FEATURES

8 Student Agency for Powerful Learning
Philip Williams

16 Personalized Learning Environments and Effective School Library Programs
Michelle Easley

24 Collection Development
Stocking Library Shelves for Student Success: Motivating Readers through Science-Focused Fun
Joy Fleishhacker

32 Creating Genuine Readers with Flexible Scheduling
Nancy Jo Lambert

40 Engaging Students in the Library through Tabletop Gaming
Vivian Alvarez

50 Expressing Youth Voice through Video Games and Coding
Crystle Martin

ARTICLES

58 Public School Librarians and Academic Librarians Join Together to Promote Diversity and Reading
Grace M. Jackson-Brown

62 School Librarians and Open Educational Resources Aid and Implement Common Core Instructional Content in the Classroom
Krista Welz
Student agency is not something that can be provided in small doses and only during set lessons in the week, while at other times choice and voice are taken away.

Student Agency for Powerful Learning — pg 8
As a high school librarian, I embraced the 1998 publication of Information Power: Building Partnerships for Learning. Earlier, I had followed the guidelines of the 1988 Information Power: Guidelines for School Library Media Programs and worked to help my students and staff become effective users of ideas and information. However, the 1998 Information Power took me a step further; my job was to help students learn to access information efficiently and effectively, evaluate information critically and competently, and use information accurately and creatively. I was tasked with helping students become information-literate independent lifelong learners. AASL’s Empowering Learners clarified my mission even further: to “empower students to be critical thinkers, enthusiastic readers, skillful researchers, and ethical users of information” (2009, 8). The compelling question: What is our ultimate job as school librarians?

We meet our students’ reading needs. We offer books in which they can travel to places they could not otherwise visit, meet characters who are like them or not like them, and learn from both experiences. We provide access to reading materials on topics of interest and encourage students to check out these materials whether they are on, above, or below their reading level, because it’s the access and interest that matter. We encourage reading for information and for enjoyment. We encourage reading, period.

We foster inquiry at every opportunity whether it is through our work as instructional leaders in our schools as we collaborate with teachers to facilitate inquiry-based learning or through our direct interactions with students as we help them develop questions and pursue information around topics of interest. We encourage students to engage, explore, explain, and extend (Marshall 2013).

We offer students the opportunity to participate in coding experiences, although computer science and coding might be outside our comfort zone and area of expertise. We make this stretch because students thrive on the hands-on computing experience, thinking logically and creatively to solve problems. And who knows? We might have a budding computer scientist in our midst.

We provide games in our school libraries—movement games, board games, video games, online games—because games not only engage and motivate students to learn but also foster the development of communication and other interpersonal skills, critical thinking, and collaboration. Games make learning fun.

We create makerspaces in our libraries to provide students with hands-on learning opportunities. From low-tech, low-budget activities to 3-D printing, electronics, and robotics, we create opportunities that ignite

The compelling question: What is our ultimate job as school librarians?
students’ curiosity and activate talents and interests that they may not have even known that they had. Makerspaces give students the chance to think, to problem solve, and to create.

We work with our teachers to create personalized learning environments, which, as noted in the U.S. Department of Education’s 2016 educational technology plan, include meaningful and relevant learning activities, “driven by [student] interests, and often self-initiated.” Through the access that we provide to our physical and virtual collections, we allow students to inquire, think critically, and gain new knowledge as they pursue personal growth.

We connect our students to others with whom they can interact and from whom they can learn. We sponsor book clubs or chess clubs or technology clubs for students in the school with similar interests. We invite community members who share experiences from their cultural backgrounds or information regarding their chosen careers. We invite authors for school visits or for Skype sessions. We connect students to experts in a field who respond to e-mail or participate in a Google hangout to answer student questions.

We teach critically important digital literacy skills through which students learn to “use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills” (ALA 2011). As we collaborate with our teacher colleagues, we design digital learning experiences. If students are to succeed in college, career, and community, they must master digital literacy skills and be able to work successfully in a digital environment.

We are the curriculum and instructional leaders in our schools who have the larger view and see cross-disciplinary connections. As our schools work to provide the well-rounded education required by the Every Student Succeeds Act (ESSA), we step forward as teacher leaders to ensure that meaningful learning connections are made across content areas and across grade levels.

We provide a safe, welcoming, and inviting environment in our school libraries. We offer a physical space where all are welcome, where universal-design learning principles are implemented, and where individual learning styles and needs are acknowledged and embraced. We offer an intellectual space in which students can seek and find information on all sides of issues to make informed decisions. We create a space where students learn to be ethical and productive members of our information society.

This year presents exciting times for AASL. Our mission is to empower leaders to transform teaching and learning, and we are working to achieve that mission. Since fall 2016, working with the ALA Washington Office and the ALA Office for Library Advocacy, we have offered 40+ workshops for our state affiliates to ensure the school librarian role in state ESSA plans. We are in the midst of writing new national standards for learners, school librarians, and school libraries, which will be introduced at our 18th National Conference and Exhibition in Phoenix, Arizona, in November 2017. The conference theme, appropriately, is “Beyond the Horizon.” As your national professional association, AASL is forward thinking and forward looking, looking beyond the horizon to see what is in store for school libraries and for our students.

ESSA acknowledges the role that an effective school library program plays in student achievement and provides opportunities for us to step forward as instructional leaders in our schools—which brings us back to our compelling question: What is our ultimate job as school librarians? Our ultimate job is, through everything we do, to empower student learners.

Audrey Church is a professor at Longwood University in Farmville, Virginia, where she is coordinator of the School Librarianship Program. In 2015 she received the Longwood University College of Graduate and Professional Studies Faculty Research Award and Longwood University’s Maria Bristow Starke Faculty Excellence Award. She is the author of “Performance-Based Evaluation and School Librarians,” published in School Library Research in May 2015. Her newest book is Tapping into the Skills of 21st-Century School Librarians: A Concise Handbook for Administrators (Rowman and Littlefield 2016).

Works Cited:
To support our students, we need to become the experts in their learning processes and customize the school library experience to meet them at the point of need.

Power to the Pupil: School Libraries and Student Agency

Andrea Paganelli | andrea.paganelli@wku.edu

Being the primary consumers of education and spending so much time in the classroom make students prime candidates to be evaluators of their learning experiences. Our education determines our future; let us have a say in our futures. (Boston Student Advisory Council 2012, 154)

This declaration represents the thoughts and feelings of students regarding their educational experiences. Students want more control over their learning. This statement and others have intrigued me and sparked my fascination with the concept of student agency. Reading through this issue you can discover the concept of student agency and concretely place it in your school library.

So…what is student agency and why is it important to our practice as school librarians? These two questions are the propelling force behind this issue of Knowledge Quest. The concept of student agency can be defined simply as students’ ability to take ownership of their personal learning. Student agency is comprised of motivation, engagement, and voice (Toshalis and Nakkula 2012). This three-pronged approach comprises the lens that will focus this issue of KQ.

Motivation and achievement don’t stand alone; they exist in an ever-changing environment that is dependent on our students’ daily experiences. Intelligence is dynamic; this knowledge should be a part of the student experience along with opportunities for praise, self-determination, and feedback. Each of our students will have a personally unique path toward setting and achieving academic goals. To support our students, we need to become experts in their learning processes and customize the school library experience to meet them at the point of need.

Engagement has four areas of emphasis: academic engagement (time on task, problems attempted, homework completion); behavioral engagement (attendance, classroom participation, questioning); cognitive engagement (self-regulation, learning goals, and perceived relevance of schoolwork to future endeavors); and psychological engagement (feelings of identification or belonging, relationships, personal independence). When students are engaged, they will see benefit in their school library experiences and feel the value of the space and program.

Student voice can be understood as the communication and influence in co-constructing the learning environment. Student voice is the expression of allowing students to profoundly impact their learning environment and their learning. This can be the most challenging, provocative, and rewarding aspect of student agency. It has the potential to be personal and speaks to the heart of the art and science of our educational practice, as we open up to feedback on the school library program.

We are school librarians at an exciting and challenging time for the field, as a gradual paradigm shift from educator-focused to student-centered instruction is under way. In truth, we educators work hard to convince students that education is worth their attention, time,
and effort. Educators are being encouraged to cultivate students to be critical thinkers and makers. The movement to create critical thinkers and makers could stall if classroom teachers, administrators, and other stakeholders don’t share our understanding that student agency fosters these skills and many other immeasurable impacts. Crucial information on how to improve our nation’s school system might reside with those who will benefit the most: the students themselves (Rosenthal and Boser 2012). How can we begin to give students control of their learner experience in the school library?

Developing a culture of student agency in the school library can be accomplished in many ways. The following articles are dedicated to framing the concept of student agency and giving practical tips for encouraging student agency in your library. This innovative issue, Power to the Pupil: Student Agency in the School Library, features six articles with unique points of view and practical tips for student-centered library experiences.

Philip Williams gives an overview of the student agency concept in the library. This article is a passionate call to action for school librarians to advocate for our students and the school library as a vehicle for encouraging student control of their own learning with strategic guidance.

Joy Fleishhacker offers the opportunity to think of collection development as a way to foster agency by offering science-based books in a variety of formats, and then allowing students to chart their own personalized course through the process of acquiring knowledge.

Vivian Alvarez examines how engagement in the public and school library settings can be sparked and skills essential to lifelong learning can be fostered through the use of tabletop gaming. Capitalizing on this initial engagement can create greater opportunities for students to explore their own agency as they play and develop effective strategies and habits of mind.

Michelle Easley provides a practical look at existing programs focusing on student agency and personalized learning facilitated by the school library program and the library collection, especially its e-resources.

Crystle Martin prompts exploration of student voice as it relates to video gaming and coding. This is an excellent and timely vehicle for an in-depth look at student voice and linking students’ personal interests to in-school learning.

Nancy Jo Lambert gives practical advice for creating genuine readers with student agency through the implementation of flexible scheduling as she recounts her own experiences with getting other stakeholders onboard with the implementation.

In an interview following the Western Kentucky University School of Teacher Education Summer Conference, which focused on student agency, I stated:

“There’s a movement toward really engaging students individually and giving them that voice. The idea behind student voice and student agency is that our students can take control of facets of their own learning, and isn’t it liberating to think that we could give that to our children? I want my kids to have it, and every educator I know wants all of us to have that.

Wouldn’t it be amazing if school librarians became more articulate about their role in supporting the paradigm shift toward student-centered learning and recognized for the value of their school library programs? As school librarians we already do many things that promote student agency; now we have a label for it and a way to discuss these valuable efforts.

Andrew Paganelli is an assistant professor at Western Kentucky University in Bowling Green, Kentucky. She is a member of AASL and is currently serving on the Knowledge Quest Editorial Board and the AASL University Presses Book Selection Committee. She coauthored the articles “The Makerspace Experience and Teacher Professional Development” in Professional Development in Education and “Making STEAM Across the Curriculum. Society for Information Technology and Teacher Education” in the Proceedings of Society for Information Technology & Teacher Education International Conference 2016. She also wrote the Jan/Feb 2016 KQ article “Storytime in a Digital World: Making a Case for Thinking Outside the Book.”

Works Cited:


Introduction

School libraries play a powerful role in enabling, informing, and sustaining student agency, and nothing engages and motivates students more deeply than enabling them to become the active agents in the process of learning. Research has demonstrated overwhelmingly that students who have agency in their learning are more motivated, experience greater satisfaction in their learning, and, consequently, are more likely to achieve academic success (Lin-Siegler, Dweck, and Cohen 2016, 297). Students with agency are powerful learners who are prepared to engage with the world with sustained, courageous curiosity (Claxton 2013).

Defining Student Agency

To go any further we need to find some clarity in what we mean when we talk about student agency. Firstly, understanding personal integrity is a powerful place to begin. A sense of personal integrity implies a respect and appreciation for the unique attributes of the individual. It follows that embracing the value of individual uniqueness inevitably requires an appreciation for diversity in individuality within a classroom and is of central significance in every learning context. Secondly, a strong sense of efficacy is vital to a sense of agency. Simply put, a student with efficacy can act and will act with effect. Students have efficacy when they are empowered to take strategic steps to accomplish their goals (Johnston 2004).

A pedagogical stance that actively seeks and values student choice and voice fans the embers of student agency through building a sense of efficacy. The choices we open to students must be authentic choices through which students can see that their opinions and—most importantly—their actions can have a real impact on themselves and the world around them. Both integrity and efficacy come together to build a sense of agency in which students own a strong perception that they are the key agents of their learning. Learning in this context is not simply a transference of information from the teacher to the student in a banking model of education (Freire 1972). Rather, learning based on student agency emerges from a curiosity inherent within each student.

In contrast to the student’s role in the banking model of education, learning with agency is an entirely different cognitive and physical activity leading to powerful learners who choose to take on challenges with their whole being. A sense of agency allows room for, as Carol Dweck wrote in 2006, the sense of “not-yetness,” the sense that expertise and mastery are attributes that are built over time through persistence in the face of failure, and through drawing on the expertise and knowledge of those around us to compile the knowledge, understandings, and skills needed to achieve the successes we strive for as individuals. When initial attempts at a task do not produce the predicted or desired results, empowered learners are drawn back to the challenge, able to refine their approach, build new skills, and act to make change.
It is, therefore, of central importance that each student be able to develop such a perception of his or her identity, a perception built on personal integrity, efficacy, and, ultimately, agency. For such an identity to become viable, students must be convinced that they can act and see themselves as the kind of people who can face the demands of a new challenge. They build a personal identity on the belief that they have the capacity to develop the abilities they need to tackle the individual challenges they face. Their story becomes one in which they are active protagonists with the ability to affect change. With such strength and personal integrity, students with agency are able to draw on the expertise and wisdom of educators to build the knowledge, skills, and understandings young people need to create meaningful and purposeful lives for themselves.

Students with agency develop a self-perception that is based on their abilities as independent thinkers. Our task as educators is not to tell them what to think but to help reveal their thinking by reflecting back to them what we are observing and noticing, and naming their acts of problem solving. This feedback builds a metacognitive awareness that reinforces their identities as capable thinkers who are able to construct their own understandings. This mode of learning shifts the locus of power from the teacher to the student, thus setting up students as the experts in their own learning. The traditional hierarchies of power in the classroom and school library are dismantled, and student agency can grow in an atmosphere of personal ownership and self-determination.

Central Importance of Student Agency

Given the above introduction, few of us would disagree with the significance of student agency in learning. After all, we want engaged and motivated learners. Where the rubber really hits the road is the extent to which student agency becomes a central focus of our teaching, planning, and managing the school library program. How wide and deep should enabling agency go? After all, students need some structure, boundaries, and guidance—if for no other reason than to ensure their safety. It is important to emphasize that enabling student agency is not a recommendation for free-range education, an unfettered release of students into the wilderness for them to explore the world unattended. Rather, it is a pedagogical stance that defines the purpose of the structures, systems, and guides we put in place. A focus on student agency presses us to ask ourselves to what extent are we tuning in to our students (Murdoch 2015). How much are we listening to student voice, being responsive to student voice, and, most importantly, enabling student voice that leads to action? Are the structures,
procedures, rules, and guidelines we hold onto so dearly enhancing students' personal integrity, or are we more interested in reaffirming our authority?

As school librarians, our first question to ask before we act is, do our actions affirm individual students' integrity or do other priorities crowd our agenda? This is not to say that we should provide no limits, boundaries, or restrictions. Enabling student agency is not a call for hands-off teaching. On the contrary, it is teaching within a safe, nurturing, and guided environment where student agency is able to flourish. Guidelines, structures, and frameworks are essential; however, we need to be prepared to question to what extent these systems enable each student to take charge of his or her learning, to own the experience of discovery, and follow a course that excites the student.

For example, when managing student behavior that is unsatisfactory, highlighting the choices students have made opens the discussion for new options and alternatives. Their past actions do not need to define their future identity because we affirm their authority to make choices. In this way, we can build students' ability to imagine a different future based on affirming their ability to choose alternatives.

Student agency is not something that can be provided in small doses and only during set lessons in the week, while at other times choice and voice are taken away. Enabling student agency requires that it pervade every aspect of each student's experience. It cannot be switched on and off at our will. At all times we need to be aware of the impact our actions as educators have on each student's belief about herself or himself as a learner. Do our actions communicate a respect for the perspective of each student? Are we as educators able to be trusted? Can students be themselves in the library setting? Assurance of positive answers to these questions for students has a profound impact on levels of investment and motivation in their learning (Lin-Siegler, Dweck, and Cohen 2016).

Enabling student agency must, therefore, be a key driver in all that we do. A prerequisite to action. The attitudes we communicate that either deliberately or inadvertently undermine students' agency in their own learning are fundamentally unplugging students from the very engine of their learning. In *The Golden Compass* (also known as *Northern Lights*) by Philip Pullman (2002), the imagery of the "daemon" being severed from a child by scientists is both extremely disturbing and a powerful metaphor for actions that...
undermine a student’s sense of personal agency. Severing a student from his or her sense of efficacy, personal integrity, and agency is fundamentally cutting the student off from the very soul of learning.

**Agency and Reading**

No more powerfully is this sense of agency demonstrated than in the impact recreational reading has on personal achievement and life satisfaction. Recreational reading is defined as students choosing what they want to read, when they want to read it, and where they want to read it (Krashen 2011). By definition, this implies the complete handing over of the key choices about reading to the student. It also implies a relinquishing of our control: no grading, no testing for comprehension, no book reports, and no rewards for their reading. This release of control is not easy for educators. However, when students have this level of agency they read more; they read longer; they read later into life; they learn more; their reading, writing, and mathematical skills improve; their spelling improves; their vocabulary expands; and their knowledge builds. All of these benefits just from reading for fun! As Stephen D. Krashen puts it, we can have our cake and eat it. To be clear, this is not a hands-off approach to reading. In this scenario, the teacher and school librarian have a powerful impact on student recreational reading habits, even though we cannot (by definition) enforce, test, or reward these behaviors to make them happen.

The excitement and anticipation about reading that we are looking for is built by fostering conversations around a broad range of rich and compelling literature. Providing and facilitating access to quality literature also has a powerful impact on levels of recreational reading. Furthermore, building students’ identities as readers and writers fills them with the confidence to approach new and demanding genres or texts. When they begin to experience the power of this sense of agency for themselves, a world of adventure, exploration, and experience opens up to them. The lights switch on, and our most-challenging task is to keep up with their progress, to keep feeding the fire that has been lit, to keep fanning the flames of inquiry. We are left to wonder at the phenomenal ability of the human mind to learn, develop, explore, and achieve. If we spend less time and energy on controlling reading and focus our abilities, expertise, and knowledge on enabling student agency in their reading, the rewards for us as educators are profound as we observe students exhibiting the powerful learning that they are fully capable of.

**Some Practical Examples from My Own Experience**

**Creating Citations for Their Own Work**

Teaching citation and attribution to students is often a dry and didactic experience for students based on the imperative to be honest and principled. By reframing citation as a disposition that builds student agency we can expand and reframe the purpose of attribution. How? By encouraging students to cite their own work. For example, if a student takes a photo for an exhibition or interviews a peer for research, creating a citation that accurately communicates the student’s role builds her or his identity as a creator and builds a sense of accomplishment in the generative act.

**Talking about Literature and Choices**

A common situation we face as school librarians occurs when a student selects from the shelves a book that we know is too challenging. Our first instinct is often to override the choice and explain why another title should be selected. An alternative approach that affirms the student’s right to choice would involve engaging in an open dialogue that does not judge the choice but encourages conversation about literature and the choices we make. Most times we can learn from the student and discover how many different ways children approach text. When that student returns to the library, the environment is open and conducive to
further discussion about reading, providing wide opportunities to help the student build ever-deepening sophistication in his or her identity as a reader. As we begin to understand our students more, we can find more-creative ways to introduce them to more-accessible texts and provide more opportunities to enable moments of discovery. Therefore, through affirming students’ choices and keeping communication open, we build student agency in their reading and retain future opportunities for learning.

Creating Their Own Books

Another powerful affirmation of student agency is to catalog, barcode, and display books students have created. I never edit their text; I only inquire into what they have created and the process they went through to create their books. We catalog their books together, which creates opportunities to discuss subject matter, genre, target audience, summaries, why they think other children will want to read their book, and where they think their book should live in the library. Frequently, their peers witness this process and become a part of this rich discussion about literature, further affirming the students’ identities as creators and key agents in the creative process. Spelling, neatness, grammar, illustrations, and binding are not modified or corrected. However, we do discuss these elements and, invariably, the student generates ideas about how these elements could be improved in the future. Throughout this process in which I play the part of an appreciative, inquiring observer, I am able to affirm the student’s self-perception as a capable creator and open the door for further open dialogue in the future.

Collaborating with Their Librarian

The physical design of school library spaces can also have a profound impact on student agency. For example, in some situations, removing the tall, overwhelming circulation desk in favor of a round table where students and the librarians are better able to sit and engage in discussion works toward breaking down authoritarian barriers between the library and students. Installing a self-checkout counter can serve to further hand the processes of accessing literature over to the students and minimize the heavy administrative presence of the library staff. The result of these changes can be a library that dismantles symbols of authority and invites a collaborative partnership with librarians. The impression when first entering the library becomes an invitation to explore, discover, and collaborate rather than comply, submit, and get out as soon as possible.

Developing a Sense of Ownership and Library Agency

Coplanning and coteaching with classroom teachers opens more opportunities for them to lead their classes into the library’s virtual and physical spaces, thus enabling more-authentic connections with student learning. Release time for teachers is vital. However, there are better ways of finding this time than using the library as a timetable-management strategy. Teachers’ dropping off classes for library lessons disconnects the library from the learning happening during the rest of the day. Our creating a context where teachers and students develop a sense of ownership and library agency leads to a sense of expertise that drives opportunities for discovery and collaborative learning. Librarians may perceive the agency of students and the classroom teacher as a diminishing of our role, but the contrary is true. When our role has achieved the highest level, our patrons have been empowered to demonstrate agency in their use of the library.
Impact of Agency on Learning

Peter H. Johnston has written very powerfully about student agency in his book *Choice Words: How Our Language Affects Children’s Learning*. He wrote, “Children should leave school with a sense that if they act, and act strategically, they can accomplish their goals” (2004, 29)—a sense that they are in control and feel in control. “The spark of agency is simply the perception that the environment is responsive to our actions.” Agency is “a fundamental human desire” (Johnston 2004, 29), and, I would argue, a fundamental human right. Our conversations with students and how we interact with them can help students build bridges between their actions and results, reinforcing a sense that they are the kind of people who accomplish things.

Students with a strong sense of personal integrity, efficacy, and agency do the following:

- Work harder.
- They have greater focus.
- They have more interest.
- They are less likely to give up.
- They are better at planning.
- They are more likely to choose challenging tasks.
- They set higher goals.
- They have improved concentration when difficulties are faced. And the process is iterative, that is, it creates a positive cycle of success. (Johnston 2004, 40–41)

In the words of Eric Toshalis and Michael J. Nakkula:

When we dig beneath the surface of high-stakes standardization strategies to the real adolescents below, we find young people striving and struggling to make a life for themselves, an authentic life capable of surmounting challenges and accessing supports in their everyday world. A life that makes sense to them in their world—this is what motivation, engagement, and student voice address. (2016, 2)

What more could we want for our students?

Works Cited:


Personalized learning offers school librarians a way to maximize learner achievement by meeting students where they are and allowing students to engage in experiences that support their learning.
### What Is Personalized Learning?

Personalized learning is defined as "tailoring learning for each student's strengths, needs, and interests—including enabling student voice and choice in what, how, when and where they learn—to provide flexibility and supports to ensure mastery of the highest standards possible" (Patrick, Kennedy, and Powell 2013, 4). Bearing this definition in mind, a personalized learning environment should encourage learners to manage and be responsible for their own learning. Personalized learning enables students to "have agency to set their own goals for learning, create a reflective process during their journey to attain those goals, and be flexible enough to take their learning outside the confines of the traditional classroom" (Patrick, Kennedy, and Powell 2013, 4).

Personalized learning offers school librarians a way to maximize learner achievement by meeting students where they are and allowing students to engage in experiences that support their learning. The classroom teacher is important in creating an environment that supports personalized learning, but an effective school library program is critical to sustaining this type of environment. School librarians, in many instances, work with all students in the school, from every class and grade level. School librarians are uniquely positioned to support teachers; librarians personalize learning for students by curating digital resources that teachers can use to support learners. Additionally, school librarians can offer students the opportunity to use voice and choice by selecting reading material that appeals to the student's individual preference, interests, and ability level or by extending learning experiences started in the classroom. Furthermore, AASL has stated that an "effective school library program has a certified school librarian at the helm, provides personalized learning environments, and offers equitable access to resources to ensure a well-rounded education for every student" (AASL 2016).

The seven principles of personalized learning as followed in Fulton County (GA) Schools are: varied strategies, just-in-time direct instruction, choice and voice, mastery-based assessment, choice for demonstrating learning, flexible pacing, and co-planning learning (see figure 1).

Some educators believe personalized learning requires the use of technology, but, while technology does make the job of personalization easier in various instances, technology is not required to personalize learning. It is true, though, that adaptive software uses a series of algorithms and modifies what information is presented based on how students perform in the software. Such software can play an important role in personalized learning. However, teachers, school librarians, and other instructional staff provide the expertise and human touch learners need to succeed.

Relationships are also key to motivating students. Affirming interpersonal relationships positively impact students; these relationships can ultimately translate to improved student achievement. Nurturing educator–student relationships enable students to feel safe and supported. School librarians establish bonds and create supportive spaces where all learners are valued, regardless of socioeconomic status, gender, or ethnicity. School librarians are generally the only staff members who interact with every student in every grade level. In some instances school librarians maintain positive relationships with students over the students’ entire tenure at a school.

Scott Johns has identified four core elements of personalized learning: 1) integrated digital content, 2) student reflection and ownership, 3) data-driven decisions, and 4) targeted instruction (2016). School librarians are perfectly poised to facilitate the integration of digital content by curating digital resources that are aligned to standards and meet the needs of individual learners.

### School Librarians’ Roles in Personalized Learning

**Expanding Traditional Roles**

In years past, school librarians have collaborated with teachers about a particular instructional unit, pulled physical books, and placed...
them on carts. Students would then visit the space, the school library, to use the resources, or the cart might be rolled down the hall to the classroom. Fast-forward to today’s personalized learning environment in which students aren’t bound by time or space; they no longer have to come into the library to find resources to support their learning. Information can be accessed on their mobile devices from anywhere at any time.

Today each student might have a different topic of study; as a result, the expertise of the school librarian is needed now more than ever. Personalized learning environments need curated digital resources, not only to support research projects but also to serve as integrated digital content. School librarians are particularly skilled at evaluating resources. This skill can be extended to the evaluation of digital content that supports learners beyond electronic books and databases. School librarians can assist teachers and other instructional staff by selecting resources in various content areas and reviewing adaptive software, productivity tools, virtual simulations, and other digital resources. School librarians can help locate and vet digital resources that enable learners to meet learning standards.

Supporting Choice and Voice

An essential part of personalized learning is learner voice, and research has shown that learner voice contributes to learner agency. Eric Toshalis and Michael J. Nakkula created their own spectrum (see figure 2) that illustrates a range of student-voice activities that can move from expression, consultation, participation, partnership, activism, to leadership. “Moving from left to right [in the spectrum], increasing levels of self-determination give rise to greater integration of the students’ own sense of purpose and desire with what may be required of them by outside forces” (2012, 10).

As a learner shifts from expression to leadership, the learner has a voice to effect real change and take on decision-making roles (Toshalis and Nakkula 2012). The goal of school library programs should be to foster instructional experiences that encourage learner-voice activities on the leadership end of the spectrum. These types...
of activities allow learners to serve as leaders and to identify and solve real-world problems both in and out of school.

The opportunity for learners to participate in the activities on the right side of the spectrum is necessary and should be viewed as invaluable. Learners’ ability to express themselves is important, particularly in a personalized learning environment. If learners are writing and publishing their own work and creating webpages, the students are growing. Extended opportunities to conduct research on a problem a student deems as important, gather community input, and lead and direct action on the issue move the student to the right end of the spectrum. School librarians facilitate these types of instructional activities regularly and should continue to do so to remain viable in personalized learning environments.

Choice and voice allow learners to take an active role in their learning. Learners are empowered to decide how and what they learn. For example, some learners may appreciate learning about a topic through video or visual representations as opposed to reading text. School librarians have been and are experts at curating video content. They can empower teachers by assisting them in incorporating and building pathways for learners to choose information resources based on learners’ own learning preferences. Providing content in various formats and empowering teachers to provide this choice to students is what powers personalized learning. Ultimately, this personalization positively influences academic achievement because learners feel more engaged in the learning process. One example of a content provider school librarians might consider in support of personalized learning is Discovery Education, a company that offers virtual labs, interactive games, and multimedia resources aligned to standards. Safari Montage offers videos that will help learners. Additionally, Gale offers e-books and articles presented at various Lexile levels to meet the varied needs of learners.

Barbary Bray and Kathleen McClaskey developed the Continuum of Choice, which presents a continuum on which learners move from teacher-centered on the left end of the continuum to learner-driven on the right. Learners develop agency through choice, going from participant, codesigner, designer, and advocate to, ultimately, entrepreneur. On the entrepreneurial end of the continuum a learner “self-regulates, adjusts, and determines learning based on what they want to do with their lives. They take their ideas and passion to pursue an idea and possibly to create a business” (Bray and McClaskey 2015). School librarians can support learners at any point on this continuum by providing resources such as multimedia content, making connections with experts outside of school for internships, and providing research strategies and access to information that enables all learners to move freely along the Continuum of Choice.

The spectrum of voice oriented activity

Figure 2. Toshalis and Nakkula’s spectrum of student voice-related activities. (2012) Reprinted with permission.
Further supporting choice and voice are school librarians’ efforts to impact the new digital divide: “the disparity between students who use technology to create, design, build, explore and collaborate and those who use technology to consume media passively (U.S. Dept. of Ed. 2016, 18). Promoting choice and presenting options for learners to actively use technology should be evident in effective school library programs. Coding, immersive simulation, media production, interaction with experts, global connections, designing, and peer collaborations are all activities that can be provided as choices for self-directed learners (U.S. Dept. of Ed. 2016). Many school library programs already offer several of these types of instructional experiences, from student-produced news programs to afterschool coding and Skype visits with authors from around the world.

Provisioning Just-in-Time Instruction

Just-in-time direct instruction requires providing instruction for the learner even in instances when the learner may not physically be present in school. School librarians can provide direct instruction to learners on a variety of subjects. Additionally, school librarians can support teachers who wish to build lessons for just-in-time instruction. This support may take the form of offering professional learning about various software applications that enable teachers to provide just-in-time instruction, such as Microsoft Sway, Office Mix, Screencast-O-Matic, Google Docs, Prezi, iMovie, PowerPoint, Keynote, or other presentation and video tools.

School librarians can also develop step-by-step tutorials for both learners and instructional staff. For example, these tutorials might cover how to search for information in the school’s databases or provide information on how to create a podcast. This instruction aligns with Section 2: Teaching with Technology in Future Ready Learning: Reimagining the Role of Technology in Education. “Educators will be supported by technology that connects them to people, data, content, resources, expertise, and learning experiences that can empower and inspire them to provide more effective teaching for all learners” (U.S. Dept. of Ed. 2016, 25). Just-in-time instruction provides opportunities for learners to actively construct new knowledge, a key element in personalized learning environments.

Building a Strong E-Collection

The foundation of a school library program is its collection. Print and electronic books are the cornerstone of this collection. A crucial component of personalized learning is availability of resources anytime, anywhere. E-book platforms make this accessibility possible and empower the school library to offer a more-personalized experience for learners. This personalization may be accomplished by allowing learners to search for material by Lexile level, reading grade or interest level, keyword, author, topic, or genre. Many e-book platforms available in today’s marketplace may fit this need. The Gale Virtual Reference Library, OverDrive, and MackinVIA are a few examples of comprehensive e-book platforms that provide choice in support of librarians’ efforts to foster learners’ passion for reading. This passion results in higher levels of academic achievement.

Access to a strong collection enables students to exercise choice and discover topics of interest to them, material on their reading level, and authors and subjects that appeal to them. Think about the various learning styles—some learners are auditory, while others are visual or kinesthetic learners. Learners now have the power to choose between print, audio, or electronic books, or books with embedded multimedia. The combined experience of listening and reading offers students who are reading below grade level a chance to interact with grade-level texts without concerns about fluency or decoding issues (Dalton 2014). This combined experience is a major benefit that e-books can provide struggling readers. Other e-book features offer an even more-personalized reading experience for learners, who can, for example, highlight and take notes within the e-book, and access embedded multimedia with graphics, animation, and video, plus pronunciation clips and/or language translation. This rich set of options ultimately supports learners as they build their vocabularies and strengthen their reading comprehension skills.

Personalized reading lists can be an important element in personalized learning. Software tools, such as Your Next 5 (YN5), allow readers to complete a web-based form that outlines their preferences and then provides the reader with a curated list of suggested titles for their next read (five additional titles). Librarians curate these lists based on the preferences and interests indicated by the reader (Bass 2014).
Though the YN5 readers’ advisory service is offered as a public library program, it could have immense value if implemented in some fashion in a personalized learning school environment. Think of the power of taking a student’s interest in a particular topic, genre, or author and then using the student’s reading level to curate a list of recommended titles for the student. Certainly, logistical details would have to be addressed. Though most public school libraries do not have the luxury of a large staff, creative thinking may yield viable alternatives, such as enlisting volunteers, parents, and teachers to research titles. Another strategy could be to use the advanced search features in an online library database and interface such as Destiny to select titles on a student’s targeted grade or Lexile level. These personalized reading lists support personalized learning and help improve students’ reading skills.

Creating a Supportive Physical and Virtual Library Space

Creating spaces that support personalized learning is essential so that the physical library space strengthens this approach to learning. Fulton County Schools took on an ambitious project to transform all high school libraries to support personalized learning. Primary aspects of the renovations were decided by local school teams in collaboration with district personnel and an architectural firm. Several brainstorming sessions were held, and input was gathered from the schools’ instructional staff, administrative team, parents, and students. The end results were astonishing as school libraries were transformed to incorporate flexible and mobile furnishings, collaborative group spaces, chairs and tables with integrated power for charging mobile devices, and a blending of both print and digital library collections. The physical spaces promote learner agency as learners are now empowered to select how best to use the space to meet their learning needs.

Here are seven ways to adapt your school library to promote personalized learning.

1. Seating—Provide multiple types of seating for learners, and then let them choose what works best for them. Provide couches, individual chairs, chairs in nooks, collaborative tables, and traditional table-and-chair sets. Allow learners to decide if they want to learn independently, sit next to a shelf of books, read a print book, or plug in a device and charge while reading an e-book or content in an online database.

2. Flexible furnishings—Opt to use mobile and lightweight furnishings so they can be moved by anyone as the need arises. Do away with heavy wooden tables and select lightweight tables with wheels and integrated power outlets. Other good choices are chairs with integrated power outlets and tray tables that can accommodate left- or right-handed learners. In our renovated libraries power is supplied via outlets in the floor. If you are in an older space you may want to consider making power available from the ceiling. Multiple power options allow you to run electrical conduits across the ceiling and have power cables that can be lowered and retracted as needed. Set up areas with monitors that allow learners to plug their mobile devices into larger displays. This use of larger displays encourages learner collaboration.

3. Innovation space/time—Provide all of the ingredi-
ents necessary for learners to innovate. This goal could be accomplished with a makerspace or STEM robotics lab. Additionally, allow learners the time to research or create whatever interests them. In 1731 Benjamin Franklin helped to establish the first lending library in the British colonies, and it was there that some of his first experiments with electricity were performed (Library Company of Philadelphia 2015). There is, after all, a history of combining innovation and libraries!

4. Virtual collection—Provide a diverse collection of e-books on a range of topics for various reading levels and across multiple genres. Additionally, provide learners with access to reliable online information such as the authoritative reference material found in the Gale in Context databases.

5. Mobile devices—Procure a variety of mobile devices, such as iPads and other tablets, Chromebooks, and laptops, and urge learners to use the device that best fits their personal need or the task at hand. Funding can be a roadblock, but don’t let it stop you. Work to involve your local parent–teacher association, approach corporations in your community for sponsorship, or apply for grants.

6. Choice and voice—Allow students to identify topics that matter to them and encourage students to structure their own end-products. Help teachers create instructional experiences that move learners toward the leadership end of the learner-voice activities spectrum.

7. Active use of technology—Promote active—not just receptive—use of technology.

Provide opportunities for students to code, create, collaborate, produce media, connect with the global community, and design.

Summing Up

Effective school library programs can propel personalized learning environments in schools. Programs that support choice and voice, and just-in-time instruction promote learner agency and empower not only students but teachers as well. Transformed library spaces, virtual collections featuring e-books and high-quality online databases, as well as curated multimedia and digital resources, promote learner agency and are essential to creating effective school library programs in personalized learning environments.

Michelle Easley is responsible for Fulton County (GA) School’s digital content. She is currently the president of the Georgia Library Media Association. She serves as a member of the Southeast Regional Advisory Committee of the United States Department of Education’s Office of Elementary and Secondary Education and a member of the Georgia Department of Education’s Education of the Whole Child Committee (ESSA implementation). Michelle has presented at the Redefining Learning Conference, AASL National Conference, Georgia Educational Technology Conference, and the Georgia Library Media Association Summer Institute. With Marie Yelvington, she coauthored the article “What’s in a Name?” for the June 2015 issue of Teacher Librarian and hosted “The Power of eBooks in a Personalized Learning Environment” for EdWeb in May 2016.

Works Cited:


Fulton County Schools. n.d. “Personalized Learning.” Atlanta, GA: FCS.


COLLECT DEVELOPME

Stocking Library Shelves for Student Success: Motivating Readers through Science-

Joy Fleishacker
Focused Fun
By providing a wide selection of high-quality materials that will grab the attention of individual readers, school libraries can play an integral part in initiating and supporting student agency and a student-centered approach to learning. These captivating books should not only address and expand upon what kids are learning in the classroom, but also allow them to explore an array of personal interests, tastes, and passions. Every student has his or her own way of acquiring and processing factual content, and books presented in different formats nurture a variety of learning styles and specific preferences. For example, comic book fans will enjoy gleaning factual content from books that present information through cartoon-style artwork and light-hearted humor. In contrast, kids who spend hours watching documentaries on Animal Planet will relish action-packed photo-essays that follow the adventures of real-life scientists working in the field. Individuals who like to invent and create will appreciate seeing their own traits displayed in the main characters of fast-reading novels in which scientific principles—and hands-on tinkering—are used to solve a mystery or a problem. A well-rounded library collection provides plenty of choices that will intrigue individual readers, encourage them to discover books that speak to their unique interests and needs, and allow them to chart their own personalized course through the process of acquiring knowledge.

The packed-with-kid-appeal books highlighted here focus on science and can be used to supplement classroom materials and traditional narrative nonfiction. Ranging from profusely illustrated graphic novels to captivating fiction series, these titles will appeal to a spectrum of tastes, learning styles, and interests.

- Nonfiction graphic novels provide an inviting conduit for more-visual learners, those who already have an interest in comics, and often hard-to-reach reluctant readers.
- Biographies with photo-essay profiles of scientists in the field offer readers a glimpse at how scientific investigations are conducted, introduce various scientific disciplines, and present intriguing career possibilities.
- Novels and fictional graphic novels invite readers to sample scientific ideas while enjoying an engaging and well-written story.

### Science-Based Nonfiction

#### Graphic Novels

In these eye-alluring volumes, ebullient artwork and succinct text play off of one another to explain concepts, present information, and aid comprehension. Often enhanced with touches of humor, the inviting comic book format can make seemingly difficult topics more accessible and easier to digest. Enjoyable for anyone, graphic novels can also be used to reach reluctant readers and engage youngsters who do not respond to traditional texts.

Hosted by an amiable emcee (a "BONE-afied human skeleton," of course), Maris Wicks’s *Human Body Theater* (First Second 2015; grades 4–8) takes readers on a vaudeville-style tour of a complex biological vessel. The narrator sings, dances, and wisecracks her way through eleven acts, chapters that begin with broad overviews of each major body system before delving more deeply into specifics. The easy-to-follow panels abound with vivacious visuals that depict the skeleton’s comical antics, along with clearly drawn and labelled diagrams, cut-away illustrations, and close-up images that expand the textual information. Meanwhile, a cast of personality-packed cells, organs, and other body parts chime in with additional tidbits (and chuckle-worthy asides). Reader-targeted tips about self-care, nutrition, safety, and puberty round out an elucidating and entertaining resource that provides much more than barebones facts.

MK Reed and Joe Flood’s *Dinosaurs: Fossils and Feathers* (First Second 2016; grades 4–8) unfolds with the suspense and excitement of an Indiana Jones adventure. Dramatic images set the scene by harking back millions of years to a time when these creatures roamed the earth. Beginning with...
The packed-with-kid-appeal books highlighted here FOcus on science and can be used to supplement classroom materials and traditional narrative nonfiction.

the Industrial Revolution, which ushered in a new era of inquiry, discovery—and digging—chronologically arranged chapters trace the development of human knowledge about dinosaurs and the natural world, highlighting important theories and ever-evolving investigative techniques. Also introduced is a cast of beguiling (and often eccentric) scientists, including self-trained 19th-century fossil-hunter Mary Anning; Othniel Marsh, Edward Drinker Cope, and their much-hyped bone wars; and the death-defying adventures of early-20th-century naturalist/spy Roy Chapman Andrews. The vibrant watercolor illustrations, clearly written text, and action- and humor-packed panels will keep readers riveted. Look for other volumes in this excellent new “Science Comics” series, including Maris Wicks’s Coral Reefs: Cities of the Ocean (2016).

Numerous volumes in Capstone’s Graphic Library series star Max Axiom, Super Scientist, a charismatic individual imbued with incredible powers (since being struck with “a megacharged lightning bolt” during a wilderness hike), including superintelligence, the ability to shrink to atom-size, and an unquenchable thirst for knowledge. His latest adventures dynamically delve into the science behind popular sports. For example, Nikole Brooks Bethea and Caio Cacau’s The Science of Football (2016; grades 3–8) introduces physics concepts as Max explains how velocity and momentum affect the running game, applies Newton’s Laws of Motion to a kicked football, discusses how the ball’s shape affects its flight when thrown, and illuminates how mass and force impact defense. Bursting with movement and color, the glossy artwork expands the text while keeping readers’ heads in the game. Other titles similarly explore baseball, basketball, and hockey, merging high-interest topics with scientific explanations (and maybe a few tips about how to be more efficient at your favorite sport).

Energetic images of the Caped Crusader adorn the pages of Batman Science (Capstone 2014; grades 3–9), a book sure to reel in superhero fans. Tammy Enz and Agnieszka Biskup explain the science behind the Dark Knight’s well-known arsenal of gadgets and provide real-world examples of similar technology currently in use. Sections focus on Batman’s body armor (drawing in everything from Kevlar to helmets made from composite materials, night-vision goggles, and wingsuits), utility belt gadgets (boomerangs, shurikens, smoke bombs, and much more), Batmobiles (rocket-propelled cars, a forklift with omnidirectional wheels,
stealth vehicles, shape-shifting technology, bullet-proof honeycomb tires, and more), and Batplanes and Batcopters (the latest in aircraft machinery, missiles, and rescue devices). Crisp full-color photos accompany the clearly written text, making the true-life examples all the more compelling. The book’s striking layout and tantalizing factoid approach make it a pleasing starting point for initiating further reading and research in the fields of engineering, technology, and design.

Illustrated Science Biographies

Blending handsome photographs, compellingly written fact-filled texts, and a sense of you-are-there excitement, these photo-essays offer exhilarating glances at science in action. These books provide broad overviews of their subject areas, introduce the basics of the scientific process along with real-world applications, and showcase diverse scientific careers. They also convey the challenges and triumphs of exploration in the field and the thrill of discovery.

The outstanding Scientists in the Field series (Houghton Mifflin Harcourt; grades 5–8) takes readers to locations across the globe to meet dedicated scientists doing cutting-edge research in a wide variety of disciplines. To give just a few examples, Sy Montgomery and Keith Ellenbogen invite readers to ride along with The Great White Shark Scientist (2016) marine biologist Gregory Skomal as he tracks, films, tags, and collects data about these “remarkably shy” animals off the coast of New England’s Cape Cod; the book also provides the skinny on sharks, their role in the ecosystem, and conservation. Elizabeth Rusch’s The Next Wave (2014) looks at scientists who are working to harness an exciting—and clean—new source of renewable energy, using both their personal persistence and engineering ingenuity to invent devices capable of surviving the “punishing force” of our oceans while harnessing “the potent pulsing movement of waves.” Rusch and photographer Tom Uhlman follow the hard-working, danger-defying scientists of the Volcano Disaster Assistance Program as they helicopter to the scene of the latest Eruption! (2013) to investigate, assess danger levels, and make the hard call about evacuation procedures. Pamela S. Turner and Andy Comins’s The Frog Scientist (2009) focuses on the work of UC Berkeley biologist and environmental advocate Tyrone Hayes as he and his enthusiastic students explore a commonly used pesticide’s effects on amphibians. Loree Griffin Burns and Ellen Harasimowicz introduce the Beetle Busters (2014), scientists dedicated to tracking and eradicating destructive Asian long-horned beetles that are currently threatening several cities and the entire hardwood forest of the northeast. Fascinating info about this invasive species, the hunt, and the life cycle of trees is supplemented by acknowledgment of the important contributions of private citizens—and even kids.

Published by Millbrook, Sandra Markle’s engaging series draws readers in by presenting a problem and illustrating the investigative approach scientists employ to solve it. The Case of the Vanishing Little Brown Bats (2015; grades 4–8) describes the efforts of researchers to understand—and, they hope, halt—a recent and severe drop in population of this species in eastern North America. Accessible text and handsome full-color photos cover this scientific mystery from first discovery, through the step-by-step elimination of possible causes (climate change, pesticides, a virus), to a breakthrough that relied upon a variety of experts, careful sample collection, and tenacious experimentation. Though the culprit has been identified as white-nose syndrome, caused by a fungus that affects hibernating bats, scientists are still searching for ways to help save bat populations from this devastating (and still spreading) disease.
This book successfully draws readers into the puzzle, while also conveying basics of scientific procedures and an appreciation for the role bats play in our ecosystem. Other volumes focus on *The Case of the Vanishing Golden Frogs* (2012; grades 4–8) and *The Case of the Vanishing Honeybees* (2014; grades 4–6).

Anita Silvey’s *Untamed: The Wild Life of Jane Goodall* (National Geographic Kids 2015; grades 4–8) combines insightful and inviting text, well-integrated primary quotes, and an array of stunning archival photos to chronicle the life and career of this groundbreaking primatologist. A chapter on Goodall’s childhood in England highlights hours spent observing and admiring animals, whether taming a British robin with windowsill crumbs or befriending the dog next door. The bulk of the book focuses on Goodall’s work in Gombe where, though untrained in survival skills or scholarly theory, she tracked chimpanzees through dangerous terrain, employed her own methods for observation and building trust with her subjects, and made incredible breakthroughs. Also covered are Goodall’s unexpected fame and role as respected scientist, and eventual transformation from researcher to advocate for education, conservation, and improved treatment of chimps in captivity. Photos of Goodall in the field, perched in a tree or quietly watching a group of chimps, as well as more-recent images of her poignant interactions with captive or rescued animals, make her work seem breathtakingly immediate. This well-written account not only introduces an accomplished scientist but also inspires readers to follow their dreams.

**Science-Based Novels**

Representing an array of literary tones and genres, these lively offerings integrate science into their plots. They can pique the interest of kids who are intrigued by scientific topics or stir up curiosity about the highlighted themes and concepts for general readers.

What would happen if your grandfather discovered the fountain of youth? Concepts of immortality and the natural cycle of life are insightfully treated in Jennifer L. Holm’s *The Fourteenth Goldfish* (Random House 2014; grades 4–7). Eleven-year-old Ellie’s life is turned upside down when her cantankerous grandfather moves into her family’s house; not only is he always crabby, but the seventy-seven-year-old scientist has discovered a way to reverse the aging process through cellular regeneration and now inhabits the body of a thirteen-year-old boy. Enrolled in Ellie’s middle school (he hates it even more than she does), Grandpa Melvin enlists Ellie’s help in gaining access to his lab and retrieving his research for publication and replication. Meanwhile, he also opens her eyes to the work of famous scientists, including Jonas Salk, Robert Oppenheimer, and Marie Curie and their unwavering “belief in the possible.” As her own passion for discovery is unleashed, Ellie begins to wonder about the true implications of her grandfather’s achievement. Filled with strong characterizations and spot-on humor, this buoyant novel mixes realistic family and friendship issues with discussable themes of both the wonders—and momentous consequences—of science.

The adventures of *The Wild Robot* (Little, Brown 2016; grades 3–6) begin when a hurricane sinks a cargo ship, a crate is washed ashore on a remote island, and ROZZUM unit 7134 is accidentally activated by a group of curious otters. With no knowledge of where she is or how she came to be there, Roz, a robot capable of learning and equipped with self-preservation instincts, begins to explore her surroundings, barely surviving close calls with steep sea cliffs, a mudslide, and aggressive bear cubs as she gradually adapts to her environment. The island’s animal inhabitants view her as a monster and keep their distance until Roz adopts an orphaned baby goose after an accident and...
eventually proves herself to be an excellent mother and member of the community. In fact, the animals band together to help when unwanted (also automated) visitors arrive to forcibly collect Roz. Told with lovely language and atmospheric illustrations, Peter Brown’s charming novel makes a satisfying read-aloud and can initiate discussion of the latest breakthroughs in artificial intelligence, the role of robots in human society, and the startling realization that wild animals and robots just might have something in common.

It’s the year 2041, and twelve-year-old Dashiell Gibson lives with his little sister and scientist parents on Moon Base Alpha, “the first permanent extraterrestrial human habitat” in space. Life is surprisingly mundane at the outpost, until the well-liked base physician Ronald Holtz turns up dead under mysterious circumstances, and Dash is the only one who suspects murder. Determined to take on Space Case (Simon & Schuster 2014; grades 4–7), the boy launches into an investigation that involves multiple suspects, difficult-to-decipher clues, the occasional red herring, and, after a danger-fraught climactic scene on the lunar surface, a truly surprising (and out of this world) resolution. Dash’s entertaining first-person narration written by Stuart Gibbs embroils readers in a well-plotted and suspense-filled mystery while also providing a detailed, carefully imagined account of what life would be like in a space colony and explanations of the science involved. Dash’s adventures continue in Spaced Out (2016).

Set in a small town in Texas in 1899, Jacqueline Kelly’s beguiling historical novel traces The Evolution of Calpurnia Tate (Holt 2009; grades 5–8), an eleven-year-old girl who embraces her passion for investigating the natural world and ultimately learns much about her surroundings and herself. Callie is the only sister “spliced midway” between three older and three younger brothers (all colorfully named for Texas heroes). Though her mother insists that Callie dedicate herself to improving her needlework or perfecting her apple pie, Callie much prefers to spend her time adventuring outdoors, differentiating between grasshopper species, and wondering why dogs have eyebrows, always observing and carefully recording her revelations in her red leather notebook. When her interest in Charles Darwin’s The Origin of Species catches her grandfather’s attention, the usually aloof (and somewhat curmudgeonly) man, a self-trained naturalist himself, takes notice of his granddaughter. As the two spend time together exploring the nearby river, pursuing inquiries in his laboratory, and even possibly discovering a new species of vetch, Callie’s zeal for scientific discovery—and self-confidence—burgeon. Charmingly written and abounding with droll humor and vivid details of time and place, as well as a clear depiction of turn-of-the-20th-century societal attitudes toward girls, this book introduces an unforgettable character. Callie’s story continues in The Curious World of Calpurnia Tate (2015).

Science-Based Fiction and Graphic Novel Series

Nick and Tesla’s High-Voltage Danger Lab (Quirk 2013; grades 3–6) introduces a pair of precocious eleven-year-old twins who have been sent to spend the summer with their absent-minded inventor uncle in California while their parents are off in Uzbekistan irrigating soybeans (or so they say). Brazenly self-confident Tesla and more-sensitive Nick quickly find themselves embroiled in a mystery that involves a creepy old house at the end of the street, a ghost-like girl in the window, and a menacing black
SUV that follows them everywhere. Fortunately, the science-loving duo are able to use their deductive reasoning abilities and penchant for designing useful gadgets (as in the “Mints-and-Soda-Fueled RoboCat Dog Distracter” needed to divert a pair of Rottweilers) to crack the crime. Bob Pflugfelder and Steve Hokensmith’s zany, page-turning adventure includes Scott Garrett’s lively illustrations and step-by-step directions for the featured made-from-everyday-objects contraptions. (Teachers can share a book in the series aloud in class and then build the projects.)

In Jon Scieszka’s Frank Einstein and the Antimatter Motor (Harry N. Abrams 2014; grades 3–6), the titular kid genius and his best friend, Watson, are trying to animate a made-from-odds-and-ends SmartBot via lightning surge when a power outage scraps the project—that is until the next morning when Klink, a self-assembled, self-teaching, super-smart artificial-intelligence entity rolls into the kitchen along with his clunkier, corny-joke cracking, hug-giving, maybe-not-quite-as-intelligent sidekick Klank. The two robots are determined to help Frank win the Midville Science Prize and, they hope, save Grampa Al’s shop with the prize money. The young inventor’s Antimatter Motor Fly Bike is looking like a shoe-in for first place, until the friends discover that the technology has been stolen by Frank’s classmate and archenemy, T. Edison. Illustrated with Brian Biggs’s madcap cartoons, the books in this series are infused with snicker-inducing humor, scientific concepts and landmarks, and an effervescent spirit of scientific inquiry.

The middle child in an overachieving bunch of siblings, D. J. Lim feels as though he’s not “really super good” at anything. Then a mysterious boy falls from the sky and into his life. Wearing only a pair of silver underpants and a gigantic smile, Hilo (Random House 2015; grades 3–6) can’t remember anything about who he is or where he came from, is totally clueless about the details of day-to-day life, and has the ability to learn at lightning speed. When a terrifying cybernetic ant and a slew of other automated insects begin to invade Earth, both Hilo’s super abilities and details about his past begin to emerge. Along with his science-loving pal Gina, D. J. does everything he can to help Hilo prevail against ever-increasing danger. Ultimately D. J. discovers that he excels at courage, quick-thinking, and being a good friend. Starring a diverse cast of characters, Judd Winick’s irresistible graphic novel is told through delightfully punchy dialogue and sparkling artwork awash in bright color and nonstop action. In this series, themes such as the importance of friendship, individuality, and facing difficult challenges are wrapped into stories that also touch upon the interface between artificial intelligence and human society. (Hailing from a parallel dimension, Hilo is, in fact, a robot created to protect people from robots gone wrong.)

Stocking Library Shelves to Motivate Students

School libraries that provide an array of engaging high-quality materials enable students to choose books that appeal to their individual interests, reading preferences, and abilities. The titles featured above are a small sampling of the wide range of offerings that can be used to explore and expand upon science curriculums, and a similar spectrum of selections for other subject areas should also be made available. These materials can be identified by consulting professional review sources, library catalogs, and readers’ advisory resources such as CLCD (Children’s Literature Comprehensive Database) or EBSCO’s NoveList. Whether graphic novels, day-in-the-life biographies, humorous novels, or imagination-stretching fantasies, stock your shelves with a variety of books that have the ability to captivate and stimulate each and every student in your school community, no matter the skill level or learning preference. When you enable a child to discover a book to love, you empower that person to become a self-motivated reader and lifelong learner.

When you enable a child to discover a book to love, you empower that person to become a self-motivated reader and lifelong learner.

Joy Fleishhacker is a children’s librarian in the Pikes Peak Library District in Colorado Springs, Colorado. She is a frequent contributor to School Library Journal e-newsletters Curriculum Connections, Extra Helping, and SLJTeen. She also authored the article “Ground Work: Green Thumbs and Bountiful Imaginations: Great Books about Gardens” in the June 2016 issue of School Library Journal.
Creating Genuine Readers with Flexible Scheduling
As a presenter and speaker, one of the things I’m most often asked to talk about is flexible scheduling—or, in some cases, to avoid talking about because “it just isn’t possible at (insert campus name or district name).” I know elementary school libraries; I served for one year at the Pre-K level and four years at the elementary level at two different schools. I know that mentality of “we have always done it this way, and this is the way we are going to keep doing it.” What I also know is that a person with enough gumption to go in and rock the boat and change things up can fight for change and make it work!

The thing I noticed about working in a school library on a fixed schedule was that I didn’t have any curriculum. Teachers in music, art, and physical education have TEKS (our state’s learning standards) about what they have to teach and cover. However, in Texas there is no such thing as library curriculum. So I was busy trying to make up stuff to do with my students and present entertaining story times, but these things were not instructionally relevant. I mean, they could have been, but I had no real way of knowing because I wasn’t collaborating with the classroom teachers.

I moved to another elementary school where everyone was used to a very fixed library schedule; classes came every week, and students returned their books, checked out new books, and enjoyed a library activity or story time. However, I wanted to do more to support students’ learning. Over the course of three years I was able to move that campus from a very fixed schedule to a completely flexible schedule. The first year I was there, every week teachers in grades K–2 dropped their classes off for thirty-minute library times, and teachers in grades 3–5 dropped their classes off for thirty- to forty-five-minute library times.

One of the things that bothered me most about the schedule was that my precious readers were returning their books on library day every week regardless of whether they were done with their books. I watched in horror as they would yank bookmarks right out of the middle of a book and turn it in! Why?!?! You aren’t done with it! Students were so involved in the routine and the excitement of getting more books that they were not behaving like genuine readers.

Genuine readers don’t turn in their books just because it’s library day!

I wanted to instill the habits and behaviors of readers in my students, not increase my check-in and check-out stats. Genuine readers carefully select their next books based on interest, reviews from peers, and excitement about their next choice. Readers return a book because they are done with it or because they choose to abandon it. Readers share their love of a great book with one another by describing the book and what it was they liked about it. I knew something had to change if our students were going to take ownership of their reading process.

I asked to move to a flex schedule my second year at that school but was told that it just wouldn’t work. Since I wasn’t going to give up that easily, I went to the second-grade team of teachers and asked them if they would be willing to do an experiment with me. I explained what I was seeing with the kids and their behaviors with books, and I explained that I wanted to nurture our readers and be instructionally relevant. Here’s what I asked the second-grade teachers to do and not do:

1) No more whole-class check-in and check-out. Teachers would send their kids individually, in
pairs, or in groups of three to come to the library and check books in and out as needed based on their reading needs for their classroom readers’ workshop. This strategy allowed me to engage in actual readers’ advisory with my students instead of dealing with a herd mentality: “Where are the Wimpy Kid books?”

2) **Classes would come to the library as a whole class for curriculum-related activities on which the teachers would collaborate with me.** We’d have no set schedule. Instead, we would teach a lesson when it actually fit in the curriculum timeline. If we needed to teach X on Wednesday and Thursday next week, that’s when the class would come to the library—yes, two days in a row!

3) **On an as-needed basis, teachers could bring a whole class for a fifteen-minute “Book Blast” if the teacher had a significant number of students who needed to go to the library.** No class had a set day or time. Any kiddos without the need to do anything with their books wouldn’t have to bring their books.

4) **I also became VERY lenient with due dates.** I began telling the kids in all the grades, “Your book is due when you are done with it. If you need to abandon a book the next day because you don’t like it or it’s too easy or too hard, so be it. If it takes two months or two days to read your book, you return it when you’re done.” (To this day I do not believe in due date stamps, cards, or slips in a book.) No more pulling bookmarks out of the middle of books students weren’t actually done with.

These policies took effect across an entire grade level with the whole team of teachers on board. We then proceeded to start the collaboration process. Throughout the school year we collaborated sixteen times for curriculum-related lessons. On a regular basis I would e-mail teachers, meet with them face to face, and talk to them on the phone to help them determine what pieces of their lesson plan would make the most sense to teach in the school library.

In most cases, I would take a lesson that was less than awesome and bring it to life with great books, technology, library resources, stations, and hands-on activities. I would create the activity page or the product that the students would work on throughout the course of the activity. I would gather the necessary resources and supplies. I would acquire any additional technology needed. I would make the answer key (if there was one) and provide copies to each teacher. I did all the leg work for the lesson so that the teachers just had to show up with their students and help me co-teach the content. I relied heavily on the teachers because of course they were the experts on their content. I would ask for their guidance and input on the activity sheet I was creating to make sure it aligned with what they were doing in the classroom and their learning targets. I also relied on them when they were with me in the library to ensure that students with Individualized Education Plans or students with 504 plans were given all the necessary modifications and accommodations.

These library lessons became some of the most memorable experiences for the students and teachers for that year because the lessons were such shining examples of the power of collaboration and its role in enriching and enhancing the curriculum!

At the end of the year I asked those teachers and students to help me create a video about this flex schedule experience. (To watch it, go to <www.youtube.com/watch?v=Q2tCbssf-JQ>.) I then went to my principal armed with this experience and the video and examples of the curriculum-related work we had done together—the teachers, the students, and myself. As a result, I was asked to present that video and examples of the lessons and student work at the back-to-school professional development days for classroom teachers. That third year, I was allowed to implement the model across grades 2–5. Bumps and other issues had to be worked through that third year. I still faced some opposition, but it was clear that this model was in the best interests of student achievement and making the library instructionally relevant.

The following year I went to a new elementary school in our district and opened a new library. The principal at that new school was 100 percent behind the flexible schedule model. I did still have kindergarteners and first-graders on a somewhat “fixed” thirty-minute library visit each week—especially at the start of the school year. However, as the school year progressed, I was able to collaborate on a broader scale with kindergarten and first-grade teachers and make their library
Flexible scheduling is one of those things that we all know—in theory—is best for kids, but often find difficult to implement in practice. However, I encourage you to find ways to make flexible scheduling a reality at your elementary or secondary campus.

visits more curriculum driven. I also emphasized that we could change class “times” at any point should we need more time for a lesson or so I could see all their classes over the course of a day or two to fit in their curriculum lesson. I would also tell the classroom teachers that their “times” had to be flexible in case another grade level needed a lesson on a specific day.

Flexible scheduling is one of those things that we all know—in theory—is best for kids, but often find difficult to implement in practice. However, I encourage you to find ways to make flexible scheduling a reality at your elementary or secondary campus. After putting flexible scheduling into practice and making it a reality at more than one school, I know it can work. Implementation does take a lot of perseverance and dedication, though. Here are some tips:

- Be prepared for the need to frequently remind teachers you are there as a resource and to ask them to collaborate with you.

- As much as possible, be present in planning meetings to offer ideas and suggestions to enrich and enhance the curriculum with school library resources and your own ability to coteach.

- For scheduling, find a tool that works for you AND for your campus. I have used a variety of resources, such as Google Calendar, Outlook Calendar, my library website, Google Forms, and e-mail as a way to track who is coming to the library when.

- Be prepared to meet the teachers at their point of need to accomplish the planning and collaboration (in-person meetings, e-mail, phone, text, carrier pigeon, etc.).

Implementing flexible scheduling can be a hard row to hoe, but it is so worth the effort for your school and your students! I am here as a resource, and many other librarians are out there who can also serve as resources for those of you who want to make flexible scheduling work, but aren’t sure how to do it. We are all in this together, and we are better together! Let me know if I can help! (Seriously.)

To see all of the grade-level activities I have done throughout the years, go to <http://borchardtlibrary.edublogs.org/category/grade-level-collaborative-activities>.

---

Nancy Jo Lambert

is school librarian at
Rick Reedy High School,
Frisco (TX) Independent
School District. She is a
member of AASL and serves as a member of
the AASL Publications Advisory Group and the ALA Committee on Library Advocacy.

She is immediate past chair of the Texas
Library Association Children’s Round Table,
and current social media manager of the Texas
Association of School Librarians and vice-
president of the Texas Computer Education
Association’s Library Special Interest Group.

Nancy Jo is also on the advisory board for
the Mackin Transform Your School Library
Movement, and she co-moderates #tlchat
on Twitter. She has been published in
professional journals, has won numerous
awards and grants, and is a reviewer for
School Library Journal.

---

Recommended Reading:


ENGAGING STUDENTS IN THE LIBRARY
THROUGH TABLETOP Gaming

Vivian Alvarez

inboxvivian@gmail.com
Another important highlight is that not all tabletop games are created equal. Many traditional games, such as Monopoly, rely mostly on a luck mechanism. Newer games, such as Agricola and Dominion, rely more on player agency, have become more prevalent, and are more representative of modern tabletop games. The type of games that are introduced to students at the library include the latter, described later in this article. Not only have modern tabletop games proven more engaging than many of the older games, but they also have proven to leave fewer feelings of resentment or discouragement if gaming outcomes are not favorable. In fact, students leave the table strategizing better outcomes and looking forward to the next challenge. When this level of self-driven interest is sparked, one must rightfully ask: What are we doing right?

Too often I witness students conquer difficult video-game levels or cooperative games with repetitive trial and error, rather than critically thinking in the situation to complete the mission. Sometimes students consider analog learning experiences to be relics of the past because young people today are accustomed to simplified directives that strip the scenario to the point that designers could simply reskin a game and the mechanics would not change. An excellent example of this would be in comparing a game like Candy Crush Saga to Frozen Freefall (see figure 1). Despite the thematic differences, are the games truly different?

In contrast to players’ experiences during analog games, when engaged in many video games, players appear to be more focused on instant gratification, foregoing even a brief perusal of the game instructions. Trial and error with minimal opportunities for skill improvement have become the latest trends in the video-game industry, relying on players’ undivided absorption with easy access to online games on computers and mobile devices. In fact, it is not uncommon to see students who, instead of spending quality time together, sit side by side engrossed by online games; these young people are physically present but interpersonally disengaged. For example, students may be in the school library to work on a project as a team but half of them are engrossed in online or digital games, mentally checking into the project only intermittently.

To increase opportunities for interpersonal interaction, collaboration, and quality time among peers, tabletop gaming was chosen in our library to motivate students in a positive manner. Through this approach, students would be encouraged to be at full attention to maximize the game outcomes through their individual agencies.

**THE GOAL** is for students to adapt these learned skills and dispositions, and then apply them to their education, extracurricular programs, and social lives.
For the purposes of this article, student agency is defined as the initiative and capacity for students “to construct possibilities for themselves,” drawing “projections of who they are and believe they will become” as they act in a desired direction or toward a desired goal (Toshalis and Nakkula 2012, 29). Modern tabletop games typically require:

- two through six players
- no information hidden from any team member
- a semblance of story-building
- description cards
- an average-to-minimal reliance on a luck mechanism such as rolling dice

Tabletop games have a system of rules that ensure that every participant is on a level playing field, with none given a distinct advantage over another. Through tabletop gaming, students learn that they can test different strategies with little to no fear of embarrassment if the first attempt is not victorious. Tabletop gaming is valuable play and can teach students to find confidence in their own unique strategic methods. They may not win the first or second time, but they will learn how to win and excel. If these learned experiences can somehow be pivoted to academic achievement, then educators can potentially change students’ outlook on school and academic achievement.

**Motivating Students to Get Involved in Libraries**

Makerspaces have become increasingly integrated by library programs throughout the nation to ensure all members of the student body have equal access to making in STEM–related fields. These libraries welcome young patrons to tinker with technologies old and new. However, the new—makerspaces—must supplement, not replace, older methods of delving into engaging learning experiences enhanced by opportunities to share and learn with others. Without sacrificing fun, students can immerse themselves in challenging quests—including those within games—that promote academic-readiness skills. Such skills are found in the attributes of student agency involving the ability to adapt to changing circumstances and the willingness to learn through experience—attributes that are applicable across multiple academic disciplines.

The introduction of games as learning tools requires a high burden of proof of value to overcome the misconception that playing and learning are separate and distinct states of being. Whether the topic is intuitive instincts or military training simulations, many learning experiences are built around the idea of fun (Mayer and Harris 2010, 10). While some educators may be apprehensive about embracing play as an instructional method, they do agree that problem-solving skills are an essential asset. Take, for instance, students in their pursuit of an education in homeland security who, despite gaining skills based on theories and concepts, are also challenged by the variety of issues and topics the field faces. Such varieties demand adept creativity to draw on knowledge that aims at assembling different types of information and evaluating it, applying implications that impact the present and the future, and making judgments about what it all means (Wheaton 2011, 968). Teaching professionals in academia and the workforce have acknowledged student agency as an important tool that should be fostered in curricula and training sessions. Students and prospective employees with knowledge of their own agency are inherently ahead of the learning curve, allowing them to focus on advancing their skills as opposed to playing catch-up.

Keith Cozine has discussed Tony Wagner’s (2012) seven skills that students require as tools for success: “critical thinking and problem-solving; collaboration across networks and leading by influence; agility and adaptability; initiative and entrepreneurialism; effective oral and written communication; accessing and analyzing information; curiosity and imagination” (Cozine 2015, 3).
Each of these skills can be developed during the gaming experience. For example, the game Agricola is a modern tabletop game based on time management and priority assessment in the development of a farm to maximize points by the end of a game that is limited to a brisk fourteen-turn limit. At least five of the skills Wagner identified are practiced when playing the game. During the game players, though not completely antagonistic toward each other, are not playing cooperatively either—a circumstance that is not dissimilar to the school experience.

With each turn, each player places his or her workers on specific tasks to further develop the player’s farm. The number of workers, however, is limited unless a player uses a turn to gather the resources necessary to expand the family at the cost of farm development. This requirement forces players to make a critical assessment of priorities to avoid penalties as Agricola uses this mechanism to force players to act. Players must also interpret the rules together, with the option to apply their own house rules as well as build upon a wide variety of skills. These include skills related to problem-solving, collaboration, agility and adaptability, initiative, communication, analysis, and curiosity. Critical thinking and imagination skills additionally follow as the game ends and final scores are assessed, leading to autonomous reassessment if the strategy used was ineffective within the time constraints.
As in the game, students must manage, assess, and reassess their own academic challenges. Just as Agricola forces players to consider the big picture of the goal of maximizing points, in school students must consider what actions must be taken to complete difficult academic work within a strict timeline. The ability for students to build on Wagner’s seven skills for success is the link to exploring and extending their agency.

Advantages of Student Agency

It is important for students to develop their agency as they prepare for college and as they graduate and enter the workforce. Bradford Holmes, a contributor to *U.S. News and World Report’s* education coverage, used the term “soft skills” to refer to elements of student agency as he shared that college-bound students require soft skills to become comfortable managing their time and working in groups to complete projects. These top five skills are collaboration, communication and interpersonal skills, problem-solving, time management, and leadership (2014).

Connections between Games and Developing Agency

Analog experiences offer students opportunities to engage in active interactions that involve reading, decoding, analyzing, assessing, and taking action in situations that are not static, all while sitting next to or across from each other. Games have the capacity to prepare students for a wider world of information by providing a platform for engagement through inquiry, all in an environment that is rich with content and fluid in nature (Mayer and Harris 2010, 25). Consider tabletop quests in Mansions of Madness, Pathfinder, or Zombicide, in which one player must obliterate a plague of enemies by collaborating with peers and strategizing the safest exit. Such survival combat requires players to harness their imaginations and critical thinking, as well as their motivation, without feeling like a failure in the event of failure or fostering ill feelings against peers. In fact, there is an intrinsic connection when, instead of dwelling on “beating” a peer, students delve into their own strategies to improve their skills. In other words, the students’ objective is improving themselves, a self-determination that is enhanced when students believe that they can acquire new skills and improve on existing ones through focus and effort (Toshalis and Nakkula 2012, 34).

Appropriate Games for Fostering Development of Agency

If this type of self-motivation is what educators are aiming for, introducing the right tabletop games is as key an ingredient as lemons are to lemonade. What tabletop games can be considered educational for the purposes of improvising analytical strategy? Several U.K. universities have integrated the board game Quarto into their educational initiatives to build math skills and to support a social environment. Once students get involved in the game, the tendency is to gravitate toward game strategy involving the advantages of a particular position and the benefits of being the first player, as well as furthering their own curiosities through extracurricular investigations in game theory (Rowlett 2015).

Brian Mayer and Christopher Harris’s 2010 book *Libraries Got Game* offers excellent tabletop game options that can be integrated in education curricula. The types of recommended games involve an interesting and exciting array of fun in modern tabletop games, especially those that have a European origin as they often rely on players’ skills and have little or no reliance on luck. The master game designers create games with their targeted audiences (e.g., school libraries) and the age groups served in mind. What is unique about these games when compared to American traditional board games is that the European games often provide intellectual engagement in which decision-making opportunities are not shaped purely by rolling dice.

American Game Designers Get Onboard

For more than a decade, American game designers have also jumped on the modern game wagon by applying more interactive complexities beyond the luck of the dice. Unlike the American classics Monopoly or Risk, greater focus has been placed on cooperative play, variation in decision-making, multiplicity in victory paths, and fewer periods of inactivity during which a player waits for his or her turn (known as down time) (Levine 2008, 9).

The tabletop games that have proven successful at my library are Agricola; Descent: Journeys in the Dark; Dominion; Mansions of Madness; Mysterium; Pandemic; Pathfinder; Splendor; Star Realms; and Zombicide. Figure 2 compares the games’ reliance on skills, luck, and reading frequency, all assessed on a scale from 0—10 based on observations at the library. The skills evaluation is based on strategy; the luck measure is based on how much success in the game relies on chance; the reading frequency assessment is based on the required engagement with text to minimize the aspect of luck as the game unfolds.
each participant can eventually be assigned as the moderator when the game is played in the future. Challenges for some players lie in poor comprehension skills due to a dearth of effort as the students have become accustomed to experiences that provide instant gratification. This expectation of instant gratification may, at first, result in students’ professing a lack of interest in learning the nuances of the game. However, these students are, in fact, waiting to be drawn in by educators who “[help] them appreciate the range of possibilities in front of them” (Toshalis and Nakkula 2012, 35).

Inspiring students to become moderators is directly dependent on educators who are knowledgeable about the games’ rules, breathe life into the game, and open the arena to inclusion and equity, despite players’ diverse skillsets. If this drawing in is done in a way that allows each student to feel welcomed, motivation and engagement are likely to rise (Toshalis and Nakkula 2012, 33). building on players’ self-deter-

Figure 3 shows the attributes of each game based on cooperation, card draws, or tosses of dice. Identifying cooperative games has been an important tool for helping build confidence among students who prefer not to compete against each other. These games have also helped build camaraderie, leadership, and storytelling ability. The games’ character cards describe various attributes, a circumstance that helps players notice the important benefits diverse strengths bring to collaboration. Dice in these types of games introduce a level of randomness and unpredictability. Games that rely only on chance are basic games that “have few rules and a very small learning curve” (Crews 2011, 10). On the other hand, games that do not have a mark on any of the categories in figure 3 are very creative in their approach as they focus on individual strategy.

Initially, all these games require a moderator who understands the rules and is highly motivated to involve the other players. The educator’s goal is to identify and articulate leadership skills so that each participant can eventually be assigned as the moderator when the game is played in the future.

Upon being asked to read the game handout or the rules printed in a short sentence on cards in students’ decks, many students’ responses are impressively identical and portray them as having almost no drive to learn the basic rules. Others read the short blurb willingly but experience difficulty in comprehension skills. When playing their favorite digital games, such as FIFA; Ratchet & Clank: All 4 One; ModNation Racers; and Dragon Ball Z, trial and error renders enough insight to experience the basics of the game. Engaging in digital challenges has in recent years become simplified, eliminating the literacy requirement.

Consequently, new self-defeating habits are being shaped by video games, habits that will follow young people in other areas of their learning experiences.

In the spring of 2015 students at our school were introduced to Magic: The Gathering, a collectible trading card game based on a battle of powerful wizards intent on obliterating one another. The reading frequency was minimal yet constant, fully reliant on comprehension. Students found the game unfamiliar and complicated. After meeting with staff and the library’s teen advisory committee, it was agreed to first introduce games that required less reading, and to challenge students by easing them toward complex games. To teach the basics of card games and strategy, Splendor was introduced and received with a great deal of success. Participation evolved into Dominion and Star Realms, with Dominion being more skill-based and Star...
Consequently, new self-defeating habits are being shaped by video games, habits that will follow young people in other areas of their learning experiences.

<table>
<thead>
<tr>
<th>Game</th>
<th>Co-op</th>
<th>Character Cards*</th>
<th>Dice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricola</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Descent: Journeys into Dark</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mansions of Madness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monopoly*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mysterium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pandemic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathfinder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Splendor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Star Realms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zombicide</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Character cards have different attributes.

Figure 3. Degree to which popular games rely on cooperation, luck of the draw of character cards, or roll of the dice.
Realms introducing a strong element of luck. Zombicide became the next hit, giving students the opportunity to play cooperatively with one another while relying heavily on luck.

Students then began to express increased interest in other cooperative games, willingly engaging in games once deemed too complicated. These games were adopted in the following order: Descent: Journeys in the Dark; Mysterium; Pandemic; Pathfinder; Agricola; and Mansions of Madness. In the latest game, students have reached a balance between skills and reading frequency, while minimizing the negative aspects of luck. In my experience, students’ preferences have evolved; where students once demanded games heavily reliant on luck, they now want to be the authors of their own destinies, testing their stratagems against their fellow students.

Supporting comprehension through play is part of enabling college and career readiness. While flawless graphics and special effects in digital games continue to attract attention, self-defeating habits are the consequence. As has been noted by AASL, technology skills are crucial for future employment needs. AASL also notes that the degree to which children can read and comprehend is a key indicator of success in school and in life; AASL also advocates learning experiences requiring students to collaborate (2009).

While the AASL standards are applicable to school libraries, the tabletop initiative can also be supported in public libraries with diverse age groups, from child to adult. Modern tabletop games have become more reliant on skills, encouraging players to identify their own personal habits (because habits shape skills) and develop finesse where necessary in a face-to-face social arena. This focus is very different from trying to defeat an opponent as the challenge in modern tabletop games is in players’ recognizing their own habits of mind and their skills. Honing their own skills is where the ultimate reward resides. The goal of educators encouraging students to play these games is to plant a seed of stamina that is also applicable outside of the tabletop experience and in students’ approaches to their academic work. The sooner concepts of agency are introduced, the sooner children will be able to identify their habits (as habits are shaped by their individualities), define their strengths, and reinvigorate skills within their comfort zone to achieve a victory. The purpose of engaging students in analog learning experiences is not to lure students away from digital media but to foster students’ awareness of the habits formed by both analog and digital activities. For this reason, let’s give students’ opportunities to savor play in analog form, hone their skills, enable their agency, motivate them—and let the play unfold!

Vivian G. Alvarez is a teen mentor at Chicago Public Library, developing programs supporting the maker movement and teaching STEM-based programs, coding, and digital media workshops. She works collaboratively with students to interpret, critique, and reimagine the physical, social, and cultural environments. With thirteen years of professional experience in the nonprofit field, she has implemented an innovative curriculum based on student agency and has worked within a variety of school and community contexts. She is a current graduate student at the School of Information Sciences at University of Illinois at Urbana-Champaign, concentrating in Youth Services. She is a member of AASL and was an ALA Spectrum Scholar.

Works Cited:


Youth Expressing through Video Games and Coding

FEATURE

< EXPRESSING

YOUTH

THROUGH VID AND

>
Youth
through Video Games and Coding

Crystle Martin

VOICE

EO GAMES

CODING

Crystle Martin
Introduction

A growing body of research focuses on the impact of video games and coding on learning. The research often elevates learning the technical skills associated with video games and coding or the importance of problem solving and computational thinking, which are, of course, necessary and relevant. However, the literature less often explores how young people use and develop voice through these interests. Being able to express themselves and explore different identities is important for young people’s development. To create a context for this discussion, I will discuss the topic in existing research. To expand the discussion I will focus on Scratch, a free visual coding language, and World of Warcraft, a massively multiplayer online game (MMOG), and bring in examples from ethnographic studies of the Scratch and World of Warcraft communities. The feature will conclude with an implementation section for school librarians who want to apply the findings to their practice.

Youth Identity and Expressing Youth Voice in Interest-Driven Activities.

Participating in interest-driven communities—whether physical or virtual—offers participants more than just community; participation is about the creation of identity. Those who participate in interest-driven communities develop a sense of themselves within the contrasting social situations of this supportive community and in the larger, oftentimes unsupportive, world (Holland et al. 1998) and use multiple identities to navigate the complex landscape (Weber and Mitchell 2008). Participants express identity through their creative media production.

These benefits were evident in the professional wrestling-oriented community I’ve called the Wrestling Boards (a pseudonym for the community), in which youth express their identity as professional wrestling fans, inhabiting the personas of professional wrestlers as participants design a fantasy wrestling federation (Martin 2014a, 2017). In this fantasy wrestling federation, participants create their own wrestlers that fit genre conventions and role play as these wrestlers. This role playing not only helps young people understand the genre of wrestling deeply and actively participate in fandom but it also creates opportunities to understand social boundaries and how to civilly disagree with someone. The community has very strict rules about acceptable treatment of other people, and yet, when in character, feuding with others is required. So the youth who participate actively switch between being themselves and playing personas, developing a voice for each situation. Online environments create opportunities for people to create multiple representations of themselves and to explore new aspects of themselves (Turkle 1997; Reid 1998).

Youth who participate in online communities—especially when creating and not just consuming—use their voice to express their identity. According to Elisabeth Soep, “In participating in the kinds of conversations I have spotlighted here, young people are continually producing and shifting situations for their own learning, using language, and specifically crowded speech, to do so” (2006, 209). Creative media production also empowers youth. Yasmin B. Kafai and Kylie A. Peppler described creative media production as “an appropriate and healthy counterculture to a culture of consumption” (2011, 113). Through this creative production, such as coding, young people are able to express their voice.

In the process of my recent research, I’ve found numerous examples of young people who, through participation in face-to-face or online activities, have developed and evidenced a greater sense of their own agency.

Methods

I recently performed two large ethnographic studies. One is of Scratch and its implementation in library programming. The Scratch community was chosen because it has low barriers for participants’ entry. The second study is of the MMOG World of Warcraft; that study followed the play habits of male teens who were struggling and disengaged with school.

Research Context: Scratch

Scratch is a free online visual coding language used for authoring multimedia projects. Coding occurs through “snapping” together block-based elements that interlock like Legos. Scratchers (those who use Scratch) code by dragging blocks from a palette and attaching them in a jigsaw-like fashion.

Scratch has been designed with this easy-to-use interface to remove barriers to entry into coding; people can code without knowing the syntax of any programming language. Scratch has a low floor and a high ceiling (Papert 1980), meaning that it has easy entry and yet has a lot of room for growth and expansion. While Scratch has been designed primarily for ages eight to sixteen (MIT Media Lab n.d.-a), the online community hosts participants younger than eight through retirement age. As of August 2016, the community had nearly thirteen million registered users, more than sixteen million projects shared.
Creative media production also empowers youth. And more than eighty-five million comments posted (MIT Media Lab n.d.-b).

Research Context: World of Warcraft

At its peak World of Warcraft (WoW) had about twelve million subscribers. The community is continually engaged in producing resources, creating fan materials, and building collective knowledge. When creating a character in WoW, a plethora of choices are available on the character-creation screen. At the time of data collection a player had the option of choosing between two factions, two genders, seven races, and ten classes, each of which had the option of three specializations. Along with creating a character, WoW players develop their own play style and seek information to help them advance in the game. Methods for improvement include trial and error, which involves wandering around looking for vendors in cities, some of which are spread out and confusing for beginners. Using in-game chat within a city or town allows a player to seek advice from other people who are currently playing. At any point in the game, in-game chat can be used to communicate privately with an individual, with a small group, or with a “guild” (medium to large group with which the player has become affiliated). Alternatively, a player can use completely public channels, such as the chat channels in towns and the vast number of WoW-related resources available on the Web. Many times players feel that the most-trusted sources of information are other characters with whom the player has made a personal connection in the game or members of the player’s own guild. Character creation, play style, and preferred channel for information seeking are all reflective of the voice of the player, and are tied into motivation and engagement.

Participants for Scratch Study

For the Scratch study, using ethnographic methodology (Hammersley and Atkinson 2007), I conducted interviews over an eighteen-month period with youth who live in the United States and Western Europe. Each participant was interviewed once with follow-up questions conducted through e-mail. (All participants’ names have been replaced by pseudonyms.) Twenty-seven females and forty-three males participated in this study, for a total of seventy interviews. The participants ranged in age from eight to twenty-one. I recruited Scratchers from three different spaces: the online Scratch community, existing out-of-school/after-school groups that use Scratch to teach coding, and workshops facilitated in conjunction with librarians at two public library systems (see my feature in the January/February issue of KQ). Recruitment locations were diversified to capture the breadth of entry points for youth into Scratch. The criteria for participation were not prescriptive, but I actively sought girls and youth of color for interviews. The participants needed to self-identify as being a Scratcher or being engaged with Scratch. Because Scratch offers many different avenues of participation, I did not impose specific limitations, which could privilege certain types of participation over others.

Participants for WoW Study

For the World of Warcraft study the data originated from an afterschool lab. The lab ran for two years with nine participants in the pilot year and twenty-two participants in the formal program year. The participants of the lab were thirteen- to eighteen-year-old males from rural Wisconsin. The lab met monthly in a face-to-face setting in a game lab on a university campus, as well as online during regular collaborative gaming within WoW. Communication also took place asynchronously on forums created on a guild website set up for the study. For both studies, analysis entailed qualitative coding.
Youth who participate in online communities—especially when creating and not just consuming—use their voice to express their identity.
(Saldaña 2016) with a priori and emergent codes. The a priori coding drew codes from computational thinking (Brennan and Resnick 2012) and connected learning (Ito et al. 2013) for the Scratch study. Coding was undertaken using the online qualitative research software Dedoose. For the WoW, codes were drawn from a range of educational areas, including information literacy, science reasoning, and epistemology. Both coding schemes had codes that related to identity. In this paper, I share examples related to the themes of voice, identity, engagement, and motivation.

Observation and Interviews for Scratch

Data collection for the Scratch study included ethnographic fieldnotes (Emerson, Fretz, and Shaw 2011) and interviews (Hammersley and Atkinson 2007). I conducted interviews over a two-year period with youth who participated in the library workshops. I interviewed each participant once. The interview recordings were transcribed by a professional transcriptionist. Once the interviews had been transcribed, I assigned each participant a pseudonym. The interviews were conducted using a protocol that I developed based on computational thinking (Brennan and Resnick 2012) and the connected learning framework (Ito et al. 2013), which focused on equity in learning to code. Since this was a semi-structured interview protocol, questions and order were dynamically changed based on context and the unique experiences of the respondent. (For more information about interviews with participants and facilitators at public library-sponsored workshops, see my feature in the January/February 2017 issue of KQ.)

Observation and Interviews for World of Warcraft

Data for the World of Warcraft study came from an eight-month ethnography of the online community, as well as data and observations collected from an afterschool lab. The afterschool lab served high-school-age male youth, many of whom were struggling in school. The main objective of the after-school lab was to provide resources for academic growth and trace individuals’ learning trajectories and interests throughout the duration of participation in World of Warcraft. The youth were interviewed about their participation in the lab as well as their participation in WoW. The youth who participated took on leadership roles in the guild, supported each other while playing, and developed their own voices through their play style and interactions.

Discussion

WoW

Identity development occurs for players in World of Warcraft (Martin 2012, 2014b), development that can also be seen with youth who participate in Scratch as is detailed below. Players are able to develop a voice based on their play style. When asked to describe their information-seeking process, youth would describe their process in terms of their player identity: casual to serious, novice to expert. They used their identity as a type of player to situate themselves in the vast information world of WoW.

Noel, an expert in WoW, was a white seventeen-year-old who had been struggling in a traditional high school but began to flourish when he changed to an alternative high school. At the time of the interview, he had been playing for five years. In his alternative high school, he felt that he had the agency to suggest curriculum modifications, has run the computer lab for the school, and helped the school find and apply for grants to pay for technology upgrades. Being involved and helping out were part of both his gamer and his everyday identity. He really enjoyed helping those around him who were learning the game or had questions about higher-level content. “There is a lot of peer-to-peer interaction in WoW and players like to work together as they play the game. I like to help others level up instead of playing end-game content, because it is fun to watch them get better.” Noel expressed his voice through the help he provided to others and his supportive interactions with other players. He also felt that he developed leadership qualities through his game play that translated to other parts of his life. Helping others, both at his alternative high school and in WoW, contributed to his motivation and engagement with developing skills both in and out of school.

At the time of the interview, Neil, a white and Native American fifteen-year-old and expert player, was the opposite of Noel. He was a very solitary player who did not like to ask other people for help. He also did not offer help to others. As his main source of information he used a website designed specifically for expert players; on the site players debated nuances of the game and broke down spell rotations by statistics. Noel expressed his voice through his high quality of play and the level at which his collaborators could rely on him in cooperative play situations. “I only use players in my guild and a [website for high level players] to play [my character]. I like to play by myself or in my raid group; being good at playing my character is important to me being able to play in my raid group.” His character expressed his voice and
his play style, and his perfecting his quality of play keeps him motivated and engaged with World of Warcraft. Noel and Neil are typical of two different play styles that both allow players to develop voice, which supports their motivation and engagement, demonstrating that participating in the social environment, powered by interest, offers youth a way to develop their own unique voices.

**Scratch**

For the students in the Scratch study, their motivation and engagement with coding is tied to their ability to have agency and express their voice through coding.

Damian, a seventeen-year-old from the East Coast, who declined to share his race or ethnicity, created projects on Scratch, was an administrator for the Scratch wiki, and helped others come up with ideas for projects. He explained how Scratch has let him express himself: "Scratch put me into a situation where I really liked coding. And combined with the computer science classes I’ve taken at my high school I’ve just grown a really deep interest in computer science—what I can do with it, how I can explore my interests, my ideas that way, and so on. So without Scratch I would imagine I wouldn’t be so interested. I also would imagine I wouldn’t be as good at coding, or art, or creativity."

When interviewed, Jessica, a fourteen-year-old white high school student, expressed that she definitely felt that her ability to have agency motivated her to participate and share her voice through art. "Like, on Scratch you have a lot of freedom. Like, you can do anything you want really. You can code projects; you can make art; you can make games; you can animate. There’s a lot of things you can do on it, and I like that, that you have a lot of freedom in what you can do. There’s not really any other websites where you can really express yourself in a lot of different ways."

During his interview, Antonio, a fourteen-year-old African American student from Los Angeles, reported that he started coding through Scratch and used his expertise to help his teacher in class when she did Scratch lessons. Like Jessica, he felt that the perceived limitlessness of Scratch is a motivating factor that enables expression and voice. "Everything. I mean, there’s like endless possibilities of what you can do with Scratch. The only limit you have is your mind. Actually, and your skill, like your understanding of Scratch, I like it. I mean, because even if I’m helping, like teaching and stuff, I’ll still learn new things. I mean, there’s so many different ways to do one thing, so it’s kind of cool."

These youth all like coding because it gives them a means to express themselves, and the openness and flexibility of it allows them agency, which provides motivation. The interviews presented here are typical of youth I interviewed. As a group the interviewees stay engaged with Scratch because it allows them to make projects that reflect them as individuals.

**Implementation**

Although some of these examples of students’ feelings of agency are not specifically from library programming, they can offer school and public librarians important insights. Librarians should take away that youth can develop engagement and motivation with interests both as novices and experts, and use that experience to express their voice and identity. Creating library programs that are open and flexible enough for youth to bring in an existing interest to incorporate into the program is one approach librarians can use to foster young people’s sense of agency.

Another approach would be to juxtapose something like coding with an existing interest, possibly something that might not seem instantly obvious. For example, the workshops I observed in libraries as part of the study were using a workshop that combines Hip Hop and coding. Many of the youth came
to the workshop because they were intrigued by what they saw as an unlikely pairing. Similarly, gaming can be used as a lure. Librarians can tie gaming as an interest and skill set to other types of programming and allow young people to express their voices.

Another lesson that can be learned is that youth with a strong interest can be highly motivated to take charge of their own learning. Interest spaces can be an opportunity for students to use this agency to take a leadership role. For example, once a student has shown a passion for video games, librarians could support that student in starting an afterschool or lunchtime club, or librarians can offer students the chance to facilitate workshops with video game themes.

Creating the opportunity for students to explore video games and coding in a supportive and yet unencumbered way can be foundational for a deep connection with learning to code and developing their voice. In the words of Mario, a twelve-year-old Latino boy who participated in the Scratch library workshop, “I could see it. You could make your own image. It’s really creative, like it could really inspire any kid that’s at our school. [In the Scratch community] people are always helping you, and you’re always in it trying to create everything you can, do the best you can do, just having fun. Just creating anything you want like in your own image.”

Crystle Martin is a postdoctoral research fellow at the Digital Media and Learning Hub at the University of California, Irvine. Her research focuses on equity for youth learning through information practices and computational thinking in interest-driven environments, with particular focus on supporting underserved youth as they connect informal learning to academic and future opportunities. Her current research explores the paths of youth—especially those from non-dominant communities—into, through, and out of Scratch, a free online visual coding language. She is also secretary of the YALSA Board of Directors.

Works Cited:


Public School Librarians and Academic Librarians Join Together to Promote Diversity and Reading
In this article I share my story of involvement in a national literacy initiative known as the African American Read-In (AARI) in a major city of the “Show-Me State,” Springfield, Missouri, population 164,122 (according to a 2013 census). The article highlights successes that public school librarians and university librarians are experiencing as we work together to promote diversity and reading through a community-wide effort. Our collaborative efforts may inspire other educators to learn more about the AARI and to become involved.

About AARI

The AARI was founded in 1990 by Dr. Jerrie Cobb Scott, a long-time active member of the National Council of Teachers of English (NCTE) and the Black Caucus of the NCTE. Dr. Scott is now a retired professor of urban literacy and former director of the Reading Center at the University of Memphis. It was her vision to make the promotion of reading books written by African American authors an integral part of Black History Month. For the last twenty-seven years the AARI has been a national event during the month of February to correspond with Black History Month. AARI is sponsored nationally by the NCTE <www.ncte.org/aari> and is hosted by the Black Caucus of the NCTE.

The AARI records the number of sites and level of individual participation through “report cards” that are sent to the national headquarters. Records show that individual participants “in recent years [topped] 200,000” (Aronson 2014, 17). Reports have come from forty-seven U.S. states and internationally from the West Indies, Ghana, Germany, and Australia. An investigation of the number of individuals participating in the AARI in the state of Missouri for the period from 2009 to 2011 found that nearly 30,000 individuals took part in AARI programs, and the majority were from public school sites (Jackson-Brown 2011).

For the last nearly ten years I have served as chairperson of a community-wide AARI in Springfield, Missouri, while serving as an academic librarian at Missouri State University. I’ve partnered with K–12 librarians and other academic librarians, in both public schools and universities, working together for two common goals: to promote African American authors/literature and to help build a community of readers. In fact, the Springfield AARI is a collaborative partnership of five organizations:

- Missouri State University Libraries
- Springfield Public Schools
- Springfield-Greene County Public Library District
- Drury University
- NAACP Springfield Chapter

The state-legislated mission of Missouri State University (MSU) is to educate students to be “global citizen scholars committed to public affairs” (MSU 2016). A comprehensive undergraduate university, MSU also provides some graduate programs. Its focus on public affairs is exemplified by education using three pillar conceptual themes: community engagement, cultural competence, and ethical leadership. My involvement in the...
AARI community literacy project as an associate professor of library science at MSU is a part of my engaged public scholarship, which aligns with my role as an information literacy educator. The benefits of K–16 collaborations have been outlined by Ellysa Stern Cahoy and Lesley Moyo in a chapter of a book about academic library outreach that specifically focuses on K–16, and they stated:

K–16 (K–12 and undergraduate education) collaboration is an educational initiative that has grown as a result of renewed higher education outreach efforts of the last ten to fifteen years. It is a collaborative effort among K–16 educators and the community to ensure that students have the academic preparation and support that they need to succeed in college. Collaborating to better understand and develop students’ information literacy skills is integral to impacting student academic success. Academic libraries are actively participating in this outreach model, increasingly reaching out and partnering with school and public librarians to improve and support students’ information literacy skills across the K–16 spectrum.

(2009, 21)

Examples of Collaborations

Here are several project scenarios that involved university collaboration with school librarians and public schools. All of the projects to be highlighted incorporate the NCTE teaching philosophy to build teaching/learning environments that encourage students to “Read/Write/Think.”

Two major authors Patricia C. McKissack and Shane W. Evans have participated in Springfield AARI programs through a relationship that the AARI organizers developed with organizers of a parallel event, the Children’s Literature Festival of the Ozarks. The pairing is natural; most of the festival organizers are retired and active school librarians. The festival is an annual day-long event where children interact with authors who read from their books. The day after the festival in 2009 Patricia C. McKissack and in 2011 Shane W. Evans gave workshops for the AARI youth audiences. These workshops were held in venues separate from the Children’s Literature Festival of the Ozarks and were free and open to interested groups of the general public. The expenses of travel, hotel accommodations, and speaking fees were shared by the two sponsoring groups, reducing the burden on AARI, which has a modest budget.

AARI covered expenses related to the author workshops. In addition, the workshops presented by author and illustrator Shane W. Evans received a funding grant from the Missouri Humanities Council (MHC) in conjunction with the National Endowment for the Humanities. The MHC grant was awarded to the NAACP Springfield Chapter and several institutional partners of the AARI, including the MSU Libraries, to support two workshops with the theme “Dream BIG.” In the workshops, Shane Evans presented information about his book Underground: Finding the Light to Freedom (Roaring Brook 2011) that had received a Coretta Scott King Book Award in 2012. His inspirational and interactive presentation inspired children and young people to follow their dreams. He also shared stories about his extensive travels and visits with people in countries in West Africa and in Japan.

The AARI workshop that featured multi-award-winning author Patricia C. McKissack was a teaching workshop titled “Finding Your Own Voice” developed for middle school and high school students. This half-day workshop brought participants to an MSU lecture auditorium where they received instruction on writing short stories from this master teacher and author. Students were given the opportunity to write their own short stories during the workshop with the option of receiving feedback. Discussions centered on how a writer finds his or her own voice in writing fiction or nonfiction, and on techniques writers use to develop and project their own unique voices.

In another example of collaboration, in 2014 the Springfield AARI arranged a virtual visit between a selected group of students from one local high school and U.S. Congressman John Lewis, who is coauthor of the graphic novel March trilogy that, in part, covers his experiences as a young person in the Civil Rights Movement.
The AARI provided free copies of March: Book One to the participating high school students. A formal book discussion during a study hall was conducted with the students. In culmination, a small panel was selected from among the students; panel members developed questions to ask Congressman Lewis during a Skype forum. In a follow-up discussion, students expressed appreciation for the opportunity to speak with and learn from someone who was deeply involved in a student movement that helped to usher in major civil rights changes that resonate with the current generation of high school students. Research in the scholarly literature has found that African American students often have a special reader appreciation and gain greater self-esteem by reading about characters who “look like them” or with whom they can identify culturally (Mestre 2009; Blas 2014).

A final collaboration example involves the planning process for the events of the February 2017 Springfield AARI. Planning for the annual AARI event starts the previous August—or even earlier. The steering committee is made up of a representative from each of the five partnering organizations. For 2017 the committee decided to adopt their upcoming theme based on an inscription from promotional materials provided on the NCTE/AARI website. The inscription on the postcard template in the Read-In Toolkit states, “It is important for all of us to see ourselves in books” (NCTE 2016).

As I write this in October 2016, the Springfield AARI steering committee for the 2017 event has plans to work with one of the local middle schools with a newly remodeled school library containing a makerspace area where students can create posters or other media using the event theme. Among the ideas generated have been student-created posters featuring African American characters from novels that the students admire. Real African American persons who represent heroism or other admirable traits and are featured in nonfiction works may also be used in publicity for the 2017 AARI event. The middle school students involved will be asked to write poems or brief book talks to accompany their posters and other works selected for presentation during an AARI program.

As an academic librarian, associate professor, and chairperson of the AARI in Springfield, I developed relationships with local area school librarians at all levels (elementary, middle, and high school); these relationships have helped to lay a foundation for working together. Since 2008 the Springfield African American Read-In programs have also established embryonic relationships between other librarians in the area, relationships that could be further developed into strategic Pre-K–16 literacy partnerships. If your school district doesn’t already participate in AARI events, I strongly recommend reaching out to school, public, and academic librarians in your geographic area to organize 2018 events and start building bridges between your libraries.

Grace Jackson-Brown, PhD, is an associate professor with the Missouri State University (MSU) Libraries, Research and Instructional Services Unit. She is chair of the Springfield African American Read-In, a community-wide literacy project made up of five organizations, among them Missouri State University Libraries and Springfield Public Schools. She teaches for-credit information literacy courses for MSU. She has taught library science courses as part of a cooperative agreement between MSU and University of Missouri–Columbia, including Reference and Information Resources. Between 2013 and 2015 she served on the AASL/ACRL Interdivisional Committee on Information Literacy.

Works Cited:

Volume 45, No. 4 | March/April 2017 61
School Librarians and Open Educational Resources Aid and Implement Common Core Instructional Content in the Classroom

Krista Welz
kwelz@kwelz.com
By 2013 a majority of states adopted the Common Core State Standards (CCSS) in English Language Arts and Mathematics in a response that addressed the declining educational achievements of students in the United States. A major challenge to Common Core implementation is the shortage of new and authentic standard-aligned material (William and Flora Hewlett Foundation 2015). As districts face the necessity of purchasing new instructional materials aligned with the CCSS, open educational resources (OERs) have become crucial. The OER has become a central model for the development and dissemination of free online content. Digital libraries of OERs have increased significantly, providing schools and teachers with standards-based materials for developing CCSS-aligned curriculum (Waters 2013).

Open Educational Resources Defined

The theory of OERs was initially defined at the 2002 UNESCO Forum on the Impact of Open Courseware for Higher Education in Developing Countries (Armellini and Nie 2013). The OER concept is defined as technology-enabled open provision of educational resources for consultation, use, and adaptation by a community of users for noncommercial purposes. These educational resources reside in the public domain on the Internet and include textbooks, videos, podcasts, and any other learning-related materials such as teachers’ guides, lesson plan recreations, experiments, demonstrations, and curricula (Butcher 2015). Teachers and students have access to these resources without the obligation to pay royalties or license fees, and, as a result, education transformation reaches the classroom with a lower cost than if commercially produced materials are used.

Creative Commons licenses permit the sharing of resources through free legal tools, and serve an active role in the open-access movement. Creative Commons licenses are not substitutes for copyrights. The licenses work alongside the copyright and allow producers to change the copyright terms to best fit users’ needs (Sharma 2013).

Adapting and Implementing the CCSS

The CCSS are relatively new in education. In 2009 state leaders encouraged creation of the CCSS as real-world learning goals for the purpose of developing college- and career-ready students. By 2011 states began considering the standards. By 2013 forty-five states had implemented the CCSS. These new standards meant directing students away from routine memorization toward higher-order critical thinking (Burks et al. 2015).

Although the CCSS were controversial among both teachers and parents, when the standards were adopted teachers were still expected to recreate their own curriculum, lesson plans, and benchmark assessments—in many cases, from scratch. A survey conducted in 2016 by the Center for Education Policy Research at Harvard University reported that 80 percent of ELA teachers and 72 percent of mathematics teachers use curricular materials that they or their coworkers at their school created (Kane et al. 2016). Teachers also reported seeking a vast array of online sources for their materials. Not only did 45 percent of school districts report significant problems locating standard-aligned textbooks and material, but the standards required lessons that were different from what most teachers were accustomed to teaching. Furthermore, fewer than 50 percent of the school districts that adopted the CCSS offered professional development workshops that demonstrated aligning the CCSS with classroom instruction and student assessment (C. Thompson 2015).
OER Implementation

Adoption of the CCSS can be regarded as the perfect storm (Johnson 2014). It brought a change to schools by making it necessary to depend on technology in classrooms, redesign curricula, and, more importantly, access OERs in an effort to align lessons with standards. Rather than relying on textbooks, teachers are obliged to assess and access OERs. The continuation of the development and enhancement of classroom curricula by teachers is now regarded as a process (Cavanagh 2013).

According to Liana Heitin (2015), fewer than 33 percent of educators have access to premium CCSS-aligned textbooks. In general, standards-aligned commercial content is not being widely produced. For a variety of reasons, some states are abandoning the CCSS. The fear that more states might abandon the CCSS has caused publishers to not fully invest in developing CCSS-aligned textbooks (William and Flora Hewlett Foundation 2015). Moreover, the Council of Great City Schools conducted a survey and reported that a majority of teachers are using instructional materials they developed on their own. Use of OERs could facilitate a collaborative effort in the development of CCSS-compliant curricula among school districts. The content that OERs provide is well-suited to target the lack of commercially produced standards-aligned materials (C. Thompson 2015).

OER Extent and Availability

As more school districts are using free online resources to enhance classroom lessons and textbooks, the extent and availability of OERs are continuously developing (Terrell 2016). Digital libraries are adding to the collection of OERs every week. Teachers can locate materials through specialized OER search engines such as OER Commons. (See the sidebar for the URL of this and other OER-related resources.) OER Commons provides a voluminous collection of resources aligned to the CCSS; the collection includes lesson plans, primary sources, and assessments (Ash 2012). Teachers can also access CCSS-aligned exercises and courses for students from Khan Academy, use CK–12 materials to support students’ mastering of science and math concepts, incorporate videos from PBS Learning Media, and share lesson plans with other educators on websites such as Share My Lesson.

Other curated and standards-aligned OER sources popular among teachers are Curriki, Better Lesson, Gooru, EngageNY, and K–12 OER Collaborative (Johnson 2014). OpenEd is one of the world’s largest K–12 standards-aligned open educational resources library. During a U.S. Department of Education #GoOpen Exchange event in February 2016, OpenEd publicized the fact that Microsoft had plans to publish a free OpenEd Open Education Search App (OpenEd 2016). In addition, the U.S. Department of Education has included OERs in its 2016 National Education Technology Plan. The U.S. Department of Education’s #GoOpen campaign encourages states, school districts, and educators to use openly licensed educational materials to transform teaching and learning.

OERs are free to use and remix for personal use, permitting teachers to easily differentiate instructional material for students (Ash 2012). Schools can form small groups of teachers to design core sets of OER materials for specific grade levels. As a result, individual teachers can spend less time discovering classroom materials and additional time with their students.

According to Electronic Education Report (Schools Interested 2013), schools are more likely to use reliable OERs as supplemental material rather than as a first source for Common Core curricula. Teachers have expressed their concern about a lack of sufficient professional development training within the area of standards-based content. Providing more professional development workshops for teachers would help them recognize how OERs can be used as the main sources in lesson plans (Piehler 2016).

School Librarians and OERs

School librarians provide vital services to their school. These services include selecting print and digital resources, organizing material, and instructing both students and teachers on appropriate technology tools to help augment curriculum units. School librarians have extensive experience in teaching both students and teachers how to identify credible and authoritative online sources and sorting through free and premium information, such as databases, informational text, reference materials, and multimedia. Therefore, school librarians are transformational leaders in supporting OER initiatives in school districts and selecting OERs appropriate for the curriculum (Kompar 2016).

When district officials decree that OERs must be used in their schools, a team of educators usually forms a committee to help identify and select appropriate OERs. School librarians should join these committees and provide expertise in selecting quality OERs, helping to organize them into appropriate curriculum units, and making sure the OERs align with the CCSS. Many educators
may be unfamiliar with copyright and Creative Commons, as well as unaccustomed to using technology to deliver content. School librarians can support their schools’ classroom teachers by providing professional development on how to access and share OERs, such as through Google Classroom or Edmodo. Many OERs include interactive features and assessments, such as CK–12’s PLIX (Play-Learn-Interact-Explore) interactive exercises. School librarians can help other educators organize and share their OER material in an easily accessible, CCSS-aligned structure—whether for a single lesson, video tutorial, presentation, or full course. All of these efforts can help promote a blended-learning classroom environment as students engage with authentic OERs.

**Early Adopters of OERs**

Since educators in many school districts are under pressure as they search for CCSS-aligned materials, an increasing number of teachers and policymakers are finding OERs attractive. Such free online, flexible, and sharable instructional content offers advantages that can help schools save money on expensive textbooks. Twenty-six states are promoting open OERs in some form, and eighteen states have taken steps to share them with districts (Cavanagh 2015a).

K–12 school districts in many states have set out on an ambitious new path in using OERs. For example, Bethel (WA) School District exchanged its commercial K–5 math curriculum for OERs created by EngageNY. Part of the New York State Education Department, EngageNY’s CCSS-aligned English and math resources have been downloaded twenty million times by various school districts in the United States and overseas (Cavanagh 2015c).

The Grandview (WA) School District changed their entire Pre-K–10 math and English Language Arts curricula by gathering and coordinating OERs from a variety of sources (Cavanagh 2015b).

Freeport (ME) Middle School transformed its eighth-grade math curriculum into a CCSS-aligned program. The program implements an array of OERs, allowing students to investigate math and learn statistical relationships. The program has proven to be effective, and more than 90 percent of the school’s eighth-graders passed the annual math placement exam (Waters 2013).

Utah’s State Office of Education has been compiling CCSS textbooks constructed entirely of OERs (Welz 2016).

In these and other states, use of OERs has resulted from educational policy changes and resulted in the creation of a set of standards-aligned rubrics to help educators assess OERs’ quality (Ash 2012).

**OER Policies**

In December 2015 use of OERs received a major boost from a federal law signed by President Barack Obama. The OER concept won bipartisan support on Capitol Hill during the drafting of the Every Student Succeeds Act, P.L. 114–95. ESSA now allows states and local education agencies to guide block grant money dedicated to technology toward OERs. In addition, in October 2016 the Obama administration proposed a new regulation that would require that any new intellectual property developed with grant funds from the U.S. Department of Education be made available with an open license. ESSA’s Student Support and Academic Enrichment Grants (Title IV-Part A) proclaim OERs as being support for student assistance and academic improvement. In 2015 T. J. Bliss, a chief program executive for the William and Flora Hewlett Foundation, identified the recent recognition OERs have received as a notable indicator that OERs are becoming essential to resolving strategic problems in education. Further, Bliss pointed out that the importance of the availability of OERs has finally been acknowledged by policymakers at the national level (Cavanagh 2016).

Nearly every state will develop a local control policy for the adoption and implementation of OER. Guiding teachers and administrators in explaining the advantages, exploring the strategies, and emphasizing quality examples of OERs for school districts should be considered to be part of the control policy. Ideally, in states that have adopted the CCSS, school districts will employ OERs as a strategy for developing content that will support education of college- and career-students (Voss 2015).

Additionally, following the lead of the U.S. Department of Education, the policy should require that any OERs created through the expenditure of public funds should have open licenses. Teaching and learning resources that reside in the public domain or have been released.

---

**Following the lead of the U.S. Department of Education, the policy should require that any OERs created through the expenditure of public funds should have open licenses.**
under an intellectual property license that permits their free use and repurposing by others can and should be modified to provide further support for students with special needs. Furthermore, school districts should include OERs in their professional development activities (Voss 2015).

**OER Barriers**

Because OERs are digital, teachers and students cannot access them without computers, tablets, or smart mobile devices (Waters 2013). Lack of funding and lack of administrative support, along with a lack of commitment to development and use of OERs, are also barriers to the implementation of OER use in school districts (Johnson et al. 2014). An easy-to-use OER platform is needed so teachers can easily search and retrieve content (G. Thompson 2016).

With the onset of the OER movement, the increased popularity of digitally delivered content may present commercial publishers with hardships because of the decreasing demand for conventional hardbound materials. Because school districts desire inexpensive, flexible instructional content, some publishers are adapting and launching their own open resources. For example, Pearson designed an OER platform called Project Blue Sky that permits users to explore post-secondary materials that include textbooks, lesson plans, and videos—both OERs and Pearson-developed (Cavanagh 2013).

Educators understand the benefits of OERs but have realized that using OERs requires sufficient time for searching and assessing materials (G. Thompson 2016). In 2016 the Babson Survey Research Group (2016) published the results
of a survey of over three thousand school faculty members regarding the OER selection process. Faculty awareness of OERs was found to have increased 25 percent over the previous school year. However, the study also reflected educators’ concerns about time, effort, and evaluation of the materials—all of which survey participants regarded as substantial barriers (Allen and Seaman 2016).

OER Evaluation

Educators can evaluate whether OERs are aligned with the CCSS by using rubrics and an evaluation tool designed by OER Commons and Achieve, Inc. (Waters 2013). Achieve’s EQuIP (Educators Evaluating the Quality of Instructional Products) rubrics determine specific units that are CCSS-aligned. The Student Achievement Partners’ Instructional Materials Evaluation Tool (IMET) can be used to assess materials that are currently in use and aid in selecting additional CCSS-aligned material (Piehler 2016). These tools measure OERs based on their technological interactivity and the quality of instructional assignments and practice exercises. School districts, nonetheless, should implement their own final analysis to assure the quality and appropriateness of specific OERs for classroom use (Butcher 2015).

Conclusion

While school districts struggle to locate materials that align to the CCSS, the educational market will become a blend of commercial and open materials. Use of OERs endows educators with many options and, at the same time, addresses their professionalism in selecting the best overall instructional materials. The rise in popularity of OERs demonstrates the growing status of technology in schools and the demands for personalized instructional content in classrooms (Cavanagh 2013).

Many educators may view use of OERs as a new trend that has emerged in various school districts, especially those OERs that are CCSS-aligned. However, OERs certainly aren’t new to education. Many educators have been using these types of materials since the late 1990s (Godwin 2016). Interestingly, there has been increased interest in open education within the last few years because of high—and rising—costs of textbooks and the lack of commercially produced CCSS-aligned material.

School librarians are experienced evaluators and curators of content, and, therefore, valuable assets in school districts adopting OERs. School librarians also have the skills to conduct professional development for colleagues facing the sometimes-daunting task of integrating OERs into their lesson plans.

School librarians can be at the forefront of the increasingly popular Future Ready #GoOpen movement. School librarians can promote OER openness to their schools’ classroom teachers and administrators, advocate to selection committees, help fellow-educators review openly licensed works, and focus professional development on currently available OERs. Certainly, librarians’ curation of #GoOpen resources can help school districts discover quality OERs. Improving access and the use of learning resources lies at the heart of school librarians’ transformational leadership skills. They can and must lead beyond their libraries and be willing to commit to the OER movement.

School districts must recognize the school librarians’ expertise and their skills in supporting cross-curricular active learning, strengthening literacy and critical-thinking skills, and developing higher-order question sets that align to the Common Core State Standards. The use of OERs is transforming education by making free, readily available content obtainable by educators. These types of materials will help school districts create opportunities for educators to collaborate at revolutionary levels and share/remix high-quality resources that are designed by themselves and their colleagues.

Recognition of the school librarian’s expertise is required for the successful curation of OER content and of CCSS-aligned material in all forms. School librarians are at the center of success for OER curation and Future Ready students, and librarians are leaders in the digital transformation of learning.

Krista Welz is library media specialist at North Bergen School District in North Bergen, New Jersey. She is currently a doctoral student in the Educational Technology Leadership Program at New Jersey City University. She specializes in technology integration in schools and libraries. She is a member of AASL. She has been reviewing books and apps for School Library Journal since 2010. She was named North Bergen High School Educational Services Professional of the Year for 2016–2017. She also serves as an EdTPA Performance Assessment Consultant for the New Jersey City University College of Education. She is co-founder of Edcamp Urban and is a Google for Education Certified Trainer. She is a creator and moderator of the bi-monthly #NJLibChat Twitter Chat. She can be followed on Twitter @kristawelz or her website at www.kristawelz.com.
Works Cited:


Story and play are important. Stories introduce young people to new ideas, roles, and horizons. Play invites children to explore those new realms of thought and discovery. More importantly, though, story and play are fun.

Let's talk about fun. Frankly, I think it's underrated.

Fun is often listed as a synonym for frivolity. Fun isn't frivolous—not always, anyway. It's especially not frivolous if we think about it in the context of education.

Before becoming a writer and the author of The Unbelievable FIB books, I worked for twenty years as a classroom teacher, summer camp director, and district coordinator for out-of-school-time programs. Perhaps the most important lesson I learned during that time is that children learn best when that learning meets their own needs. And what's one universal need all children share? The need to have fun.

Throughout my career, I've tried to keep that truth at the forefront of my thinking and my practice. I've tried to craft experiences for young people that are fun. Time and again, my efforts have brought me back to two mainstays of the childhood experience: story and play.

Story and play are important. Stories introduce young people to new ideas, roles, and horizons. Play invites children to explore those new realms of thought and discovery. More importantly, though, story and play are fun. Children delight in both. That delight invests story and play with tremendous power. Together, they're two of the most effective tools young people have to make sense of the world. That makes them invaluable tools for educators.

Over the years I've experimented with many different ways to integrate story and play into the activities I share with children. The most success I've had—and the most fun!—has been with a brand of programming I call Adventure Play.

I describe Adventure Play as the child of the broader phenomenon of Adventure Programming, an experiential learning model that builds teamwork skills through physical challenges (often involving ropes courses or other environment-based structures). Adventure Play distinguishes itself from Adventure Programming in two ways. First, Adventure Play targets elementary and early middle school-aged children so physical challenges are reimagined as playful and cooperative games and puzzles. Second—and more significantly—Adventure Play places as much emphasis on story as it does on physical activity.

Adventure Play revolves around interactive and sophisticated stories called Adventures, which unfold through a blend of storytelling and
cooperative games. The games occur in the context of the Adventure, so story and play are wholly integrated. Groups of young people assume the role of heroes in the story and play their way through Adventures.

The programming delivers a bounty of positive outcomes. Some of its benefits are physical. I often launch a new Adventure with the words, "Okay, let's go play a story!" The word choice there is purposeful. Adventures are interactive, with a focus on active. They're not stories to be read. While some of the puzzles can include times sitting at a table or a screen, the games at the heart of Adventure Play are running games, sneaking games, hiding games—whatever is appropriate for the space available.

That said, by placing games and puzzles in the context of a sophisticated story, Adventure Play does also provide opportunities for academic enrichment with a focus on literacy. I create Artifacts for each Adventure—props that are specific to the story and help make each Adventure a more immersive experience. I've created rune stones, treasure maps, even complex models of buildings. Many Artifacts, though, are text-based. They're journals, letters, mock articles from periodicals—items that Adventurers read through and discuss to gather clues and make sense of the story.

One of my happiest discoveries as I began my work with Adventure Play came from observing Adventurers interacting with these text-based Artifacts. They fascinated kids who loved to read. That didn’t surprise. But I was surprised to discover that even young people who didn't self-identify as readers also loved interacting with the text-based Artifacts. The reason quickly became apparent. Those kids had been sucked in by the Adventure's overall story or by the associated games. Reading and constructing meaning from text wasn't being presented as an isolated and arbitrary task. It was a means to an end that kids were invested in. Over the years, one of the great joys of Adventure Play for me has been watching reluctant readers get excited about opportunities to read and engage with text.

And yet, another aspect of Adventure Play has been even more rewarding. That aspect relates to the social outcomes I've observed. The cooperative nature of Adventure Play embeds a social curriculum into the programming that offers practical opportunities for children to learn about conflict resolution and team building.
I have a confession to make here. Despite my belief that educators have an essential role to play in helping children to develop as socially and emotionally healthy individuals, I am skeptical of most character-education programs on the market that claim to help achieve that goal. To be fair, I haven’t experienced every such program, so my skepticism is not meant as a blanket criticism. In my experience, though, too many character-education programs succeed in getting young people to parrot a desired behavior in a contrived setting, yet fail to leave children with a commitment to that behavior.

I genuinely feel like Adventure Play is different (though I admit to a certain bias on the subject). The emotional growth I’ve observed in participants has seemed more genuine. I wondered about that difference until I came across a quote often attributed to Elie Wiesel: “People become the stories they hear and the stories they tell.”

Those words strike me as intensely true and powerful. The statement suggests to me that people become the stories they inhabit. And children inhabit Adventures in a unique way. They’re the heroes of the story. My rules for Adventure Play are be kind, be brave, and be wise. In short, be like the heroes in stories. Now, I don’t pretend for a moment that every child who participates in Adventure Play do experience meaningful and organic opportunities to overcome conflict and better understand the effects of their actions on other people. That, to me, is a tremendous outcome. And it would not be possible if children were not having fun along the way.

Frivolous? I don’t think so.

Adam Shaughnessy is the author of The Unbelievable FIB books, published by Algonquin Young Readers. His debut novel, The Trickster’s Tale (formerly titled The Entirely True Story of the Unbelievable FIB), was selected for the 2015 Middle Grade Buzz Panel at BookExpo America, and it was chosen by the American Booksellers Association for both the Indies Introduce list and the Indies Next list. Adam is also an educator with twenty years of experience. He lives in Connecticut with his wife, Jane, his daughter, May, and his cat, Sydney. Adam is represented by Ammi-Joan Paquette at the Erin Murphy Literary Agency.

My rules for Adventure Play are be kind, be brave, and be wise. In short, be like the heroes in stories.

instantly and always becomes kind, brave, and wise! But I have found that through working together, playing together, and assuming the roles of heroes in a story in which they actively participate, children who engage in Adventure Play do experience meaningful and organic opportunities to overcome conflict and better understand the effects of their actions on other people.

That, to me, is a tremendous outcome. And it would not be possible if children were not having fun along the way.

Frivolous? I don’t think so.