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Deconstructing Gender bias in the Pre-Service Teacher Diversity Education Course

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Abstract

Nowadays, teacher training institutions feel compelled to introduce new strategies and practicum requirements for addressing the needs of teaching a student population coming from various economic, social, ethnical, religious, linguistic, gender orientations. The new requirements for graduating such institutions combine highly rigorous theoretical preparation schedules with a demanding practicum session. The new assessments' requirements of the pre-service teachers and the importance of addressing student needs strongly correlates with multiple instructional factors in a classroom such as: female and male student instruction, implications of the course taking patterns for boys and girls in middle- and high-school years for students, and culminating with the importance of guided teaching and learning for most students. The paper reports results of an exploratory study examining factors that might be associated with achievement in school for both female and male students based on the training the pre-service teachers receive in the teacher-training institutions in the US. First-semester pre-service teachers at the conclusion of their course in multiculturalism and diversity are assessed on their knowledge of gender equity in education**.**

Keywords: gender roles, gender bias, teacher education, multicultural teaching

1. Introduction

Long before education specialists, psychologists, scholars concerted their efforts for understanding the achievement gaps for boys and girls in the classroom. Their innate abilities for certain subjects were the reason invoked for the disparities in their accomplishments, preponderantly in mathematics, sciences, for the male students, and language arts, social sciences for the female students.

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Some of the explanations closely followed the presumable assumption that men and women exhibit different brain sizes and different IQ levels. However, further studies rendered these assumptions as futile. The comparable IQ levels for men and women are already proven by decades of investigations (Sadker &Sadker, 1994, Birke, 1992; Hyde, 1996). "The only differences that have been found are in mathematical ability and spatial perception" (Hyde, 1996 as mentioned in Vrcelj & Krishnan, 2008, p.43). The differences in the gender-specific abilities could serve as an explanation for the male-dominated professions that are common in any economy, the ones related to science, technology , engineering and mathematics (STEM). Nonetheless, the abilities alone cannot explain the 20:1 proportion of males to females in engineering, for example (Hyde, 1996).

1.1 The Nature Versus Nurture Debate

Along these lines, in an interesting study (2006), David Kommer posed the same question, as the one already stipulated in the previous paragraph, 'are boys and girls really different?'. He also re-emphasized the ideas released by the sociologists and educational specialists in the last two decades; the process of determining gender roles and identification cards in someone's life are largely an outcome of the socialization process, not of an innate biological one (Rice and Dolgin, 2002). The personal identification cards are shaped for any student through the re-enforcement of the messages communicated by peers, teachers, parents and last, but not least, by mass-media information channels. Boys and girls perceive in specific ways the environment around them; "When they are in same-gender groups they act and play very differently. Girls are talkative and cooperative, boys are competitive and physical" (Rice and Dolgin as mentioned in Kommer, 2006, p.247). Kommer continued by re-iterating the idea that teachers need to understand these gender-differences and be prepared to address them by instilling the healthiest messages to boys and girls of all ages.

In a study published by the American Association of University Women (AAUW), the aspect of shortchanging girls in school's environment was discussed. The idea of inequities in the school's teacher-student relationships was exemplified through the less likely opportunity the female students had when questioned to receive an appropriate answer to clarify their thinking (Kommer, 2006, p.247).

The boys were "more regularly called on, and if not, they were just as likely to shout out an answer, leaving girls to sit quietly, and girls were not encouraged to take advanced math and science classes" (AAUW, 1992, as mentioned in Kommer, 2006). Once the results of the study were popularized, measures were taken to improve the dynamic of student-teacher interactions in the math and sciences courses. Certain improvements in girls' mathematics and hard core sciences proficiency were registered (AAUW, 1998). Still, there are some questions, such as: 1. who is more likely to drop out of high school; 2. who is more likely to be sent to the principal's office for a discipline referral; 3.who is more likely to be suspended or expelled; 4. who is more likely to be identified as a student needing special education; 5. who is more likely to need reading intervention?. As proven by Taylor and Lorimer, the answer to all of these questions is 'boys' (Taylor and Lorimer as mentioned in Kommer, 2006, p.248). Based on the aforementioned results of the longitudinal studies employed by scholars and policy-makers alike, the disparities and challenges in the American education system are of a lasting significance.

The education specialists further explain how the biological and sociological factors impact the activity of different genders in a classroom. David Kommer as one of the scholarly proponents of the importance of diversifying and accommodating our strategies to address the needs of all students points out a 'brain theory' that might be useful. According to this theory, the corpus collosum (system of nerves) which connects the right and left hemisphere of the brain is in females 20 percent larger than it is in males (Gurian, 2001; Sousa, 2001; Walsh, 2004 as mentioned in Kommer, p.248) . Therefore, female students are equipped to better use both sides of the brain, as reflected in multitasking. Kommer in his study also enhanced the background knowledge when further adhering to the 'brain theory' proposed by Sax. "Girls and boys assess risk differently, and they differ in their likelihood of engaging in risky behaviors" (Sax, 2005, p.41). Gurian and Stevens in 2004 , Sax , as well in 2005, insisted on the biological differences impact on the cognizant abilities of students. Male students, largely right hemisphere driven exhibit inclination at spatial tasks, as reflected in their accomplishments in mathematics (graphs, maps) and technology.

"The female students who are less hemisphere dominant, seem to use both sides of the brain, and therefore are better at literary-pursuing activities"(Guarian and Stevens, as mentioned in Kommer, 2006, p.248).

At the same time, Kommer, in his study, also insisted on the idea that in order to understand the complex environment in the classroom, it is essential to include the impact of social differences of the students as they impact the teacher-student, student-student and parent-teacher interactions.

As part of the ascribed factors contributors to student success, educational and behavioral scientists include also the impact of the social and economic attributes to student success. The nature/nurture debate still polarizes nowadays the educational researchers and policy makers' quest for the most efficient public education system. Included in the nurture debate is the significant role that society plays in shaping students' future. The socialization factors encompassed under the umbrella of influence of the society at large are quintessential in the ways we teach certain roles /responsibilities to our youth. Many concerned parents of the educational process outcome of their offspring, took center stage and unified their voices hoping that an existent system of education, i.e., single-sex schooling, would still be the most viable option for raising proficiency of learning.

In an article written by Cradle and Spradlin, in 2008, the controversial findings regarding single-sex education were formulated in the context of the pros and cons of this system of instruction. The arguments speaking in favor of introducing the single-sex education in the public system emphasized that males and females have different needs, modes, interest in learning; for example, male students prefer learning tasks that involve competition, while the female students prefer tasks that imply collaboration. In single-sex schools students are much more interested in learning than in socialization. The adversary arguments highlighted in the analysis of the single-sex schooling are conducive to conclusions such as: "single-sex education sends messages of inferiority, perpetuating the ideas of biased and stereotype in someone's life; the differences within a sex are much bigger than the differences between sexes, family income and parental attainment are still the biggest predictors of achievement, not gender" (Cable and Spradlin, 2008, p.6).

In conclusion, authors summarized that the single-sex education is the system where stereotypes are upheld whilst the promotion of a "fair, harmonious relationship between sexes" is not emphasized (p.8). They also remarked that the cooperation and collaboration between sexes needed in a real world are not enhanced by the single-sex schooling system.

The conclusion that the aforementioned authors arrived at is in agreement with the David Kommer's study. "The goal is not to treat boys and girls equally, but to create equity by purposefully addressing the particular needs of each gender"(Kommer, 2006, p.250).

In spite of the Title IX of the Education Amendments of 1972 there is still some concern regarding opportunities offered to boys and girls in the classroom.
Title IX:

No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance…

The passage of the Title IX and the affirmative action movement have been effective in opening new doors and career opportunities for women (Campbell, 2010). There are now more women doctors, lawyers, elected officials, and college professors than ever before (Campbell, 2010, p.165). For example, in 2006, women received 50 percent of medical degrees compared with 9 percent in 1972, 49 percent of law degrees compared with 7 in 1972. "Women now make up the majority of the US students in US colleges and universities and the majority of the recipients of master's degrees" (Mussil, as mentioned in Campbell, 2010, p.165).

In order to understand implications for various background student populations of the existing public school systems in the US, it is appropriate to account for the institutionalized practices prevalent in the system. It is known that student population in accordance to the results of the standardized testing procedures instilled by the *2001 No Child Behind Policy* is to be included in grade appropriate tracks at the age of elementary years. All students based on their abilities, or intellectual developments stages, even interests ought to be included in school-wide streaming or tracking lines.

As drawn from the statement above, tracking at every level of schooling could be a pervasive issue in understanding future career orientations and representations in highly-sought after vocations that our children might be initiated in and prone to embrace from a very early age.

When compounding the data, we see that there are still large cohorts of female students tracked to classes in cosmetology, food industry, human relation careers, and fashion oriented specializations. In contrast, boys take advanced computers, engineering, and information technology programs (Gaines, 2002; Oakes and Saunders, 2007).

Along these lines, the opinions of the female scholars involved in the process of pursuing highly rewarding careers in the STEM (science, technology, engineering and mathematics) disciplines could help in the development of policies that ought to serve the goal of equity and equality in any of the US public education system. One of them is Meg Urry.

Meg Urry had earned her Ph.D. from Johns Hopkins, completed a post doctorate at M.I.T.'s center for space research and served on the faculty of the Hubble space telescope before Yale hired her as a full professor in 2001. "At the time, there wasn't a single other female faculty member in the department", (Pollack, E., in *The New York Times*, p1). In recent years, Urry has become devoted to using hard data and anecdotes from her own experience to alter her colleagues' perceptions as to why there are so few women in the sciences. As a result, she published an essay in The Washington Post describing her gradual realization that women were leaving the profession not because they weren't gifted but because of the "slow drumbeat of being underappreciated, feeling uncomfortable and encountering roadblocks along the path to success." (Eileen Pollack, 2013, *The New York Times*).

Summing up, the research elaborated on creating a gender-friendly classroom as Kommer insisted in his scholarly work, means that "at times students should have an opportunity to work in a gender-matched activity, while at other times they ought to learn to function in a more typical gender-mismatched one" (Kommer, 2006, p.250). As he mentioned, teachers may want to know that learning occurs differently for both genders, and therefore they should be able to assess properly the learning outcomes. The gender- mismatched activities are the ones in which a team-oriented project, or a collaborative process of analysis and solving of a problem open students access to knowledge. Students should be efficiently assessed in all of the activities promoted during the allocated instruction time.

While some girls may be more linguistically inclined, some boys are just as advanced as girls. Some boys may see the patterns and architectural shapes better than girls, although some girls go into technical and engineering degrees.

As Banks and Mc Gee Banks (2013) acknowledged, in order to creating a gender-fair classroom, there are some recommended strategies. The first three are offered below:

1. If the textbooks and software that you are given are biased, you may wish to confront the bias rather than ignore it. Discuss directly the issue with your students. It is entirely appropriate to acknowledge that instructional materials are not always perfect. Teach them about the forms bias take from stereotyping to cosmetic bias. By engaging your students in the issue, you help them develop critical literacy skills.
2. Ask your students to list famous men and women. Do they have an equal number of women and men? More women? More men? Does the list include individuals of diverse racial and ethnic backgrounds? Individuals with diverse sexual orientation? Discuss with them what their lists teach us. What groups are missing from their lists? How can we learn more about "missing Americans"?
3. Analyze your seating chart to determine whether there are pockets of racial, ethnic, class, or gender segregation in your classroom. Make sure that you do not teach from one area of the room, focusing your time and attention on one group of students while ignoring another group sitting in another part of the room. When your students work in groups create groups that reflect diversity. Monitor these student groups to ensure equitable participation and decision making (p.121).

2. Method

A first-semester cohort of pre-service teachers at one teachers' college in upstate New York was enrolled in the required course of multiculturalism and diversity. All twelve students were instructed along the theories and practicum pertaining to multicultural and social justice education as presented by the scholars in the field.

At the commencement of the education and diversity course, they were asked to formulate honest answers to a 10-question survey encompassing elements of gender equity through teaching. The questionnaire's format is given in the **Appendix**. The answers followed a 'true-false' format. From the answers to the survey, students and instructor alike identify main ideas and conclusions that apply to a semester course understanding in gender equity in a classroom.

3. Results

The questions clustered along two main coordinates; 1) a definition of gender equity as pertaining to the in-classroom group dynamic, and 2) gender-based characteristics and biases to be accounted for in everyday's teaching.

Based on the definition of gender equity, the survey posed a set of questions, the ones encompassed by numbers six, seven, eight and nine. All of the twelve pre-service students answered correctly to the four above mentioned questions. Although, challenging to apply the definition of gender equity to the one-on-one interactions in a classroom, all future teachers gave the proper answers to all four of the questionnaire's straightforward inquiries into gender equity. Everyone got the importance of promoting gender equity in a classroom by not maintaining gender roles, and preconceived notions in relation to each gender's ability, or the professional potential that students may have. Along the same lines, all pre-service teachers recognized through their answers that "gender equity is often assumed to be the fair treatment of boys and girls" in a classroom (question eight). The twelve of them subscribed to the idea that "equity can be defined as a fair and equal treatment among groups or the absence of gender differences in the outcome" (question seven).

The other six questions enunciating gender-based roles, differences, biases as socially perceived and regularly to be accounted for in everyday teaching, painted a different picture in the pre-service teachers' understanding. While the whole group answered correctly questions one through five, there were some significant differences in answers to question 10. The latter question 'maintaining gender differences in teaching in the classroom bring equity, respect and self-esteem between boys and girls' recorded three wrong answers from the students. A twenty five percent of the interviewed students did not have a valid understanding of the context and/or content of the survey.

Arguably, some of the pre-service students didn't acknowledge what the consequences of perceived and pre-conceived gender differences and biases once instilled are in relation to the teaching outcomes. Although, all of them subscribed to the idea that biological differences are not to be considered restrictive elements in the strategies of the teaching and learning, they did not comprehend what the consequences are when reinforcing differences through genders' biases and roles in a classroom. A better delineation of gender biases and preconceived societal norms in learning outcomes in regard to unwanted restricting consequences ought to be addressed.

The possibilities of the equal access to the stream of learning are to be in the future highlighted through the awareness of inter-relational dynamic in the teacher-student, or student-student collaborative work. Moreover, the main strategies targeting equality and augmented self-esteem for both boys and girls in all of the core courses and areas of teaching need to be better exemplified.

4. Conclusions and Limitations

The study sheds an interesting light into the pre-service teachers' understanding in relation to the possibilities of deconstructing gender bias in a classroom. As exemplified through the present study the future teachers do have more of a theoretical understanding of the need for the implementation of the gender equity elements in any contemporary classroom. They lack experience or knowledge on to how to apply the theoretical notion of gender equity at the practicum scale. They considered that by maintaining differential treatment in regard to each gender's interests they may opt for a better outcome in the learning process, and an individual increased self-esteem. More practical input into the need for introducing elements of gender equity through a vast array of resources and the one-on-one interactions is to be promoted during the multiculturalism and diversity required course. The above-mentioned aim will be better implemented through the practicum session that the students are to partake in after the one year theoretical preparation courses they are offered through the college curriculum. Their practicum is closely supervised by their instructor in collaboration with their observation field supervisor.

At the same time an extended study with further generations of pre-service teachers into what gender equity in a classroom is and aims to be has to be performed. For better results, the study could also be extended to other US teachers' colleges education institutions.

Appendix

Questionnaire

1. Providing education and training to girls and boys on equal bases brings about gender equity in the classroom.
2. Boys and girls are biologically different; therefore they must be treated differently in the classroom.
3. Group discussions in the classroom must be formed according to gender in order to bring equal treatment in the classroom.
4. Students in the classroom can teach better each other if they do so accordingly to gender.
5. When giving presentations, girls must be given more priority than boys, so as to bring about gender balance in the classroom.
6. Teachers and students are responsible to bring about gender equity in the classroom.
7. Equity can be defined as a fair and equal treatment among groups, or the absence of gender differences in outcome.
8. Gender equity is often assumed to be fair and equal treatment between boys and girls, and men and women.
9. Gender equity can be promoted in the classroom by maintaining gender roles, characteristics, and choices made by both boys and girls.
10. Maintaining gender differences in teaching in the classroom brings equity, respect and self-esteem between girls and boys.

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