School librarians and the mandated implementation of digital textbooks in Florida and South Korea: Exploring school context

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In order to address context pertaining to the dissemination of digital textbooks, and to provide timely support and appropriate assistance to facilitate the adoption of digital textbooks, this study analyzes the similarities and differences between cultural and educational backgrounds that influence school librarians in regards to digital textbook implementation in Florida and South Korea. Both the settings' similarities - such as top-down implementation policies and continuous attempts to improve student achievement - and differences - such as the purpose of digital textbook implementation and teacher resistance to new technologies - provide an opportunity to closely examine leadership roles for school librarians.

Introduction

A transition from print textbooks to digital textbooks is a worldwide phenomenon. In the U.S., many states are embarking on adoption initiatives. Seven states, including Alabama, Florida, Idaho, Nebraska, North Carolina, Texas and Virginia have launched digital initiatives, and five states - including California, Maine, New York, Utah and Washington - have launched Open Educational Resources (OER) initiatives (Fletcher, Schaffhauser, & Levin, 2012). Moreover, 12 states have definitional textbook innovation policies that come with funding. By no means however, is the U.S. the only nation carrying out digital textbook initiatives. The European Commission’s report describes that several European countries - Hong Kong, Japan, Singapore and South Korea - have commenced the projects to integrate digital textbooks (Kampylis et al., 2013).

Interestingly enough, the U.S. state of Florida and the country of South Korea have a state and national mandate, respectively, for digital textbooks. In the U.S., Florida is a pioneer in heading this crucial initiative. In 2009, Florida enacted legislation that mandated digitized instructional materials, including digital textbooks (Mardis & Everhart, 2011; Mardis, Everhart, Smith, Newsum, & Baker, 2010; The Florida Senate, 2011b). In June 2011, Florida’s governor signed a bill mandating that all Florida’s public schools use entirely digital textbooks and assessments by 2015. To ensure successful adoption, the bill stresses the importance of a pilot program and a
review process to select high-quality instructional materials. Moreover, the bill emphasizes the amount of funds allocated to digital or electronic instructional materials by stipulating that, "by the 2015-2016 fiscal year, each district school board shall use at least 50 percent of the annual allocation for the purchase of digital or electronic instructional materials included on the state-adopted list" (p.49).

On the other hand, the South Korean government has shown less conviction in implementing their digital textbook policy, although they embarked on an integration project earlier than Florida. As a part of a school reform, the Education Ministry of South Korea announced a digital textbook initiative on March 8, 2007 (J. H.-Y. Kim & Jung, 2010). In order to solve rampant private education problems and strengthen the competitiveness of schools, the plan to develop digital textbook systems included six phases occurring between 2007 and 2011. The implementation was expected to create a learner-centered environment, extend an overseas market, and reduce the learning and digital gap in hopes of raising achievement among a neglected class of students (J. H.-Y. Kim & Jung, 2010; M.-R. Kim, Choi, & Kim, 2012). Since then, the South Korean government has been developing digital textbooks that combine various ubiquitous technologies (Lee, Kim, Park, Kim, & Jeong, 2012). However, Harlan (2012) reports that the South Korean government has trimmed back its plan regarding digital textbooks, deducing that the most compelling reason for this drawback is the influx of students who have long been exposed to digital technologies. Approximately 160 elementary and middle schools around the country during 2014 are testing digital textbooks, and full enforcement is to be determined in the first half of 2015 according to the results from these model schools (Choi, 2014).

As the use of digital textbooks will be mandatory in Florida and South Korea, school librarians, who play pivotal roles as technology leaders, need to understand how school ecology and culture impact this implementation. For the purpose of analyzing educational systems that influence school librarians in regards to digital textbook implementation, this paper more specifically describes the ecology and culture related to school library systems in Florida and South Korea.

**Theoretical Framework: Boyd’s School Context**

For the purpose of analyzing educational context that influences school librarians in terms of digital textbook implementation, this study more specifically describes the current school library systems in Florida and South Korea and sets boundaries by applying the conceptual frameworks of Boyd (1992), which contain these two components: (1) school ecology; and (2) school culture. Boyd (1992) defines the context of schools in broad terms that embrace the interrelatedness and interdependence of all factors as they relate to schools. School ecology refers to the inorganic elements of the school that influence an individual’s innovation adoption, including local/state and federal policies, resources, demographic shifts, and physical arrangements. In Boyd’s study (1992), school culture refers to a set of values and beliefs present inside and outside a school as well as the norm that governs behavior within relationships between individuals.

School context is an important factor in school improvement efforts. Boyd (1992) asserts that the factors that go into the ecology and culture of a school influence each other, and that those interactions play important roles in school improvement. The context of each school determines methods of improvement for student achievement and the success of effective educational programs. Also, context is an important instrument for school leaders to use when deciding how to improve the school. Thus, it is necessary to understand the complex nature of school context when a school implements any kind of educational innovation from a higher-performing school. If the
implementers fail to identify the factors that differ between schools, then efforts toward school innovation may be thwarted.

School Ecology

The two settings—Florida and South Korea—have many similarities and differences in school context as shown in Table 1. The following two sections demonstrate their school ecology and culture regarding digital textbook implementation.

Table 1. Comparison of School Context between Florida and South Korea

<table>
<thead>
<tr>
<th>Similarity</th>
<th>Differences</th>
<th>Florida</th>
<th>South Korea</th>
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<tbody>
<tr>
<td>School Ecology</td>
<td>Authoritative and top-down decision making</td>
<td>Less expenditures on K-12 schooling</td>
<td>More investment in public education</td>
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<td></td>
<td></td>
<td>A rise in minority students</td>
<td>Having racially homogeneous students</td>
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<td></td>
<td></td>
<td>Improved physical environment</td>
<td>Larger class sizes</td>
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<tr>
<td>School Culture</td>
<td>Rigidness in schools</td>
<td>Reducing teacher authority</td>
<td>Teachers’ higher job security and better salary</td>
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<td></td>
<td>Needs a paradigm shift</td>
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School ecology pertains to local, state and federal policies, resources, demographic shifts, working conditions and physical arrangements. In terms of policies related to digital textbooks, very similarly, authoritative, unilateral, and top-down, decisions enact the policies and regulations. Not surprisingly, it is reported that the educational governments in the two settings have created prescriptive regulations forcing teachers to adapt innovations. In Florida’s case, the similar circumstance can be found in an exemplary example of the accountability program. Rouse, Hannaway, Goldhaber, and Figlio (2013) determine that the Florida school accountability program forces teachers to change their instructional practices in effective ways by placing pressure on those teachers to improve the test scores of their students. They also show that this change in practice can be a partial cause of increased academic ability among students. The authors find that because of the policy regarding Florida’s school grading system, there were several changes that helped student improvement, especially in F-graded schools. During the 2002 and 2004 school years, the school days were lengthened, the classes had fewer students, and the incentives for teachers were increased; simultaneously teachers’ control was decreased and principals’ control increased. Correspondingly, the South Korean government has initiated various educational projects and strategies regarding educational policy, curriculum, and infrastructure. The vision for education in South Korea is tied to a long-term strategy for economic development. These highly centralized, government-led projects play important roles in fostering an environment favorable to innovation and cultural dissemination (Sánchez, Salinas, & Harris, 2011). The government, however, has not always been successful in spreading its beliefs and values regarding new educational innovations. This failure results in the government having a hard time encouraging schools and their students to apply technology in problem-solving and decision making (Shin, 2010).
In terms of resources, in order to allocate funds for K-12 school operations, the Florida government adopted the Florida Education Finance Program (FEFP), which is based on the number of individual students who participate (Wright, 2010). For each school, the source of revenue comes mainly from the state (37.84%) and local (49.02%) governments, with federal funding at 13.14% (Florida Department of Education, 2013b). Quality Counts 2014 also reports that school spending in Florida in 2011 was much lower than the national average, earning an F grade (Education Week, 2014). According to the report, Florida scores low in comparison to other states. Regarding expenditures per pupil, Florida ($9,752) was ranked 37rd among the 50 states and the District of Columbia (national average $11,864) in 2011. Also, Florida (2.9%) ranked 43rd in spending on education, which indicates state expenditures on K-12 schooling as “a percent of state taxable resources” (p.10), while the national average was 3.6%. On the other hand, the South Korean government spends proportionally more of its budget on education than most other countries. In 2008, South Korea invested 7.6% of its gross domestic product in education, and this was the second highest ratio among OECD (OECD & the Pearson Foundation, 2013). Korean government spent $6,658 per student in primary education and $9,399 per student in secondary education (OECD, 2012).

Another factor in school ecology, a shifting demographic, has been measured for both South Korea and Florida. For Florida, in the 2011-2012 school year there were 2,691,322 students in 75 districts with 3,966 schools, and the number of students has increased (Florida Department of Education, 2013c). A rise in minority students (52.3% in 2005) is also identified (Florida Department of Education, 2007). South Korea has a high population density and a high student density. Nationally there are 6,506,653 students (2,784,000 elementary school students, 1,804,189 middle school students, 1,893,393 high school students and 25,161 special education students) in 11,570 schools (5,913 elementary schools, 3,173 middle schools, 2,322 high schools and 162 special schools) (Ministry of Education, 2013). Although Korea has an increasing number of students who have multicultural backgrounds, the number of students is still insignificant (46,954 students in 2012).

Although Florida schools used to have the largest enrollment sizes in the nation, resulting in class sizes larger than the national average (Florida Department of Education, 2007), recent local efforts have successfully reduced those class sizes: 15.05 students per elementary school class, 17.57 per middle school class and 19.16 per high school class (Florida Department of Education, 2013a). In terms of transitions and alignment, and standards, assessments and accountability, Florida earned an A, ranking 4th and 5th respectively (Education Week, 2014). For the teaching profession, Florida obtained a B (ranked 4th), and for chance for success earned a C (ranked 32th). In South Korea because of the high density of population, the class sizes are large. There are 23.2 students per elementary school class, 31.7 per middle school class and 31.9 per high school class. The student-to-teacher ratio is also high: 15.3 elementary students, 16 middle school students and 14.2 high school students per teacher. Excellent student performance in Korea is already well known. In the case of the third grade, Korean students ranked first in math, science and reading among OECD countries in the 2009 Program for International Student Assessment (PISA) assessment (Jones, 2013). Also, almost double percentage of students (13%) reached at level five or above in reading literacy proficiency comparing to OECD average (8%).
School Culture

The aforementioned studies describe in detail the rigidity of Florida schools and similarly in South Korean schools. However, during the 2000s in Florida, various top-down projects and initiatives for school reform occurred, and some were successful: In 2014, Florida earned a score of 82.0 and a grade of B- while the national average was 70.2 and C- (Education Week, 2014; Rouse et al., 2013). This process, though, made school culture more rigid. For example, during the first years of the Florida school accountability program, the school days were lengthened, the classes had fewer students, and the incentives for teachers were increased. The teachers’ control over daily classroom activity, however, was decreased and shifted toward the principals (Rouse et al., 2013).

Based on Confucian tradition, South Korean people place importance on documented, centered, theoretical knowledge and the training of bureaucrats. They believe that education is the most important factor for a nation’s rise and fall, and their educational plans span a hundred years (So, Kim, & Lee, 2012). Historically South Korea is a nation that relies on human resources for economic growth and national development in an attempt to overcome its lack of natural resources (Jones, 2013; J. H.-Y. Kim & Jung, 2010). The traditional South Korean educational system focuses on the transmission of a body of accumulated knowledge from teacher to student. Although this tradition has historically led to enthusiasm for education and extensive economic growth in South Korea, it has also led to inflexible curricula, one-sided lectures, and inadequate evaluation systems that focus on memorization and a very conservative use of ICT (Sánchez et al., 2011). Kim and Jung (2010) argue that the new generation of students needs a different learning environment to self-direct, solve problems actively and generate knowledge. Also, the authors assert that in order to reduce side effects from the highly competitive college entrance exam and the public’s heavy reliance on private education, a new educational paradigm is needed.

In fact, South Korea recently underwent a paradigm shift from the traditional educational goal of transmitting and acquiring accumulated knowledge by memorization to the twenty-first century goal of problem-solving and integrating and synthesizing knowledge (J. H.-Y. Kim & Jung, 2010). In response to this updated educational goal, researchers (J. H.-Y. Kim & Jung, 2010) recommend the methods of education should also change to encourage students to build their own critical comprehension skills and to apply knowledge by analyzing information, participating in group discussions, and participating in problem-based learning.

The implementation of digital textbooks is considered a part of school reform, and it is expected to bring flexible, interactive and creative education into the classroom in South Korea. Digital textbooks are also expected to improve the public education system by enabling a formative assessment and self-regulated learning mechanism (J. H.-Y. Kim & Jung, 2010). Ironically, however, the implementation of digital textbooks is a government-driven project, and the state apparatus, including the Minister of Education, Consulting Committee and Korea Education & Research Information Service, (KERIS) is involved in its application (Sánchez et al., 2011) which may be a barrier to achieving these goals.

In terms of school leadership, teachers in the U.S. strongly protect their individualism. They typically work in isolation, utilizing traditional professional development, which has been shown to be ineffective (Waldron & McLeskey, 2010). More critically, Florida Bill 0736 eliminates the tenure system for new teachers so that incoming teachers are employed exclusively on annual contracts (The Florida Senate, 2011a). This bill may reduce teacher authority, as school officials can dismiss teachers without cause at the end of the school year, and often that decision is based on their students’ achievement on the Florida Comprehensive Assessment Test and other exams (Kaczor, 2011) leaving little opportunity for creativity. Principals, meanwhile, have been the most important leaders. In order to overcome this culture, Waldron & McLeskey (2010) assert that
school leadership should be distributed within a collaborative culture. In their study, the essential elements of Comprehensive School Reform (CSR) are a collaborative culture, professional development and strong leadership. Since initial attempts for school reform did not yield the desired results, the authors argue that collaborative cultures are required and distributed leadership is indispensable.

Teachers in South Korea have retained more power over their courses and the use of new technologies despite the obligatory nature of school reform. After passing the teacher certification examination, public school teachers become government employees and receive tenure. Korean teachers have a great deal of autonomy, and so the decision about whether to use new technology in instructional activities or not is dependent more on individual teachers than on government mandates (Shin, 2010). In addition, because of the Confucius tradition, teachers command respect and prestige in Korea (Sánchez et al., 2011).

This imbalanced situation between the strong government and independent teachers has spurred various critiques. Sánchez et al. (2011) point out that the use of ICT is changing the form of education by imitating traditional approaches. A conservative use of ICT and a lack of instructional models are side effects of the lack of harmony in school leadership. In fact, Park and Jeong (2013) show that a government-driven school reform initiative increases teachers’ resistance. They also find that teachers who perceive the principals’ leadership as supportive are more likely to have a lower level of resistance to innovation; however, those who perceive their principals’ leadership as managerial do not change their level of resistance.

Park and Jeong (2013) investigated the relationship between principal leadership and teacher resistance under school reform, based on the premise that individual teacher resistance is natural. As other researchers have found, Park and Jeong indicate that the Korean central government has the exclusive power to set initiatives and design methods when it comes to school reform. The authors disclose that there is a negative relationship between principal leadership and teacher resistance. According to the principal leadership style, when teachers perceive principal leadership as initiative, teachers are less likely to resist. Teachers would have a higher level of resistance if the principal is more educated and less experienced. The authors also report that the government-driven school reform increases the teachers’ resistance.

Digital Textbooks and School Librarians

As analyzed, there are many similarities between Florida and South Korea in terms of digital textbooks. Both settings place a high value on education and both settings are struggling to provide a better environment for education. Florida has local mandates to reduce class sizes and South Korea has attracted well-trained teachers. In both cases, authoritative education departments take the lead in educational innovations and institute top-down decision-making processes. In both cases, teachers work independently, but are sometimes forced to follow the educational innovation initiatives.

These similarities may produce similarly problematic situations when schools attempt to integrate digital textbooks. A government-driven, one-sided execution of digital textbook policies is likely to engender resistance among teachers toward digital textbooks (Kang & Everhart, 2014). Moreover, neither setting has a specific and coherent set of standards; both lack published policies for allocating funds and preparing devices for the students.

Likewise, job descriptions for school librarians in terms of digital textbooks have not yet been updated. However, the literature agrees that digital textbooks present another opportunity for school librarians to consolidate their positions as vital leaders in teaching and learning (Mardis
et al., 2010). As digital textbooks are introduced, school librarians will continue their primary tasks while their job assignments transform to incorporate a new set of tasks. The traditional responsibilities of selecting materials and finding resources corresponding to curriculum needs and students’ reading interests and levels will continue (Fredrick, 2011) and librarians will use their expert knowledge and experience at “identifying, collecting, and organizing the best content” (Mardis et al., 2010, p. 14) to build and implement open-content learning resources. School librarians will continue to collaborate with classroom teachers using digital textbooks.

Recent research discerns school librarians’ roles in digital textbook implementation. For example, when one determines school librarians’ roles to enhance students’ digital literacy skills, it is necessary to consider Ahn and Leem (2013)’s study. The authors identify the most pressing issue regarding digital textbook implementation: more classroom time is spent addressing technical problems, or questions of digital literacy, than on class content. To support student learning, the authors emphasize the importance of educating students about digital literacy before employing digital textbooks in the classroom. An alternative way to solve this problem is to have another assistant staff member who can manage technical issues during class. This research implies that in any circumstance, the role of school librarians in digital literacy education should be extended, aiding students to both “locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media,” and “evaluate and select information sources and digital tools based on the appropriateness to specific tasks” (International Society for Technology in Education (ISTE), 2007, para.3).

Conclusions

Digital textbooks are considered user-centered learning tools that improve students’ creativity, problem-solving skills and creative-thinking skills through motivating them, improving learning abilities and enabling self-directed learning (Ahn & Leem, 2013; Mardis et al., 2010). Though their cultures are different, Florida and South Korea mandate digital textbooks in similar respects. However, the purpose of this implementation still differs: Florida expects digital textbooks to reduce education expenses, while South Korea expects the new technology to slowly eradicate chronic private education. No matter what this implementation intends, educators should embrace this innovation; particularly school librarians in charge of textbooks and should take on leadership roles in implanting digital textbooks.

In order to address context pertaining to the dissemination of digital textbooks, and to provide timely support and appropriate assistance to facilitate the adoption of digital textbooks, this study analyzes the similarities and differences between cultural and educational backgrounds in school librarians’ influence in regards to digital textbook implementation in Florida and South Korea. Both the settings’ similarities and differences provide an opportunity to closely look at leadership roles for school librarians.

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