A Damsel in Distress?
Is STEM Intended to Rescue Education?

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In his work entitled “The Gender in U.S. School Reform,” William Pinar makes clear that teaching is a profession that is gendered female in the political imaginary of the U.S. In truth, more and more teachers are expected to take responsibility for the learning in their classroom in the same way that the wife in the nuclear family was blamed if her children failed in some way, regardless of the participation (or lack thereof) by the children’s father in their upbringing. The great lamentation of politicians and parents in the U.S. over the decline of the education system, and the “lack of relevance” of “brick and mortar” schools is surely related to this “problem” of the feminine.

Enter stage right mathematics and science, subjects largely pursued by males and the requirement, it can be argued, of many professions engendered male (Langille, 1993; Pegley, 2007). Mathematics, science and technology are lauded as important pursuits by many, and this is reinforced, among other things, by government initiatives (e.g. STEM: Science, Technology, Engineering and Mathematics) and college and university entrance requirements worldwide – for better or for worse (Hacker, 2012). There is much work being done, as we will see, by educators and researchers, government initiatives and private corporations, to encourage girls to pursue careers in mathematics, science and technology – as if, somehow, their lack of engagement in these fields is the penultimate problem we face. With the gendered history of education, one can not help but wonder: Is STEM being strongly encouraged worldwide with the (un?)intended purpose of “rescuing” education, the damsel in distress?

Two recent initiatives that are intent on increasing girls’ engagement with STEM related fields were fraught with harmful assumptions about gender, and point to the
heroism perceived characteristic of these subjects with respect to education. I will examine these initiatives.

**Would-Be Heroes: The European Commission and The LEGO Group**

The European Commission’s (EC) recent “Science: It’s a girl thing!” campaign, officially released in June 21st, 2012, raised much public furor due to what many have deemed a poorly chosen introductory trailer (video). The one-minute trailer contains flashes of scenes depicting giggling girls in high heels and fashionable clothes, with various images of lipstick and eye shadow, test tubes and boiling chemicals appearing to the beat of electro-funk music. In “Science: It’s a girl thing! Q&A”, the EC’s response to the offense taken due to the trailer, they state the aim of the campaign is “to give science an attractive, modern face in the eyes of girls and young women who might otherwise not consider it” (European Commission's Directorate General for Research and Innovation, 2012). So, it seems, “girls” (and, it can be added, education in general) need something additional, such as “an informative and dynamic website” and “a Facebook page”, to make science more appealing. In this press release, the EC emphasizes that the idea behind the trailer “was to combine images of science (such as electronics, mathematics, chemistry, physics) with images closer to cosmetics and fashion to show teenage girls that science is already part of their life” (European Commission's Directorate General for Research and Innovation, 2012). Apart from the fact that this alienates “butch” girls and “tom boys” who don’t identify with “cosmetics and fashion,” a statement such as this implies that “girls” need to be shown the place of science in their lives. It seems the EC sees a need to come to the aid of these “girls” who have not been adequately shown how science is all around them by their failing teachers.
One could argue that the LEGO Group had a similar idea in mind with the January 2012 release of their “LEGO Friends” line of building sets, a gender segregated world of beauty shops, dog shows, and “bunny” houses. Their press release states that LEGO Friends “brings classic construction play to the girls’ aisle [of department store toy departments] with first-of-its-kind LEGO mini-doll figure, three new brick colours, and detailed interiors” (The Lego Group, 2011). Again, it was assumed that something needed to be done to bring LEGO’s construction experience to girls. While one could argue that this does not necessarily mean LEGO executives feel they are “rescuing” education as a whole with their building product, one cannot ignore that LEGO Education “distributes specialist branded toys and educational tools for use in schools” (Densen, 2012) and has had a vested interest in education worldwide for many years (Upitis, 2001, 165). With this vested interest, and a new product justified by what appears to be flawed “research,” riddled with gender stereotypes, it is far from unlikely that the LEGO Group held a similar vision of salvaging education with their product, which is well known to encourage logical and mathematical thinking.

It may seem daring to consider that the motive of improving STEM education is based around gender bias, but could it be that the lack of success of programs with this directive is due to the lack of consideration for this issue? Any program whose implementation is based around a hidden or misguided purpose is surely doomed to fail. And, as an example, many technology integration programs in schools and boards of education have had poor results because of lack of direction and mixed motivations for implementation (Cuban, as quoted by Wald, 2003, 38). Larry Cuban found that “too often, technology has been linked to ‘reform’ motifs, developed by ‘foundation executives,
educational administrators, and wholesalers [note: all largely male professions] who saw solutions to school problems in swift technological advances’” (as quoted by Goodenow, 1988, 67). This has continued since in education reform circles around the world, with technology hailed by many to “inevitably” be responsible for the “second” revolution in education (Cuban, 2010, 1125). Our consideration of education’s “liberation” by increased STEM emphasis becomes even more worthy in a modern research environment where evermore studies are initiated to investigate “teacher ideology” and its impact on the successful implementation of technology in schools, many of which find, or simply assume, conclusively, that this is the main impediment to tech integration (Barron, Kemker, Harmes, & Kalaydjian, 2003, 490; Ertmer, 2005, 26). It is certainly worth knowing how teachers feel about technology in the classroom considering the direct link between their use of technology in classrooms and the success of a school’s technology program overall. However, considering all that I have mentioned before, it is also worth wondering about the gender motivations behind such research.

The idea of STEM coming to the “rescue” of the education profession is not new. There has long been a great emphasis on the imminent need for the improvement of female performance in STEM subjects (Clair Berube & Jeffrey Glanz, 2008; Haynie, 2003; Langille, 1993; Selda Koydemir & Canan Blake, 2011). Does one not wonder why low performance by boys in non-STEM subjects does not receive nearly as much popular lamentation, attention and concern as does girls’ low performance in STEM subjects? Similar, and suspect also, is that education reform contains sweeping dialogue calling for a “revolution” through technological infusion while arts and humanities largely continue to be the subject of budget cuts – but I will leave specific discussion of this for another
paper. I do not mean to imply that any effort made to improve gender equity is fraught with issues. Invaluable research has been conducted regarding issues that confront girls and women in STEM subjects and careers. In much of this research, however, we see that the characteristics of girls are named (blamed?) for girls’ problems with technology, which can propagate gender stereotypes. Pegley argues that the culture of technology is the reason for low appeal of technology to women (Pegley, 2007, 63) but her discourse still implies that there are inherent conflicts between technology and characteristics of females. The EC and the LEGO Group seem to be repeating these same mistakes. The EC’s research (and LEGO’s) shows that girls “need” to be social, and that they don’t choose STEM careers because they associate science with “people locked up in laboratories” (European Commission’s Directorate General for Research and Innovation, 2012; The Lego Group, 2011). Surely humans, not girls alone, are social creatures. Rena Upitis puts forth an alternative: “the curriculum should allow males and females to express elements of their own gendered cultures, and also to experiment with non-traditional gender relations and expressions” (Upitis, 2001). It seems, however, that the campaigns of the EC and of the LEGO Group focus on modifying STEM subjects for girls – and girls alone – may explore this “non-traditional” element of their gender, and this flaw is echoed by public commentary made in many online responses (such as this YouTube video and this blog post) and posts to the “Science: It’s a girl thing!” Facebook page.

Surely there are many resources produced outside of the boundaries of education systems that are valuable to use in a classroom context. However, the aim of LEGO Friends and the EC’s “Science: It’s a girl thing” campaign seems to be to make changes to a child’s education while being based on “research” with some obvious gender flaws.
Conclusions

It is widely known that there are large gaps in number of women and men in STEM fields and STEM courses in upper high school and university, and large pools of research has been conducted to determine the reasons for these. Unfortunately, solutions that are suggested by politicians often assume “the notion that the success of females in science depends on changing the rules of the game” (Sommers, 2008, 60). Many reforms in STEM fields involve changing the “entire culture” of these fields to be “inclusive” – but from the gender stereotypes we see still prevalent in major organizations, such as the EC and the LEGO Group, the result is often a demeaning “dumbing down” of the system so “women can take part.” Gender stereotypes remain prevalent in many elements of education reform. As Pinar suggests, the American public (and, it can be argued, much of the rest of the world) has had such a wide acceptance of the declared failure of the female teaching profession because of gender stereotypes inherent in people’s consciousness. I add that it been relatively easy for the public – worldwide – to accept urges by politicians and popular media that STEM will save education because of the former’s masculine nature (Bravo, Gilbert, & Kearney, 2003) and the “maleness” of the science behind its development. What is needed is “technology with a human face” (Schumacher, 1989, 136)– a way of introducing and using technology in the classroom in a way that impresses upon students how to use it in their lives in a productive and healthy way. If we can achieve this, we will have a well-rounded approach to education reform that respects both the power of technology and the professionalism of those in the teaching profession.
References


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