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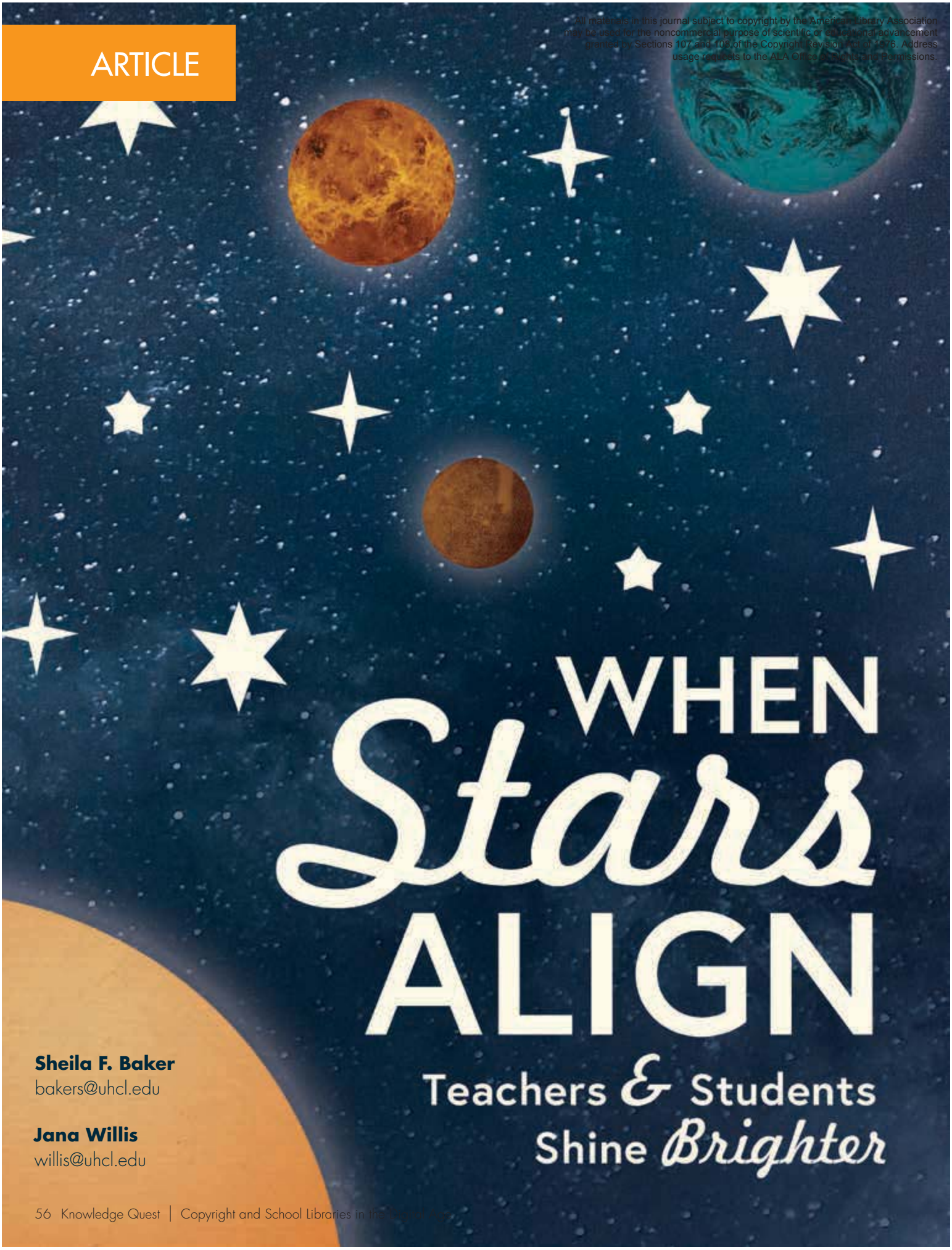

WHEN Stars ALIGN

Teachers & Students Shine Brighter

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A Star Is Born

A new teacher enters the classroom for the first time equipped with teaching strategies, technology-integration models, and classroom experiences acquired during his or her teacher preparation program. Innovations in technology could mean that even newly acquired integration strategies and models are yesterday's news. Potentially, their student teaching experiences may be limited by their mentor's use of technology, campus access to technology, the emphasis on standardized testing, and even the district's vision for technology (Bullock 2004; Frazier and Sadera 2013). This reality could result in new teachers developing lessons that do not take advantage of innovative opportunities for teaching and learning. These new teachers are often unaware that down the hall exists their greatest resource for today's technologies and their strongest potential instructional partner. No, it is not their team leader. No, it is not the veteran teacher in the next room. No, it is not the campus technology specialist; and no, it is not the curriculum specialist. Their future partner is someone they have probably never encountered in their teacher preparation program; this bright star is their school librarian.

Studies continue to indicate that, while access to technology has increased, effective technology use and integration into teaching practice is still lacking (Bracewell et al. 2007; Ertmer and Ottenbreit-Leftwich 2010). Simply placing technologies in classrooms is not a guarantee that those technologies will be effectively integrated into transformative teaching and learning processes (Hosseini and Tee 2012). Too often technology is considered a supplemental tool and used for low-level integration efforts that are not linked to instructional practices or learning outcomes. Providing teachers with assistance in implementing emerging technologies could help teachers more-effectively integrate technology (Banister, Ross, and Vannatta 2007).

While some technologies may, indeed, facilitate student learning, effective integration into content areas by using the appropriate pedagogical strategies are crucial ingredients in the success of learning outcomes (Bull and Bell 2009). Instructional technologies are increasing exponentially, making it critical that teachers have opportunities that support meaningful integration of technology into the curriculum to support student learning (Hutchison and Reinking 2011; Kariuki, Franklin, and Duran 2001).

Barriers that affect teachers' use and integration of technology have been well documented (Ertmer 1999, 2005). To evaluate the knowledge of teachers using a TPACK model for integrating technology, Zahra Hosseini and Meng Yew Tee (2012) conducted a study of thirty pre-service teachers. The results of their study identified a variety of factors that impacted teachers' development of technology knowledge. Factors included personal motivation, needs, prior knowledge, and experiences; cultural behaviors and group structure; quality and accessibility of computers and technology resources; and continued pressures to teach to assessments (Purcell et al. 2013). In another study Punya Mishra and Matthew Koehler (2006) found a lack of knowledge of strategies for integrating technology to also be a contributing factor. Across several studies, time constraints have been consistently identified as barriers to the integration of digital technologies into the classroom (Ertmer 1999; Kopcha 2012; Johnston 2012; Vrasidas 2015). Too often, time is considered a luxury in

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education and as Candace Roberts and Holly Atkins stated, "...without the time to explore, create, and develop using technology tools, no true transformation can occur" (2015, 2555).

The Bright Star

The National Board for Professional Teaching Standards (NBPTS) set of standards for school librarians includes several standards focused on their role. Within these standards exists a strong focus on leadership as well as a charge that school librarians remain current about emerging technologies, learning theories, and teaching techniques. Their knowledge of design, development, assessment, resources, and information access empowers school librarians to serve as instructional partners with teachers. Within this partnership, librarians can provide professional development and model the best approaches to using and integrating technology effectively (Mardis and Everhart 2011; Staples, Pugach, and Himes 2005). "Poised at the intersection of information and technology" (NBPTS 2012, 26), school librarians can serve as leaders in helping teachers become information and technology literate to strengthen teaching and learning processes. School librarians offer support to teachers by mentoring and encouraging best teaching and learning practices that support powerful environments dedicated to creating lifelong learners.

Research studies indicate that a direct correlation exists between student achievement and school library programs when librarians assume a leadership role in the school (Francis, Lance, and Lietzau 2010; Gavigan and Lance 2016; Lance, Rodney, and Hamilton-Pennell 2000; Lance and Hofschire 2011, 2012; Smalley 2004). Since new technologies often appear first in the school library, it is critical that librarians fully understand the importance of these tools and actively engage in explaining and promoting their effectiveness and innovative use in the classroom. School librarians must understand how to incorporate technologies that support the design and delivery of effective instruction. Through collaboration, librarians must support teachers in exploring creative and innovative ways to take advantage of the capabilities of technologies to engage students and facilitate higher-level thinking.

Too often, teachers are not aware of how school librarians can support their teaching and technology-integration efforts. Equally, pre-service school librarians are provided limited opportunities to work with classroom teachers. To address these concerns, it is critical that teacher education programs provide opportunities for pre-service teachers and pre-service school librarians to collaborate. Pre-service teachers need opportunities to collaborate with pre-service school librarians so that pre-service teachers can experience the value of partnering with the school librarian. Providing pre-service school librarians with opportunities to collaborate with pre-service teachers can better prepare librarians for their role as support for classroom teachers. Ever-changing technologies create a vital and ongoing need for teachers to collaborate with school librarians throughout their teaching careers.

The university under study is at the forefront of addressing the need for this vital connection between school librarians and teachers; the School of Education recently adopted a new department configuration that partnered the school librarian- and instructional technology-preparation programs.

The Pilot

We plotted a scheme to bring these two stars together in a contrived constellation. The encounter would take place in a pre-service educational technology course during the students' final project. The project goals were to use instructional technology in various courses in the Teacher Education and the School Library and Information Science programs to introduce teacher candidates to the value of collaborative partnerships with school librarians and to provide practical experiences for school librarian candidates. The intent was to provide teacher candidates with real-world learning experiences in technology integration and collaboration with pre-service school librarians; these experiences encouraged teachers to continue these practices once in the field. Explicit instruction and support from school librarian candidates in the use of technology is vital to increasing classroom teachers' technological, pedagogical, and content-area knowledge, and their effective application of this knowledge when in their fields of practice. Successful exposure to instructional technologies during pre-service teacher preparation can positively influence knowledge, skills, and dispositions of teacher candidates and prepare them to make informed decisions necessary for the effective use of technology in the classroom (Marino, Sameshima, and Beecher 2009).

Too often, teachers are not aware of how school librarians can support their teaching and technology-integration efforts

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Future Stars

Participants in this pilot ranged in age from eighteen to fifty-four years old. Ninety percent were female. Among the pre-service teachers, 47 percent were Caucasian, 38 percent Hispanic, 6 percent African American, with the remaining 9 percent reporting across other races/ethnicities. Among the pre-service school librarians, 68 percent were Caucasian, 16 percent African American, with the remaining 16 percent reporting across other races/ethnicities.

Their Universe

At a regional university in the southern part of the United States, teacher candidates are required to enroll in an educational technology course prior to admission to the teacher-education program. Often, this course is their first exposure to an education-related course. Therefore, they enter the classroom with limited or nonexistent exposure to pedagogy or technology integration strategies. Their schemata are based on their own educational experiences during their Pre-K–12 education. As a result, candidates often enter their education program with experiences based on outdated practices and technologies. The focus of the educational technology course is to introduce candidates to technology skills and tools that will be revisited and enhanced throughout their preparation program.

The pre-service candidates' limited previous experiences with pedagogical theory and practice required that the educational technology course adopt a common curriculum to serve as a foundation for modeling integration strategies. Environmental education (EE) materials produced by Project Learning Tree and Project Wild were adopted as the foundational curriculum. The materials are cross-grade-level and cross-content, allowing a common framework for all candidates enrolled across all sections of the course. The lessons/activities followed the 5E lesson plan format. The 5E lesson plan model was developed in 1987 during a retreat in Colorado as part of a curriculum development effort (Biological Sciences Curriculum Study 2016). Since that time the BSCS 5E model has become a widely accepted model that describes a teaching sequence that can be used for programs, specific units, and individual lessons.

The Alignment

As a culminating experience in the educational technology course, participants were assigned to five-member teams. Their charge was to identify an existing lesson from their EE curriculum materials and establish that as "Monday's lesson." Then, they were asked, working as a team, to develop a lesson for "Tuesday," following the same 5E lesson plan model. To ensure cohesiveness of a day's lesson, all of the 5E components were required to be developed collaboratively. Each team member was then given the task of identifying an appropriate

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technology for his or her assigned stage of the 5E model. Through an exaggerated exercise in technology integration, this project provided each participant with an opportunity to incorporate an individually determined technology element into the lesson sequence. Prior to the pilot incorporating collaboration with a pre-service school librarian, the five-member team had only each other and their course instructor as resources. The pilot introduced the team to a pre-service school librarian who would provide guidance, expertise, and support throughout the group project.

Illuminations

At the conclusion of the project, focus groups were convened to discuss the perceptions of the participants and, as with any star-crossed experience, there were positives and negatives.

When asked about the collaboration experience, participants commented specifically about the resources that the librarians contributed to the project:

> "School librarians were helpful in bringing resources to the table; they gave us the idea of what to look for."

> "They know a lot more websites to find information that we can use in a lesson."

> "They know a lot more resources than I do."

Additionally, the teacher candidates commented about the support provided during lesson plan development:

> "The school librarian has access to all books and he/she can let us know what the latest books are and how we can use the books in our lessons."

> "Using technology in our lesson plans is a great benefit to our students because students can have visuals on what we're learning."

> "The librarian suggested many different websites, activities online, and software that can enhance my lesson that I did not know existed."

Evidence suggested that collaborating with the librarian could address the well-documented barrier of lack of time:

> "Lessons are most likely done several days or weeks in advance."

> [They are] "faster at gathering information than me and can narrow and filter out all the unnecessary information while only giving me what I need for my lesson."

In contrast, the cons related to working with a school librarian were minimal. Participants noted collaboration issues such as:

> "When you have a specific idea in mind about a certain resource, sometimes what they bring to the table isn't what you are looking for."

> "They don't make lesson plans, and you get a ton of links, and then we as teachers need to sort through them for the ones that will work in the lesson."

> "The librarian is a busy person and sometimes cannot get to you right away."

> "Sometimes the teacher and the librarian might not agree on certain ideas."

The most telling outcomes were related to perceptions noted before and after the collaborative experience. Prior to the collaboration participants commented:

> "I didn't know what to expect."

> "I didn't think that a librarian would be very helpful in helping me make a lesson plan."

> "It was not imperative for teachers and librarians to collaborate. Teachers don't usually deal with the librarian in schools that I have seen unless they are taking their class to library time to check out books or researching a certain topic."

> "I thought it might be fun, and it will take some load off me."

After the collaboration a notable shift in perceptions was evident:

> "After, I realized I was wrong. My librarian gave me some links that were great, and I combined ideas from two and incorporated them into my lesson plan."

Through an exaggerated exercise in technology integration, this project provided each participant with an opportunity to incorporate an individually determined technology element into the lesson sequence.

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"The librarian was nice though… He helped."

"As far as technology goes, I was going to integrate technology either way, but after this experience I have much more confidence in being able to write lesson plans and including technology."

"I will collaborate with a librarian in the future. They will be able to give me ideas from links that I may not have thought of. Having a variety of ideas will make my lesson plans that much more interesting for my students."

"This experience is definitely something to keep in mind for the future."

"It was a nice experience. I enjoyed going through my librarian's ideas. Some of the suggestions were right on the money, and others were just not what I was looking for. But I would rather use the help than not."

Time was again a common theme:

"Sometimes as teachers we don't have time to spend hours on doing research on a subject. I like the idea of collaborating with a librarian because I can give my librarian a topic, and she can do the research, and then I can go over her findings and piece them together to make one lesson. This will save me hours of work."

"I could have done the lesson without a librarian's help, but it will take me longer and the quality will not be as good. Overall, the addition of a librarian increased the quality of the lesson and sped up the lesson-making process."

Looking to the Future

This early pilot sparked a long-term relationship between the teacher and the school librarian—two stars in the educational universe. The future shines even brighter as we implement an expanded collaborative study across multiple sections of the educational technology course. Data collection will include pre- and post-project perception surveys, journals, and focus groups. The use of experimental and control groups will ensure the reliability of the study outcomes. As research partners, we hope that outcomes of our future research provide evidence that supports the benefits of collaborative partnerships in pre-service programs and between practicing school librarians and teachers in their schools. These new constellations could not only increase the momentum of current collaborations but blaze new trails for future research in the area of teacher and librarian collaborations.

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