**Advisory guide for applying the technological design principles of Bers: Case Study: Pleasantville, NJ School District**

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The Positive Technological Development Framework created by Marina Umaschi Bers (2012) was created to provide individuals with the insight to become digital landscape designers so that today’s youth can have a positive safe experience when exploring with technology. The framework was based off of the Positive Youth Development created by Lerner (2004) which consists of six components known as the six “C’s” which help “promote thriving and healthy communities” for young people when using technology (Bers, 2012, p. 10). The six “C’s” originally consisted of competence, confidence, character, caring, connection, and contribution (Bers, 2012, p. 10). However, Bers' framework, Positive Technological Development built on these six “C’s” with the creation of six more “C’s” specific to technology mediated behavior which include content creation, creativity, choice of conduct, communication, collaboration, and community building (p. 11-12). To further understand how this framework is used Pleasantville School District’s Technology Plan (PSDTP) will be reviewed according to the six original “C’s” and the six new “C’s”.

**Competence and Content Creation**

According to Bers (2012), competence is the “ability to use technology, to create or design projects to accomplish a goal, and to debug projects and problem-solve” (p. 11). Therefore, competence is seen when someone has the ability “to create content, to debug projects, and to problem-solve” (p. 12).

The PSDTP emphasizes the importance of using technology for problem solving in their executive summary. It specifically states, “It is the intent of this district that all students will be able to use technology to communicate effectively and creatively and that students will be engaged in authentic problem based learning, exploration, and simulation activities leading to the development of critical thinking, problem solving, research, and information-processing skills” (Pleasantville Public Schools, 2016, p. 6). The mention of critical thinking in this statement also aligns with Bers’ description of competence and content creation.

Another section of the executive summary includes emphasis on using technology to create projects and accomplish goals by opening access to global online resources. It specifically states, “These tools will provide access to information, community resources, communication, and collaboration around the world, thus removing walls of the classroom giving learners access to global peers, subject matter experts, and primary sources of information instantaneously” (Pleasantville Public Schools, 2016, p. 6). This certainly aligns with competence and content creation as it entails empowering teachers and students with tools that allow them to create and design projects and accomplish goals.

A section of the executive summary mentions providing technology support persons to mentor teachers in using educational technology to address curricular objectives and promote student achievement. Although this is a broad statement regarding student outcomes, it encompasses the idea of building student competence.

The PSDTP includes a section on assistive technology devices, which emphasizes the importance of having specialized technology to assist learning disabled children to perform to their maximum potential, including enabling them to create and problem solve.

 The number one goal in the PSDTP is to “Increase Student Achievement” (Pleasantville Public Schools, 2016, p. 18). One specific statement regarding this goal states “provide applications and support for integrating technology into the blended learning environment” (Pleasantville Public Schools, 2016, p. 16). If this school district follows a research-based framework for implementing a blended learning environment, then educational technologies will build student competence and content creation abilities.

**Confidence and Creativity**

According to Bers (2012), confidence is the “sense of oneself as someone who can act and learn to act successfully in a technology-rich environment, find help when necessary, and have perseverance over technical difficulty” (p. 11). If an individual is confident with the technology task before them then they will have “the ability to transcend traditional ideas, rules, patterns, relationships, or interpretations to be creative as they develop new content in creative ways (p. 12).

 There is a direct link between this aspect of Bers’ design principles and the PSDTP section on assistive technologies for the disabled. Technology can foster disabled students’ productivity, confidence, and creativity. Digitizer pads, dictation software, and personalized learning programs can transform special needs students from passive learners to confident active learners that can express their creativity through technology.

 The PSDTP states “students will use multimedia to enhance their presentation skills” (Pleasantville Public Schools, 2016, p. 18). While this is a broad statement regarding presentation skills, it certainly encompasses the concepts of confidence and creativity. Student confidence is developed by presenting information to their teachers and peers. Creativity is developed as students learn the many functions and options for designing and delivering multimedia presentations.

Among the first statements in the PSDTP includes the notion of using technology to promote student confidence and creativity. It specifically states, “It is the intent of this district that all students will be able to use technology to communicate effectively and creatively…” (Pleasantville Public Schools, 2016, p. 6). Communicating effectively entails having confidence, while communicating creatively means that students can use a variety of approaches, including technology-based approaches, to deliver a message.

**Character and Choices of Conduct**

According to Bers (2012), character is the “a moral compass that guides the use of technology in responsible and safe ways and the ability to express one’s values using technology” (p. 11). When given choices of conduct and choices are made, the moral compass is further developed allowing the individual to evaluate what if situations (p. 12). PSDTP’s “Goal 4: Digital Citizenship” addresses these two components of Bers’ framework (Pleasantville Public Schools, 2016, p. 24).

The goal addresses the ethical use of technology by students and staff which includes internet safety. There are six objectives that were created to help Pleasantville achieve this goal. Two of the objectives specifically address this portion of the framework. The first objective is to “implement and refine structured lessons that cover the ethical use of technology in the classroom” which directly relates to the moral compass and how students should deal with the “what if” situations. The second objective is “incorporate training on these issues (internet safety and acceptable usage) as part of the district staff development regarding technology” (Pleasantville Public Schools, 2016, p. 24). This directly addresses Bers framework as it discussed guiding the use of technology in a responsible and safe way.

**Caring and Collaboration**

According to Bers (2012), caring is the “sense of compassion and willingness to respond to the needs and concerns of other individuals, to assist others with technical difficulties, and to use technology as a means to help others” (p. 11). Collaboration is working together to reach a common bond and “in order to collaborate we need to care about each other’s idea and needs” (p. 12).

PSDTP’s “Goal 5: Access to Technology” encompassed caring and collaboration because it addresses the idea to “provide access of technology for all students” (Pleasantville Public Schools, 2016, p. 25). Their strategy to reach this goal addresses the needs of all students to have access to a device that can connect to the internet and through this device allows the opportunity for students to collaborate. The strategy specifically states “Ensure that every student and educator has at least one Internet access device and appropriate software and resources for research, multimedia content creation, and collaboration for use in and out of school” (Pleasantville Public Schools, 2016, p. 27).

**Connection and Communication**

 According to Bers (2012), connection is the “positive bonds and relationships established and maintained by the use of technology” (p. 11). In order to maintain those bonds communication is needed which is “the process of interchanging thoughts, opinions, or information by sing technologies” (p. 12).

An example includes the proper use of Facebook as a way for students and faculty to build positive relationships. Facebook has started The Facebook Safety Center that provides a guide on how to keep individuals safe online which includes references from organizations such Stop Cyberbullying.org. (Bers, 2012, p. 10). Facebook has the benefit of things such as Facebook groups that allow schools to start public or private groups to have a forum of conversation about topics that are important to them.

 This is expanded in the PSDTP under their third goal they have for “Connected Teaching and Learning.” The goal states that, “Professional educators will be supported individually, and in teams, by technology that connects them to data, content, resources, expertise and learning experiences that can empower and inspire them to provide more effective teaching for all learners.” In addition to the example above of Facebook, they plan on using additional ways for connection via programs such as Google Apps for Education, Edmodo, and The Cloud. (p. 22)

The PSDTP looks at the connection through their Technology Overview section. This section discusses the use of a 200 Mbps metro-Ethernet connection to connect all the schools in the district. In addition, telecommunications equipment and services have been placed within the school district for easy connectivity amongst these schools. To ensure telecommunication services quality a Needs Assessment is done each year that looks at the age of the system, availability of replacement parts and the overall reliability and history of downtime. (p. 14)

In the appendices of the PSDTP (p. 37) it breaks down communication even farther. Standards such as “Standards of Computer Networks” have been put into place to make sure all communication vehicles are being used appropriately.

To maintain connections for the schools in their entirety as part of the PSDTP’s evaluation plan they state that “All classrooms will have the necessary connections to the network to allow access to online software.” (p.32)

**Contribution and Community Building**

According to Bers (2012), contribution is the “orientation to contribute to society by using and proposing technologies to solve community/social problems” (p. 11). Community building is applying that “technology to enhance the community and the quality of the relationships among the people of that community and the quality of relationships among the people of that community” (p. 12).

Community Building aligns with Goal 5 of the Curriculum and Instruction of the PSDTP is to improve public support and confidence in our schools. The measure is to assure equal access to all in our district. Bers (p. 120) takes this further by referencing community building and how it allows for civic engagement and volunteerism opportunities for youth due to internet usage. Technology access to all students will allow students to create communities that extend beyond geographic boundaries (p. 120). Taking it global involves youth connecting with others to take action in their local and global communities (Raynes-Goldie & Walker 2008) PSDTP providing all students technology access and training lays open to them these avenues of community building.

An example of community building is public displays through open houses. This was looked at via the Reggio Emilia approach which was created by Reggie Emilia in Italy after World War II. This helps build community by students being able to share and celebrate their work in front of other members within their community including family, friends and faculty. (Bers, 2012, p. 144)

In the PSDTP’s three-year goals it discusses how the Technology Department’s mission is the hope to advance student achievement. This is broken down into several goals which all revolve around building relationships between students and faculty.

 As part of the three-year plan one of the main goal is to increase student achievement. One of the ways they discuss this is by students using networking platforms online to interact with students along with using multimedia to enhance their presentation skills individually and in group settings (p. 18)

 The vision statement (p. 7) shares the theme about solving problems through technology. It states, “Through the use of technology, schools will effectively enhance the learning of curriculum content, stimulate the current state of knowledge production in the world of work and involve students as real researchers, solving real problems.”

 In an effort to build on contributions the vision statement also states that technology will be integrated within the school curriculum to help students learn. The academic year and three-year-plan look to benefit from the plan put in place by the district.

**Conclusion**

This case study illustrated how applying Bers (2012) Positive Technological Development helps technology users develop in the areas of the six “C’s” which are content creation, creativity, choice of conduct, communication, collaboration, and community building (p. 11-12). Upon analyzing the PSDTP, several areas were identified that aligned with Bers’ principles. Whether the authors of PSDTP specifically drew upon Bers’ guidelines is unknown, however, it is evident the vision, objectives, and goals can be viewed and understood through the lens of Bers’ Positive Technology Development.

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