Technology and Media for Character Development and Career Readiness: The S.T.E.A.M-Based A.C.H.I.E.V.E. Model

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Abstract

There is no shortage of writings on the negative effects of technology and media. This article, however, focuses on ways to positively use technology and media as educational platforms. Highlighted are unique projects that the authors initiated in high need school across the New York City metropolitan area for fostering character building and pro social behaviors in children, as necessary ingredient for building tomorrow's careers. These projects called for model that fosters highly developed critical thinking skills before and after school hours through the enhancement of school/community relations. The S.T.E.AM.-Based A.C.H.I.E.V.E. model has recently gained momentum and being considered by School Administrators and supervisors in New York City as a viable venture to tackle the issues of character development and career readiness.

Key Words: Technology, Media, Character Development, School/community relations, Critical Thinking, Prosocial Behaviors. S.T.E.M., S.T.E.A.M.

1. Introduction

For decades now, technology and media played a role in instilling in our youth a false sense of reality, with target marketing that led to distorted self-image among youth, disordered eating, depression, and other maladies (Levine, 2009). At the same time, we (the authors of this article) were involved in unique educational projects that use media and technology for the betterment of society. The first author, Dr. Jeffery Gardere, is a clinical psychologist, an assistant professor and course director of behavioral medicine at Touro College of Osteopathic Medicine in NYC. He is an author of several books and a media personality who has appeared worldwide on every major news outlet. Much of Dr. Gardere's clinical work involves the treatment of families and their children. He has brought this expertise to reality TV in such venues as VH1's Dad Camp, where he counseled very young men and their teenage pregnant girlfriends, into becoming responsible and loving families. It is apparent that Dr. Gardere is a hard-core therapist who accepts no less than the truth from his young clients and the establishments that are charged with their care. The other two authors, Drs. Sharir and Maman have been inspired by Dr. Gardere's work. As administrative faculty of one of the largest graduate Counselor Training program in New York State they have partnered with Dr. Gardere to initiate unique character development and career readiness programs in schools across the New York City metropolitan area.

2. Using Media for Educational Purposes

Todays' youth are being constantly bombarded with visual and digital media (Ng-A-Fook, Radford, Yazdanian, & Norris, 2013). According to Ng-A-Fook et al., (2013) marginalized youth can be empowered through the use of communication technologies. These technologies can be used to enhance character development, academic achievement, and respect for diversity (Ng-A-Fook et al., 2013; RuSo, 2012). Therefore the use of these technological tools can be used for ethical development (RuSo, 2012). For example, through the use of online platforms to promote community projects (RuSo, 2012). For a few years now we have been on a journey to utilize visual and digital media to build character in youth along highly developed critical thinking skills through involvement with sophisticated technology and media before and after school hours. Dr. Gardere has brought high school students near the production process of news media at CNN. This is where students were exposed to video recording technologies and careers in media. Drs. Shair and Maman were inspired by Dr. Gardere's hands-on approach and decided to train students in their School Counseling graduate program to oversee college and career readiness projects in high need (and mostly low income) schools in New York City. Though involving stakeholders from the community (parents, community leaders and volunteer musicians) they have started to operate a state of the arts recording studio. Dr. Gardere's was appointed as a leader for this venture as the media figure he is. This inspired both the School Counseling interns and the high school students alike. All involved where looking at technology and media through different lenses. This enabled a unique school and community relations where all stakeholders got involved. Using recording technology and any other media were highly essential for this one-of-a-kind program that ties in school counselors with at-risk youth, with music audio production in a way that is hands-on from start to finish. The audio engineering the high school student were involved with aspects of science, technology, engineering and mathematics (S.T.E.M.).

3. S.T.E.M. for College and Career Readiness

Success in higher education and the development of a career has been defined in different ways, including degree completion or post degree transitions (Holman, 2013). The Obama administration set a goal of having the larger number of college graduates by 2020 (Holman, 2013). Currently there is an emphasis on defining success by including the way the student is able to transition to the workplace and start to earn a living (Holman, 2013). Students in the areas science, technology, engineering and mathematics (S.T.E.M.) have been shown to have a competitive advantage (Holman, 2013).A prerequisite of many occupations in the global economy is knowledge in S.T.E.M. areas (Erdogan & Stuessy, 2015; Kier, Blanchard, Osborne, & Albert, 2014). However, the education system in the United States does not prepare students for S.T.E.M. occupations (Erdogan & Stuessy, 2015). Some have even classified the current situation as a crisis (Schmidt, Hardinge, & Rokutani, 2012). Additionally, low income student do not have as much access as middle and high income students to college preparatory courses (Alford et al., 2014). Also only 26% of 8th graders were proficient in mathematics and mainly White males were entering science and engineering fields (Erdogan & Stuessy, 2015). There have been increasing initiatives to improve S.T.E.M. Education in all levels of education (Capraro & Nite, 2014).

Therefore we found a need to improve rigor in the areas of math and science in secondary schools and to adopt more stringent standards (Alford, Rudolph, Olson Beal, & Hill, 2014). As you will see later art is added into the mix (as our training is inherently in an entertainment field). Common Core Standards calls for the inclusion of art but our interns noted that it reality does not allow the time for it. Our interns in high need New York City schools also noted that even math readiness is not properly addressed with Common Core Standards in high need areas. The Common Core State for Mathematics (CCS/SI) was adopted to improve students' readiness for college level courses (Abraham, Slate, Saxon, & Barnes, 2014). But there is a detrimental effect for student having low math skills in S.T.E.M. majors (Abraham et al., 2014). Math has a crucial role in helping students understand the Patterns (Abraham et al., 2014). Alford et al. (2014) conducted a multiple case study to identify challenges to strengthen math and science teaching in secondary schools. The study results showed that there were four challenges: teacher anxiety about expectations, finding time to engage in collaboration, including career readiness as part of college readiness, and understanding assessment methods (Alford et al., 2014). The school counselor can also have an important role in improving opportunities for students in secondary schools in S.T.E.M. education (Carlson &Knittel, 2013; Schmidt et al., 2012). The problem is compounded by the fact that we were working in high need school with very blittle resources. While the school counselor can assist students in preparing for a career in S.T.E.M. fields by academic planning (Carlson &Knittel, 2013) it was doubly hard for us when working in high need schools.

Since we were working with low income high need schools we also had to carefully determine individualized needs when we introduce students to S.T.E.M. education. For that counselors used career and interest inventories to identify the students' areas of interest and to help them gain insight about their abilities and skills (Carlson &Knittel, 2013). The STEM Career Interest Survey (STEM-CIS) was used to assess students' interest in STEM fields (Kier et al., 2014). School personnel also encouraged student interest in STEM fields by organizing STEM career days that focuses on the types of career available in STEM fields (McGinnis, 2014). This type of activity has been found to be effective in piquing students' interest in STEM related fields (McGinnis, 2014). Involving all stakeholders, the home life of the students (involving parents and other family members), school personnel (teachers, counselors, administrators) and community members is essential to the student's success. We looked at this involvement as one that strongly ties the student with home life, school and community (illustrated in the eco-map in figure 1). We were interested in system-oriented view of things. We were also interested in replicating some of the elements already in use and tried to have stakeholders exposed to useful components of S.T.E.M. education. There are schools that specialize in S.T.E.M. education and the goals of these schools are to incorporate S.T.E.M. education into the existing curriculum (Erdogan &Stuessy, 2015). The minority disability (MIND) alliance in Science, technology, engineering and mathematics program aims to bring S.T.E.M. education to minority students with disabilities (Hawley, Cardoso, & McMahon, 2013). The program objectives are to improve the quality of S.T.E.M. education with this population, improve retention, and increase the number of these students entering S.T.E.M. occupations and continuing into undergraduate and graduate programs (Hawley et al., 2013). We were interested in following school programs that infuse academics with real world applications (Hoachlander &Yanofsky, 2011). For example, in algebra class there can be an engineering related project (Hoachlander & Yanofsky, 2011). These types of activities can deepen the students understanding of the S.T.E.M. fields (Hoachlander & Yanofsky, 2011).

4. The S.T.E.A.M-Based A.C.H.I.E.V.E. Model

Going from S.T.E.M to S.T.E.A.M (science, technology, engineering, art and Mathematics) was essential because a S.T.E.A.M approach promotes highly critical thinking skills among youth (Kim and Park, 2012). The S.T.E.A.M.-Based A.C.H.I.E.V.E. model was initiated by Drs. Sharir and Mamana few years ago as a social entrepreneurship project with various underserved New York City communities. It has been initially implemented at Community Understandings for Racial and Ethnic Equality (C.U.R.E.), supported by the Giuliani administration with some continued support from the Bloomberg administration. In 2011, with the help of Dr. Gardere's media personality and media appearances, it has finally made its way to New York City schools and was implemented as a before and after school model for training in underserved and unrepresented communities across the New York Metropolitan area. Through the involvement of the community the S.T.E.A.M.-Based A.C.H.I.E.V.E. model dispenses with the one-size-fits-all, simplistic approach. It recognizes the complex interplay of proximal and distal forces that have to be considered when working with children to resolve their poor predicament (for not having access to S.T.E.A.M.-Based training or any progressive exposure to technology). The S.T.E.A.M.-Based A.C.H.I.E.V.E. model recognizes the heavy impact that media and technology have in the lives of youth and creates an environment for school aged children to explore media and technology in a positive way.

As an educational platform (from the University side) this project rested on the shoulders of interns in the School Counseling training program who addressed the needs of New York City high school students and their families. Engaging and enlisting the aid of all community stakeholders is essential when creating any project that involves school and community relations (Gardere, Maman and Sharir, 2013; Maman, Sharir and Gardere, 2015). In addition to several high schools, this program has also since been implemented in the elementary and middle school levels as after school programs in underserved and unrepresented communities across the New York metropolitan area. As with our work with the high schools, our efforts to implement the S.T.E.A.M.-Based A.C.H.I.E.V.E model and its principles were in response to the lack of motivation of students to complete their high school education.

Under our clinical supervision, interns from Touro College's Graduate School of Psychology have been using the S.T.E.A.M.-Based A.C.H.I.E.V.E. model principles to help decrease dropout rates in several New York City high schools. The interns were tasked in finding age-appropriate ways to creatively implement the use of media and technology in elementary and secondary school environments.

The consensus among the school officials who have partnered with and implemented the S.T.E.A.M.-Based A.C.H.I.E.V.E. training was that the environment in public schools is often not conducive to developing students' emotional growth, self-esteem, and academic potential and for ultimately preparing them for careers. They concurred that the S.T.E.A.M.-Based A.C.H.I.E.V.E. model is a highly effective tool for 'real world' preparation of children and young adults in that it involves all stakeholders (teachers, pupil personnel service providers, parents, volunteers and community members). The S.T.E.A.M.-Based A.C.H.I.E.V.E. model calls for components that are clearly identified by its A.C.H.I.E.V.E. 'initials'. The School Counseling program interns implement the A.C.H. principles, and meet the community halfway with the 'I.'; the execution of E.V.E. principles is mostly left for the community to be responsible for (usually through the school's parent coordinator). Figure 2.Illustrates these dynamics.

5. Discussion

Figure 1 elucidates a systemic view of the student's needs while the dynamics in figure 2 illustrate the educational platform that the university interns created to support each student's needs from both sides (the school and the community). We followed this model with a S.T.E.A.M.-based approach that involved the systems thinking of seasoned academicians (Drs. Sharir and Maman). We were also fortunate to have the 'art' component led by a media entertainment and reality TV figure such as Dr. Gardere. On the whole, we were able to pleasantly tie in science, technology, engineering, and mathematics for our high school students with audio engineering career training. While the S.T.E.A.M.-Based A.C.H.I.E.V.E. model can be universally implemented in a variety of ways the university inters saw the implementation through by fostering character development and working on career readiness with students. They ended up creating an internship program for at-risk teenagers in several New York City high schools that allowed them to graduate from high school through a scheme where vocational training credits were earned through studies at a Digital Media Arts programs. The high school internships were implemented by students in the counseling training program, who were doing their own internships as school counselors in New York City schools. Working with the S.T.E.A.M.-Based A.C.H.I.E.V.E. model from a starting point where art, music and creative technologies form the basis is advisable in this day and age where technology and media are everywhere, although these often do not foster the character strengths we would like to see in our youth. As a project of Arts and Music, the audio engineering program provided high school students with the opportunity to learn about audio production and career in music technology. Also important was the healthy lifestyle modeled by School Counselors who developed the students' emotional growth, self-esteem and ultimately prepared them for careers in media and technology. The 'I' (individualized needs) is where this model departs from any other such school/community relations model. It does not take a one-size-fits-all approach. It then becomes easier to empower stakeholder in the community in a variety of ways that can inspire positive change in individuals, communities and the society at large.

6. Conclusion

Fostering prosocial behaviors and character development in the K-12 environment is necessary for career and college readiness. The technology and media S.T.E.A.M.-based approach we discussed called for highly developed critical thinking skills before and after school hours in ways that are engaging for students. It is apparent that the enhancement of school/community relations with the S.T.E.A.M.-Based A.C.H.I.E.V.E. model artfully engages students and can address the gap that exists for high need schools as far as S.T.E.M. career preparation is concerned. Technology and media can serve as educational platforms for narrowing this gap, especially when involving all stakeholders and addressing individualized needs for each child. We hope that the recently gained momentum, where the S.T.E.A.M.-Based A.C.H.I.E.V.E. model is being considered by school administrators and supervisors in New York City's schools as a viable approach to tackle character development and career readiness, will continue. With a S.T.E.A.M-Based approach technology and media could be used positively nationwide, not only to entice children to stay in high school until they graduate but also interest them in science and technology careers in college.

7. References

Abraham, R. A., Slate, J. R., Saxon, D. P., & Barnes, W. (2014). College-Readiness in Math: A Conceptual analysis of the literature. *Research & Teaching in Developmental Education, 30*(2), 4-34.

Alford, B., Rudolph, A., Olson Beal, H., & Hill, B. (2014).A school-university math and science P-16 partnership. Lessons learned in promoting college and career readiness. *Planning & Changing, 45*(1/2), 99-119.

Carlson, L. A., & Knittel, B. (2013).Using the career decision making system to enhance STEM opportunities for secondary students. *Career Planning & Adult Development Journal, 29*(2), 116-126.

Capraro, M. M., & Nite, S. B. (2014). STEM integration in Mathematics standards. *Middle Grades Research Journal, 9*(3), 1-10.

Erdogan, N., &Stuessy, C. L. (2015).Modeling successful STEM high schools in the United States: An ecology framework. *International Journal of Education In Mathematics, Science and Technology, 3*(1), 77-92.

Gardere, J., Maman, Y., & Sharir, D. (2013).School counseling and social entrepreneurship. *International Journal of Pedagogical Innovations, 1*(1), 47-50.

Hawley, C. E., Cardoso, E., & McMahon, B. T. (2013). Adolescence to adulthood in STEM education and career development: The experience of students at the intersection of underrepresented minority status and disability. *Journal of Vocational Rehabilitation, 39*(3), 193-204 12p.doi:10.3233/JVR-130655

Hoachlander, G., & Yanofsky, D. (2011).Making STEM Real. *Educational Leadership, 68*(6), 60-65.

Holman, D. K. (2013).Supporting STEM student success, competitive advantages, and engagement in career development. *Career Planning & Adult Development Journal, 29*(2), 73-80.

Kier, M., Blanchard, M., Osborne, J., & Albert, J. (2014).The development of the STEM Career Interest Survey (STEM-CIS).*Research in Science Education, 44*(3), 461-481.

Kim, Y. and Park, N. (2012). Development and Application of STEAM Teaching Model Based on the Rube Goldberg's Invention. In Yeo, S., Pan, Y., Lee, Y.S., et al. (eds.) Computer Science and its Applications (pp. 699–705). Springer.

Levine, M. (2009) Combating the negative impact of mass media. *Eating Disorders Review.20* (6), 1.

Maman, Y., Sharir, & Gardere, J., (2015). School and Community Relations for Prosocial Behaviors, Character Building and Academic Achievement. *International Journal of Pedagogical Innovations, 3*(1), 18-22.

McGinnis, P. (2014). How to organize a STEM career day. *Science Scope, 37*(6), 78-84.

Ng-A-Fook, N., Radford, L., Yazdanian, S., & Norris, T. (2013). Empowering marginalized youth: Curriculum, media studies, and character development. *Canadian Journal of Action Research, 14*(1), 38-50.

RuSo, N. (2012). The role of technology: Community based service-learning projects on ethical development. *Turkish Online Journal of Educational Technology, 11*(3), 375-385.

Schmidt, C. c., Hardinge, G. B., & Rokutani, L. J. (2012).Expanding the school counselor repertoire through STEM-focused career development. *Career Development Quarterly, 60*(1), 25-35.

Figure 1: Eco-map

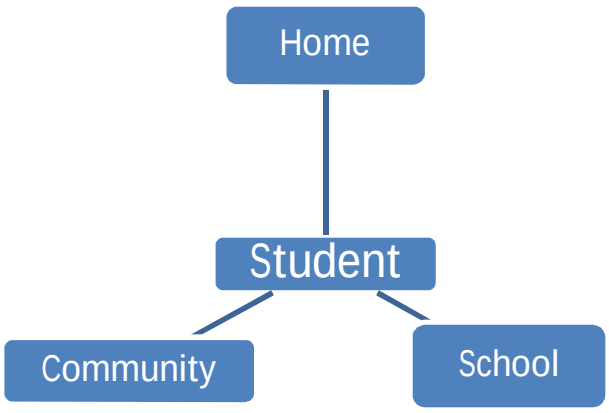

Figure 2. The S.T.E.A.M.-Based A.C.H.I.E.V.E Model

Art and Music– Fun Activities involving known artists and musicians help students view the school experience positively, so that they ultimately excel academically. The use of recording technology today and any other media is highly essential for this one-of-a-kind program that ties in school counselors with at-risk youth and music audio production in a way that is hands-on from start to finish.

SCHOOL

Career Exploration – Student get to understand career opportunities, how to find jobs, how to do well at interviews, how to adapt to workplace conventions. Science, Technology, Engineering and Mathematics are encouraged through exploring media and technology (for example, in a music studio where the science of audio engineering illustrates how exciting S.T.E.M. careers can be)

Healthy Lifestyle – Students learn how to stay healthy through exercising and eating balanced, nutritious meals.

Individualized needs (Addressed by all Stakeholders for each child)

COMMUNIT

Empowerment- School counseling students who are taking coursework and those who are in their internship are encouraged to apply what they have learned in class to empower stakeholders' relations (and as such school/community relations).

Volunteering - Community members volunteer their time, in connection with Arts and Music or help students form connections within the community by helping the needy, visiting the blind or the elderly in a nursing home.

Entrepreneurship - community leaders help students use the internet and community-based resources to connect with businesses, opportunities for success, and are encouraged to come up with social entrepreneurship projects themselves