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# 21st Century Learning

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21<sup>st</sup> Century Learning

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### Abstract

Research has shown that students who are taught using 21<sup>st</sup> century teaching styles are more successful throughout their education. This literature review explores the importance of 21<sup>st</sup> century learning and teaching styles. This review begins by looking into and discussing the role of the teacher in a 21<sup>st</sup> century learning environment. The role of the teacher is to be a guide by the student's side. This review provides ways to be that guide, rather than the instructor. This literature review also looks at the benefits of flexible seating and how the teacher can create a classroom using flexible seating. Finally this review looks at the importance of integrating meaningful technology use into student learning. This includes virtual field trips, Genius Hour and Makers Space.

Keywords: 21<sup>st</sup> century learning, flexible seating, technology integration, Genius Hour.

### 21<sup>st</sup> Century Learning

The world of education is ever changing. The needs of the students and future employers change, as well. The focus of school today is to prepare students for college or employment in a field of their choice. Teaching just to pass a test or earn a high school diploma is no longer enough in today's world. Many schools have begun to change to accommodate these needs. Typically, the building structure of the school has stayed the same for the past 100 years. Fortunately, 21<sup>st</sup> century learning can be changed from within the walls of those structures through changes in teaching strategies.

The term "21st-century skills is generally used to refer to certain core competencies such as collaboration, digital literacy, critical thinking, and problem-solving that advocates believe schools need to teach to help students thrive in today's world" (Rich, 2010, p. 1). It is important to understand what a 21<sup>st</sup> century classroom looks like and how it is run. According to Saomya Saxena's (2013) the top 10 characteristics of a 21<sup>st</sup> Century classrooms are student centered, contain computing devices, active learning engagement, adaptive learning, inviting environment, students understand rules and expectations, respect for all in the classroom, students who take responsibility for their learning, performance based assessment, and a collaborative learning environment. In addition to this list, a large component of 21<sup>st</sup> Century learning is the teacher as the guide or facilitator for learning, rather than the presenter of all the information. Teachers who are set up to embrace 21<sup>st</sup> century learning provide their students with opportunities for hands on learning, creative expression, writing to reflect, justifying their answers, and collaborating with peers. These teachers also integrate

technology, use an inquiry-based approach, use problem-solving methodology, and use a transparent assessment (Goertz, 2015).

In one study conducted by Aaron Johnson (2013), it was found that students are more engaged, receptive and open to learning when 21<sup>st</sup> century learning methods are in place (Johnson, 2013). However, with that being said test scores did not increase as much as expected, when the information was taught in a tech-heavy student centered way, as compared to those who were taught a traditional, teacher-driven ways. They did increase, but just not as much as expected. Students were then taught in a blended form of instruction and that showed increased engagement, as well as increased knowledge retention. This literature review will look deeper into ways to transform old classrooms and teaching styles into 21<sup>st</sup> century teaching and learning environments.

### **Teacher as the Guide**

One of the biggest differences in a 21<sup>st</sup> century classroom, as compared to the past is the role of the teacher. The teacher should be a guide for the student's learning, rather than the constant presenter of information. This has proven to be a very tough task for teachers across all grade levels. This means giving up the idea of traditional seating with the teacher in the front of the class lecturing and writing on the chalkboard.

Teachers are no longer needed to stand in front of a class and lecture about the content they want the students learn. This is boring and not stimulating for teachers and students, alike (Sutton, 1997). There is a plethora of information available at the students' fingertips, which can be located and presented in a way that is more engaging for the students. The time in school should be used to teach students where to research, find, interpret and apply the information. Being able to apply the information a student has

learned is an important 21<sup>st</sup> century skill that will carry students throughout life. A student who has all the knowledge, may score well on a test, however if he/she is unable to apply that knowledge the information will soon be just facts (Abbott, 2014).

A teachers job should be to observe, assist, suggest, and, when things were going well, to fade into the corners of the classroom (Sutton, 1997). Many teachers try and figure out how this can be done, while still meeting the requirements set out by federal, state and local governments. This discussion really comes up because there are no formal tests for 21<sup>st</sup> century skills, so it is believed the public will not know how well schools are doing in teaching these skills (Abbott, 2014). The teacher is still teaching all the curricular areas, but rather than looking at teaching in curricular area, looking to teach the skills to learn the information throughout many curricular areas. While doing this the teacher's main goal should be to tap into the spirit of curiosity and exploration that all children share at an early age (Sutton, 1997).

Teachers who teach students how to learn are making a bigger impact than those who just expect students to learn. This can be done by introducing the students where to go to access information, fostering opportunities to express their creative potential, and providing collaboration time with other students. In the past a research paper had to be done using paper and pen, now it is not uncommon in a 21<sup>st</sup> century classroom to see students working together on a presentation to teach their peers. Teachers must release the power to their students. Teachers become learners and students become leaders. For example, teachers give students an app. The student becomes an expert on what the app can do and then teaches how to apply it to their peers and teachers (Delzer, 2015).

The most important role for a teacher is to introduce children at early ages to a wealth of wonderful learning opportunities so they are inspired to think about who they can be and what they can do for the rest of their lives (Sutton, 1997). Teachers also provide students with strategies to obtain the skills they need for current and future learning (Brynsaas, 2017). With these skills intact, students will be able to apply their knowledge to many different situations and be successful on the path they choose after receiving that high school diploma.

When you walk past a classroom that has implemented 21<sup>st</sup> century learning styles you may see the teacher leading a mini less to students, wandering from small group circle, talking one on one with a student. Students typically are working with others to gather information. Students are given the freedom to work at their own pace. Many teachers have found that short mini lessons have increased student engagement among students of all ages (Minero, 2017).

### **Inviting Classroom Environment**

Another significant difference in a 21<sup>st</sup> century classroom is the classroom environment. A 21<sup>st</sup> century learning environment is set up to be an inviting, comfortable place that promotes collaboration between students. In the classroom, there are also opportunities for students to work individually if they choose. Mr. John Carver is the superintendent at the Howard Winneshiek Community School District. This school district has embraced the revolution of 21<sup>st</sup> century teaching and learning. Mr. Carver stated, about his districts quest to transition to a 21<sup>st</sup> century learning, that what they are doing is not scientific. They ask students and give them choices. Students are never required to sit in rows or sit still, but instead given the opportunity to fidget and bounce.

In one year, Mr. Carver's school district saw their National Standard Score increase from 55.7 % proficiency to 74.5% proficiency in just one year (Jurgensen, 2015). Summit Prep Charter in Redwood City, California found that after transforming the classrooms into classrooms with flexible seating and giving students the power to share in the decision making model, they outperformed the district and state goals on standardized assessments in both math and English language arts (ELA). The students performed at benchmark in all other curriculum areas (Minero, 2017).

The classroom environment is no longer the traditional teacher standing at the front of a room full of desks with a pointer and an overhead. Instead, the classroom is filled with lounge chairs, standing desks, pillows, exercise balls, stools and a few desks. This is referred to as flexible seating. The students can choose which area and seating style they learn best. In addition, students are able to get up and move to a different location or to a different style of seating while working. This makes perfect sense to those who embrace this mindset shift. There are benefits to flexible setting almost immediately after the classroom resign. Those benefits include burning more calories, using up excess energy, increased motivation and engagement, creating oxygen flow to the brain and improving overall posture. We already know that increased physical activity is linked to high academic performance and better behaviors (Delzer, 2016).

Some are opposed to flexible seating because of the classroom management issues that could arise. However, it has been proven by some that it is actually the opposite. Flexible seating actually decreases behaviors among students. "In a space where more choice is available, students need to be held more accountable for their behavior and work outcome (Evans, 2016, p. 2)." The work is not a choice, but the way



students go about completing the work is. This puts the responsibility of learning on the students and most students rise to this challenge. One teacher found it helpful to have the students sign a flexible seating contract at the beginning of each year. This helps the students to understand the expectations within the classroom, while using the seating of their choice. This again puts responsibility back on the students. (Rapoza, 2017). It has been found that giving up the power of the seating chart actually gives power back to the teacher, as well as empowering students to be active learners. Students are empowered by the opportunity for choices, and aid them in discovering what seating and environment helps them to learn best (Delzer, 2016). Another teacher posts her flexible seating anchor chart at Open House. Then on the first day of school, the students are aware of their responsibility while choosing their seating. This helps students to be in control of their own learning and fosters problem-solving skills between learners. (Brynsaas, 2017).

Flexible seating also encourages collaboration among students. This helps students take their learning to the next level while working together. Students tend to be confident in participating when they are working in a small group. Student participation increases when students have the opportunity to collaborate with peers. Working collaboratively is a skill that is very important for students as they continue their educational journey (Rapoza, 2017).

Students having control over their seating has increased collaboration among students at all ability levels. It is important to have comfortable seating for all students; this includes typical desks, tables, pillows, stools, carpets, etc. Collaboration allows students to become problem solvers in all subject areas as well as in social situations. Students who typically would not communicate with each other are provided an

opportunity to do so in a safe and controlled environment. Flexible seating encourages communication between students in subjects that in traditional seating would not have. This includes math, literacy circles, and writing. The depth of conversations that occur during literacy circles has increased tremendously since implementing flexible seating (Brynsaas, 2017).

### **Technology in the Classroom**

Another component to a 21<sup>st</sup> century learning environment is the implementation of meaningful technology into learning. Classrooms that have to go to the computer lab to access technology are not fully embracing purposeful technology. The teacher should always start with the purpose of what they are teaching. Even when using technology, boring assignments are still boring, putting a worksheet on an Ipad is not going to make it any more meaningful for students. It is important to transform the lessons you are teaching into a meaningful lesson for the students (Delzer, 2015).

Technology is a true tool that can empower students to be global learners. It provides students an opportunity to learn things outside of the four walls of the classroom. Technology makes learning intriguing and engaging rather than a sit and get class period (Brynsaas, 2017). Technology makes it possible to bring learning into that classroom, which may not be possible due to proximity limitation. This can include a virtual field trip or international pen pals. Technology can help acquaint students with the large world that is out there.

One of the biggest struggles that come with implementing technology is making it fit what you are teaching. Technology can assist teachers in making learning cross-curricular, which is a goal of 21<sup>st</sup> century learning. It is important that technology is not

looked at as one more thing, but finding a way for technology to fit as a tool for what has to be taught. This is something that takes time for teachers to accomplish. Teachers should not just add technology, just to add it, but also rather take time, make changes to their way of teaching using technology as a tool (Brynsaas, 2017).

The Howard Winneshiek School District is 1:1 with Ipads at the elementary level. Implementation of technology is not an option, rather a challenge. The superintendent challenged each teacher and classroom to implement one new strategy a quarter using technology. As the teacher did this it was important to continue to move up the SAMR model. This helps to not just replace meaningless work with new meaningless work on Ipads (Kerian, 2017).

“SAMR is a model designed to help educators infuse technology into teaching and learning. Popularized by Dr. Ruben Puentedura, the model supports and enables teachers to design, develop, and infuse digital learning experiences that utilize technology” (Shrock, 2013, p.1). The S in the SMAR model stands for substitution. The technology just substitutes for some another tool, with not functional change. The A in the SAMR model stands for augmentation. The technology substitutes for another tool, however there are some minor functional changes. The M in the SAMR model stands for modification, meaning the technology allows for significant task redesign. The R in the SAMR model stands for redefinition. This allows for technology to aid in creation of new tasks they may previously have been impossible (Shrock, 2013).

Technology gives students the ability to take their learning to a new level, as well as to learn in ways that work best for them. This may include choosing what they want to learn. Sarah Brynsaas’ class can be seen once a week participating in Genius Hour. For

the first 15 minutes of the one hour block, Sarah teaches her students about tools on the iPad and how to use them. One of the most important parts of implementing technology in the classroom is to have the students do the work on their device. The teacher is the model of what to do, but the students are the ones who are exploring, researching and investigating. The teacher models how to make folders or how he/she would use an app, but never does the work for them. Genius Hour is a time where students learn how to use the tools they have accessible to them to learn about anything they choose. Some students choose topics like animals to obtain more information. While others explore and research how to create or make something, an example would be school blue prints or an app. During the semester, the students are required to plan and organize the information and materials they locate. After approximately a semester, the students present to their peers and others in the building. During this time, the teacher guides the students, giving them permission to fail with the stipulation they restart and try again.

In Sherry Marr's PreK classroom, students are engaged in Maker's Corner. This is based on the same philosophy of Genius Hour. The students get the opportunity to explore, research and learn about topics of their choice. This occurs during exploration of manipulatives and technology. The major difference is the students in Sherry Marr's class and Sarah Brynsaas' class, is because of the younger ages Sherry's class needs more guidance when choosing topic. Sherry's topic of study is machines. The students plan and create a machine, while discovering how to make their machine move. This unit had students coding to make their machines move (Kerian, 2017).

Both examples above provide great insight on how students become more engaged and take learning to a new level when technology is integrated into the

classroom. During this time, students establish many 21<sup>st</sup> century learning skills, as well as learn which style of learning works best for them. Students collaborate, plan, organize, bounce ideas off each other, explore, answer open-ended questions and create during these learning opportunities. These skills are very important for students of the 21<sup>st</sup> century. These skills empower all students. It makes learning very individualized. Students really are guiding their own learning. The students with lower abilities are able to take their learning to a high level, and those who are higher achieving can take their learning to the next level.

During an action research study done by Banitt, Theis, and Van Leeuwe (2013), it was found that student's active engagement in lessons using technology increased by 5%. However, it was also found in that same study students must be actively involved in the learning process to increase student learning. This means just adding in an interactive white board to a math lesson may not increase or enhance student understanding. However, if the students were responsible for creating the activity or completing the slides on the interactive white board their engagement and retention of skills may increase (Banitt, et. all, 2013).

## **Conclusion**

The world is an ever-changing place, along with that, the students are also changing. It is very important that teachers change their learning styles to meet the needs of the students. Teachers who have implemented 21<sup>st</sup> century learning styles have found great success in meeting the needs of ALL students. Sarah Brynsaas (2017) has found students come into her classroom more comfortable with technology. They are no longer

afraid of breaking it and really view technology as a tool. Students also have become much responsible for their own learning within the past three years.

Students are coming into the classrooms with more social and emotional needs. When students feel empowered they are more apt to gain a deep understanding of the content being taught. The sense of empowerment can be felt when students are provided choices to learn in environments and ways that are the best for each individual student. (Kerian, 2017).

As schools and classrooms transform using exclusively 21<sup>st</sup> century teaching methods it is important to recall that nothing will ever replace a qualified, dedicated professional and open-minded teacher. Students need a teacher who is willing to provide them opportunities to learn in ways that works best for them. Teachers must view themselves as guides, rather than presenters. It has been proven repeatedly, that teachers as guides, freedom of choice and technology integration set students up to success, lifelong learners.

## Annotated Bibliography

Banitt, J., Theis, S., & Van Leeuwe, L. (August 9, 2013). The Effects of Technology Integration on Student Engagement. Retrieved March 5, 2017, from <http://sophia.stkate.edu/cgi/viewcontent.cgi?article=1006&context=maed>

This is an action research report that provides information on the impact of technology on student engagement in secondary classrooms.

Brynsaas, S. (February 21, 2017). 21st Century Learning Environment and Genius Hour [Personal interview].

Sarah Brynsaas is a model teacher within the Decorah School District. She also serves as a second grade teacher. Sarah has transformed her classroom into a 21st century classroom and is in year two of implementing Genius Hour.

Christen, A. (2009). Transforming the Classroom for Collaborative Learning in the 21st Century. *Techniques: Connecting Education And Careers*, 84(1), 28-31.

This article is about how to transform traditional classroom settings into 21<sup>st</sup> century learning environments. This article includes information about the importance of collaboration between students. It also includes great examples of middle/high schools layouts that have completed the transformation for 21<sup>st</sup> Century learning.

Concepts, L. (August 25, 2006). 21st Century Skills Definition. Retrieved February 20, 2017, from <http://edglossary.org/21st-century-skills/>

The definition of 21st century learning is provided in the article along with the ways to transform a traditional classroom into a 21<sup>st</sup> century learning environment.

Delzer, K. (April 22, 2016). Flexible Seating and Student-Centered Classroom Redesign.

Retrieved February 3, 2017, from

<https://www.edutopia.org/blog/flexible-seating-student-centered-classroom-kayla-delzer>

Kayla Delzer elaborates on the importance of making your classroom one that students want to engage in to learn. She gives examples of how to create that on a budget. She also goes into why it is important for all teachers to create an inviting environment and to continue to be open-minded. This article also has links for other great resources on this same topic.

Delzer, K. (October 13, 2015). Reimagining Classrooms: Teachers as Learners and

Students as Leaders | TEDxFargo. Retrieved March 19, 2017, from

<https://www.youtube.com/watch?v=w6vVXmwYvgs&feature=youtu.be>

In this Tedtalk Kayla Delzer, a teacher expresses her views on technology in the classroom. She expresses the importance of project-based apps, introduces the audience to Genius Hour, and encourages teachers to unleash the power within the students.

Evans, Tracy (July 28, 2016). Design Thinking and the Deskless Classroom. *Edutopia*.



This article walks teachers through the steps of designing a deskless classroom. It also provides information for why this is so important to students of the 21st century. Tracy Evans does a great job of relating to teachers who are wondering how to answer questions about the deskless classroom.

Gilcreast, J. (2014). From drab to fab: The tale of a crafty librarian and her quest to create a 21st century learning environment. *Knowledge Quest*, 42(4), 39-43.

A librarian, who transformed her library into a highly effective and engaging learning environment, writes this article. She includes the obstacles and hurdles she had to overcome to accomplish this.

Goertz, P. (February 27, 2015). 10 signs of a 21st century classroom. Retrieved March 19, 2017, from

<https://www.edutopia.org/discussion/10-signs-21st-century-classroom>

This article lists the top 10 signs you have entered into a 21st century classroom.

This includes using the idea of STEM based lessons.

Goertz, P. (March 31, 2015). What does a 21st century classroom look like:

Technology integration. Retrieved March 1, 2017, from

<https://www.edutopia.org/discussion/what-does-21st-century-classroom-look-technology-integration>

This article is a continuation of Patrick Goertz's previous writings. This article gives examples of ways the teacher could implement meaningful technology in

the classroom. He also answers basic questions that come up when teachers integrate technology. He also touches on what a BYOD classroom has for options.

Johnson, A. P. (December 16, 2013). Effective Methods for 21st Century Learning: A Teacher Action Research Project. Retrieved March 1, 2017, from <https://www.ced.ncsu.edu/meridian/index.php/meridian/article/view/61>

This is an action research study conducted by Aaron Johnson. Aaron looked at the impact different 21st century styles of teaching to determine which is the most effective. Aaron found that a combination of teacher directed and technology driven had the best results as well as student engagement.

Jurgensen, T., & Carver, J. (2015). Howard-Winn Celebrates Iowa Assessments. Retrieved February 13, 2017, from [http://howard-winnpublicrelations.blogspot.com/2015/05/howard-winn-celebrates-iowa-assesments\\_26.html](http://howard-winnpublicrelations.blogspot.com/2015/05/howard-winn-celebrates-iowa-assesments_26.html)

This is a blog that was written by the special education advocate. She gave in great detail the importance of transforming to a 21st century learning environment and the positive effects it had on student achievement.

Kerian, K. (March 17, 2017). 21st century learning and technology integration [Personal interview].

Kim Kerian is an internal coach at Howard Winneshiek. During this interview we toured 21st century learning classrooms at the elementary school. The tour including observing many technology integration lessons. Kim provided a lot of

useful information on creating an inviting environment with flexible seating.

McCarthy, J. (September 09, 2015). Student-Centered Learning: It Starts With the Teacher. Retrieved March 5, 2017, from

<https://www.edutopia.org/blog/student-centered-learning-starts-with-teacher-john-mccarthy>

This is the first of three articles written by John McCarthy about student-centered environments. In this article he looks at the teacher and how they can adapt to the ever-changing needs of the students in the "real world." The first challenge he addresses in this article is teachers sharing the power to empower the students they are teaching.

Minero, E. (February 14, 2017). The Optimal Seating Plan? Letting Your Students Choose. Retrieved March 20, 2017, from <http://edut.to/2IPNtPW>

This video takes place at a Summit Charter School in Redwood City, California. The video shows ways that their classrooms have been changed to accommodate 21st century learners. This includes changes in teaching styles, classroom set up and student engagement. This video also includes data to show why this new way of thinking about education has affected students.

Osman, T. (2015). How can the Teacher be a Facilitator? Retrieved March 19, 2017,

from <https://www.teachingenglish.org.uk/blogs/tamer-osman/how-can-teacher-be-a-facilitator>

This article looks the meaning of teacher as facilitator in an ESL classroom. It is published by a British Journal and looks at what it means in regards to Kings as rulers. Facilitators are found to be successful teachers.

Raposa, M. (January 2, 2017). Flexible seating helps students wiggle while they work.

Retrieved February 13, 2017, from

<http://www.argusleader.com/story/news/education/2017/01/02/flexible-seating-helps-students-wiggle-while-they-work/95744808/>

This article discusses the importance of wiggle room for students while completing deskwork. It gives several examples from different grade level classrooms around the country. This article addresses classroom management concerns that have been raised by others.

Saxena, W. B. (December 20, 2013). Top 10 Characteristics of a 21st Century

Classroom. Retrieved February 2, 2017, from <http://edtechreview.in/news/862-top-10-characteristics-of-a-21st-century-classroom>

What makes a classroom a 21st century classroom. This article lays out the top 10 characteristics of a 21st century classroom.

Shrock, K. (January 16, 2016). SAMR. Retrieved March 20, 2017, from

<http://www.schrockguide.net/samr.html>

This is the section of Kathy Schrock's guide to everything, she takes a deep look into the SAMR model. She breaks down the levels of the SAMR model,

providing definitions, and examples for each level.

Schrump, L., & Levin, B. B. (2012). *Evidence-Based Strategies for Leading 21st Century Schools*. Place of publication not identified: Corwin, A SAGE Publications Company.

This book provides evidence-based strategies for: (1) Becoming a school culture that embraces technology and 21st century skills; (2) Creating a 21st century classroom, including new instructional approaches and professional development opportunities; (3) Selecting the right technology plan, infrastructure, and devices for your school; (4) Managing costs through funding and budget strategies; and (5) Measuring progress through effective use of data. The first two strategies are the ones that were referred to in this Lit. Review.

Stevens, K. (January 30, 2015). 5-Minute Film Festival: Genius Hour.

Retrieved March 10, 2017, from

<https://www.edutopia.org/blog/five-minute-film-festival-genius-hour>

This is a collection of videos that provide information about Genius hour. This article also has links to more articles about Genius hour and Maker's corner. The links are for those who are just being to implement Genius hour, as well as for those who are hoping to enhance a Genius hour they already have in place.

Sutton, B. B. (July 01, 1997). *The Teacher as a Guide: Letting Students Navigate Their*

Own Learning. Retrieved February 21, 2017, from

<https://www.edutopia.org/teacher-learning-guide>

The teacher serves as a guide to the students in his/her classroom. This article looks at the benefits to students in the power of choice.

Wade, M. (March 29, 2016). Visualizing 21st-Century Classroom Design. Retrieved

March 19, 2017, from <https://www.edutopia.org/blog/visualizing-21st-century-classroom-design-mary-wade>.

This article gives 5 basic elements important to creating a 21st century classroom.

The article also contains practical steps to creating the 21st century learning environment.