lab groups. All lab groups were composed of approximately four students. For the first three lab assignments each lab group of four students was constructed in a heterogeneous fashion on the basis of sex. A total of three laboratory investigations were conducted in this fashion.

After the initial three lab periods were done, groups were then separated for another three lab periods, into groups of four as indicated above. However these groups were separated into homogeneous groups on the basis of sex. As a result, lab groups consisted of all females or all males.

Through all of these lab periods, observations of the interactions of students in each group was taken in three key areas: the level of engagement in the lab activity of the female students in the group (classified as either: non-existent, passive, actively or equally, aggressively

or dominating), the manner in which the girls were communicating (classified as either: non-existent, very limited or passively, actively engaged, very aggressively), and the overall amount and type of work being done for the lab by the female students (classified as either: none, very little, equal amount, almost all, all). Classifications and relevant observations of interactions were recorded in an observation notebook.

Results

This section will describe much of the overall observations that were seen for the first three lab sections (groups composed heterogeneously):

Level of engagement in the lab activity of the female students in the group:

- The level of engagement of the female students was classified as passive to non-existent. In the majority of cases the female students would either occasionally read the directions or just watch and record. Hands on activities and procedures were almost exclusively performed by the boys.

Manner in which the girls were communicating:

- The manner in which the female students communicated was classified as passive. In all of the cases, much of the talking in the class had come from the boys in the classroom, with majority of the talking from the female students being concerned with either reading the instructions or verifying results.

Overall amount and type of work being done for the lab by the female students:

- The overall amount of work was classified as equal to majority. Many times the work that the female students had not done in terms of hands on procedures was equal to the amount of individual work done that was later copied by the rest of the group. Many of the labs had individual questions that were to be answered by

each person. Often times, the girls would complete these sections and share them with the rest of the group (usually the boys).

The following are the classifications and observations recorded for the second three lab sessions (the homogeneous groups):

Level of engagement in the lab activity of the female students in the group:

- The level of engagement of the female students was classified as equal among members within the group. In the all of cases, the female students would collaborate together and often share the responsibilities that the lab required them to do. All jobs including reading directions and the physical hands-on components of the lab were normally rotated throughout the group.

Manner in which the girls were communicating:

- The manner in which the female students communicated was classified as equal for each group member, but passively to equal in terms of group communication level. For this observation, a distinction was made between the overall level of contribution of each group member, as well as the overall communication level of the group as compared to the rest of the class. Within each group, the female students would communicate to each other equally with not one person dominating the other, but seemed to communicate less often as compared to the male groups as many tasks (i.e. taking turns) seemed to be understood.

Overall amount and type of work being done for the lab by the female students:

- The overall amount of work was classified as equal. In almost all cases, the female students acted very collaboratively in an organized fashion, in terms of the

way that the group approached the hands on procedures and lab protocols. The individual lab questions were often answered through group discussion, validation, and approval of an answer.

Discussion

The question posed is interested in seeing if a differences in interaction between the female students and other female students, as well as female students and other male students exists. From many of the observations and classifications made above, it appears that differences do exist in the way that a female student will interact with other female students when there are no males present.

Upon asking the students to break down into their lab groups according to the groups I had assigned them (the heterogeneous assignment), there was at first the usual groans from those few that had not wanted to participate in the lab; DNA extraction from strawberries. Most of these groans, low in pitch, originated from some particular male students in the classroom.

Once broken down and separated into groups however, some chatter had started from both male and female students. At this point I began to walk around and observe what was happening in respective lab groups. As noted in the results section the girls were generally much quieter in their groups as opposed to the boys. The boys were very vocal and were making comments such as “Mike what’s wrong with you, you’re not doing this right” or “Nice going James, now we have to do this over again.”

Also noted, most of the guys were performing the hands on activities, while the girls were either reading directions or talking with a neighbor. I began to wonder why some of the girls had not engaged in performing the activity. I asked a few of the girls if they had tried to fish out some DNA and their responses were all negative. I asked, “Why not? This stuff is fun!”

Most of the girls had responded via the shrugging of shoulders or by saying “I don’t know” but one of the girls I asked directly said somewhat resentfully detected, “Mr. Resch, Phil just kinda like took over and did it all. So I just let him.” This prompted me to ask Phil why he had not let Kirsten fish out some DNA. “I don’t know, I just started to do the stuff and Kirsten just started reading directions.” I then had asked Kirsten if she would like to try to get some DNA out of the solution and she responded “no Phil is doing a good job as it is, although reading the directions is boring.”

As earlier discussed many differences exist between girls and boys- girls prefer to be in a safer place where they do not have to fear communicating their ideas to others and risk possibly becoming ridiculed (Strauss, 2005). Perhaps threatening comments such as “Mike what’s wrong with you, you’re not doing this right” or “Nice going James, now we have to do this over again” foster the type of environment in which girls shut their mouths for fear of ridicule. The environment becomes very “charged” and competitive, and therefore leaves many girls uneasy about talking.

Could there perhaps be an innate quality for boys to naturally float towards doing more hands on things, and girls to do more written/reading tasks? In elementary schools one can usually find a set of colorful blocks that are just perfect for stacking, making walls, and building many other kinds of structures. Usually, boys are often introduced to these blocks at an earlier age than girls. This may be in part to personal preference (the girl does not want to play with the blocks) but this simple act of putting the blocks in front of the boy as opposed to the girls does have significance. This misconception that all boys like to play with blocks and computers and girls are more interested in writing and socializing is engraining at an early age. What is expected of these children: “if you are a girl, then you write, and talk, and read; and if you are a

boy, then you do more hands on things like play with blocks.” Perhaps this engendering at an early age caused the automatic doling out of tasks.

After the first three labs in which all groups were constructed heterogeneously were completed, I then announced to the classes, “OK, we are now going to do things differently.” I proceeded to change the lab groups into homogeneous groups; either all boy or all girl lab groups. Upon doing this a few boys had asked “So Mr. Resch, is this like a competition or something?” My response was “no I just wanted to switch things up a little bit.” Satisfied with this answer the boys just nodded. It was then during this lab period I began to observe these lab groups again.

There were some considerable differences in the way the girls behaved as opposed to when the groups were comprised of both boys and girls. As noted the girls all participated, taking turns doing the hands on activities, the reading of instructions, and answering of questions. I asked Kristen which type of group she preferred, the all girls groups or the groups that were mixed of girls and boys. Her response was “I think I like the all girls because we each listen to each other. The boys are immature.”

This response seems to reinforce the notion that perhaps the competitive environment created by the other males in the classroom prevents some of the females from going out on a limb and taking a chance, or wanting to perform a hands-on experiment. This somewhat brash, and confrontational attitude that these boys showed, in a way, communicated subconsciously to the girls in the class that, “we are men, and we cause trouble and we are still louder than you.” As a result, girls in this class could not talk for two reasons: to avoid the ridicule by the boys, and to avoid being drowned out by the guys in the class. While in groups of all females however, all

of the girls took turns performing the experiment and they were not afraid to share their opinions because each was allowed to speak and they did not ridicule each others' ideas.

Conclusion

There are many implications that can be extrapolated from this study. Many teachers might argue that girls and boys are given equal time in his or her classroom. However this might not be the case. In this study girls were not necessarily living up to their full potential because of the environment that can be fostered. Girls, because of differences in thought, will not necessarily speak up in a classroom of competition, but rather, become quiet and not participate.

Teachers need to be aware of these differences, so that they can foster environments in the classroom by which all students feel comfortable communicating their views. Teachers can focus on classroom etiquette, in that, everyone should listen to each others' opinions, as well as what appropriate responses are to those with whom you disagree. This could perhaps promote a more female friendly classroom environment.

There are many extensions to this project that I would potentially like to study as a future teacher. I would like to further extend these observations by going to different classes that teach other subjects to see if there is any correlation with the treatment of females. I would also like to see if there are some classes where the reverse occurs; where females are proffered because of some stereotypical view that exists about that subject (i.e. English). I would also like to reverse this study, and investigate the interactions of male students due to the importance of understanding the way both male and female students act toward each other.

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