Mathematics-Literacy Checklists: A Pedagogical Innovation to Support Teachers as They Implement the Common Core

Pixita del Prado Hill
SUNY Buffalo State

Ellen S. Friedland
SUNY Buffalo State

Susan McMillen
SUNY Buffalo State

This article presents two innovative tools – the Mathematics-Literacy Planning Framework and Mathematics-Literacy Implementation Checklist – which are designed to help instructional coaches and specialists support teachers to meet the challenges of the mathematics-literacy integration goals of the Common Core. Developed with teacher input, these instruments serve as cognitive "safety nets" to ensure effective integration of appropriate strategies before, during, and after instruction.

Introduction

Schools are becoming increasingly more complex; teachers are confronted with the pressure of addressing national and state standards as well as district demands, implementing scripted curricula, and preparing students for high stakes assessments. In spite of the need for supporting adolescents in the content areas through "discipline-specific literacy instruction" (International Reading Association, 2012, p. 12), there is evidence that many content area teachers, including teachers of mathematics, do not integrate literacy strategies in their instruction because they do not view themselves as teachers of literacy (Bintz, 1997; Hall 2005). However, the Common Core State Standards (CCSS) (2001) call for a change in teachers' perceptions and recognize that there are "…general, cross-disciplinary literacy expectations that must be met for students to be prepared to enter college and workforce training programs ready to succeed" (p.4). Furthermore, the CCSS require an interdisciplinary approach to literacy because of "…the need for college and career ready students to be proficient in reading complex informational text independently in a variety of content areas" (p. 4). Examples of complex informational text in mathematics include explanations of mathematical concepts and processes,

directions for using tools of mathematics, and steps for solutions. This complex interdisciplinary approach to content literacy will require innovative solutions for busy math teachers.

To successfully implement the CCSS, content area teachers are being asked to view all learning as language-based and to recognize that literacy strategies can therefore foster students' disciplinary learning (Adams & Pegg, 2012; Moje, 2008). As Fang and Coatoam (2013) note, disciplinary literacy "…recognizes that literacy skill/strategies and disciplinary content are inextricably intertwined and that without literate practices, the social and cognitive practices that make disciplines and their advancement possible cannot be engaged" (p. 628). While the CCSS expect that all math teachers will integrate literacy (reading, writing, listening, speaking, viewing, visually representing as noted in Tompkins, 1998) into instruction in order to address the standards, the instructional strategies they use to achieve that goal are not specified. In order to address the tenets of the CCSS, middle and high school math teachers have been asked to become proficient in literacy strategy integration. These changes are also occurring within the context of changing demographics within U.S. classrooms. In 2008-2009, 11% of students (totaling 5.3 million) were identified as English learners; however, the percentage would be much higher if students who have passed their proficiency tests but are still struggling with academic English were included (Echevarría, Vogt & Short, 2013, p. 3). Therefore, to meet the needs of all learners, math teachers must be able to meet both mathematics content and language goals and to utilize "discipline appropriate literacy practices…" (Gillis, 2014, p. 621). Despite the obstacles identified, teachers of mathematics need to realize how essential literacy skills are for students' success in that discipline.

In the area of high school mathematics, teachers may be familiar with literacy strategies and support their use, but they do not necessarily employ them (Barry, 2002; McMillen, del Prado Hill, & Friedland, et al., 2010; Spor & Schneider, 2001; Wedman & Robinson, 1988). It is not that mathematics teachers are unwilling to utilize literacy strategies in their instruction, but rather they feel as though they cannot because of external pressures. In a 2009 survey (see McMillen, et al., 2010) mathematics teachers identified primary factors that limited their use of literacy strategies: (1) pressure to cover content for state assessments, (2) district demands to adhere to mathematics programs and/or textbook guidelines, and (3) instructional time necessary to use literacy strategies. Thus, while many high school mathematics teachers recognize the value of literacy strategies to improve mathematics instruction, these tools often feel like another

layer of complexity to the already challenging task of day-to-day content planning, instruction, and assessment.

One possible innovative response to these challenges came to us serendipitously from reading a book outside the field of education: *The Checklist Manifesto: How to Get Things Right* (Gawande, 2009). The author of the book asserts, "Every day there is more and more to manage and get right and learn. And defeat under conditions of complexity occurs far more often despite great effort rather than from a lack of it" (Gawande, 2009, p. 12). This idea influenced our thinking about how we could help instructional coaches and specialists support high school mathematics teachers cope with the stresses of teaching content while remaining mindful of the best practices that can facilitate learning. Our discussion about Gawande's thoughts led us to consider the checklist as a tool for providing a framework for teachers to align instruction with standards. According to Gawande (2009), "[checklists] provide a cognitive net. They catch the mental flaws inherent in all of us – flaws of memory and attention and thoroughness. And because they do, they raise wide, unexpected possibilities" (p. 48). We envisioned the checklist as providing mathematics leaders and teachers with a "safety net" to ensure that what they know in terms of effective integration of appropriate mathematics-literacy strategies before, during, and after instruction is actually achieved. During professional development with 83 urban high school mathematics teachers, just over 90% of the group indicated that a checklist would help them plan lessons integrating literacy strategies. We believe that a checklist will help mathematics and literacy leaders at the district and building levels empower math teachers to make integrating literacy strategies a reality and that consequently, math teachers will see the "unexpected possibilities" that emanate from its use.

The Checklist as a Tool

Checklists are used in education for developing assessments (Ishii & Baba, 2003), creating optimal learning environments (Turner, 2008), students' self-monitoring (Zrebiec, Mastropieri & Scruggs, 2004), evaluating data (Elmas, Demirdogen & Gebin, 2011), determining equity (Fiedler, et al., 2008), designing effective assignments (Fisher & Frey, 2008), evaluating materials (Hosie & Schibeci, 2005), and evaluating and/or observing personnel (Keeley, Smith & Buskist, 2006). We found only one study that discussed the use of a checklist

for guiding implementation of instructional strategies to direct volunteer literacy tutors in their work with young students (Craft Al-Hazza & Gupta, 2006).

The challenge of developing an effective checklist, particularly in the complex and often unpredictable context of classroom instruction, is balancing simplicity of use with the individual needs of each teacher and his/her classroom. We believe that the checklist should not become a lockstep recipe, but rather an innovative "cognitive [aid] to guide users through accurate task completion" (Hales, Terblanche, Fowler & Sibbald, 2008, p. 22) that will facilitate teachers' creativity rather than inhibit it.

Checklist Development

To begin constructing our checklist, we carefully examined the literature to determine how checklists were developed, used, and evaluated. Additionally, we used our own research and that of others to identify the challenges math teachers face so that our tool could respond to those difficulties and help them make the process of literacy integration feel more doable while continuing to focus on mathematics content. We wanted to study "routine failures" (Gawande, 2009, p. 185) – the persisting problems that the tool can address. Moreover, to help mathematics leaders and teachers meet the needs of all learners, we designed a tool that would ask teachers to articulate how they are meeting both content and language goals (Echevarría, Vogt & Short, 2013). Adams and Pegg (2012) argue that it is essential that teachers consider both "lesson design and lesson enactment" when integrating literacy strategies "…to develop students' understanding of science and mathematics concepts…" (p. 159). We hoped to develop a tool that instructional coaches and specialists could use to empower teachers to adapt their instruction and provide them with a way to address their perceived obstacles, particularly when faced with a scripted curriculum. We agree with Cynthia Shanahan who notes that "…reading practices promoted by disciplinary literacy are actually drawn from the disciplines themselves rather than being imposed on them by the reading community" (Shanahan & Shanahan, 2014, p. 628). We realize that in order to ensure that math teachers would willingly use the instrument it would have to be specific to mathematics, concise, purposeful, and user-friendly. Any additional layer to teachers' planning efforts would have to facilitate lesson planning implementation and result in positive outcomes within the classroom.

Teacher Input: Designing the Checklist

We began the checklist development process by asking seven high school mathematics teachers to participate in an hour-long focus group interview. They talked together about the challenges of integrating literacy into high school mathematics instruction and how a checklist might address some of these difficulties. All seven participants viewed lack of time as the most significant obstacle to effective literacy integration. After this discussion, our initial belief was that teachers would use a checklist to save them time (or enable them to use their time more effectively), and to provide them with planning, discussion, and reflective supports.

Building on teacher input, we hoped to create a checklist as a tool to ensure quality that includes critical areas that do not vary from lesson to lesson (in contrast to a lesson plan which we define as a tool for making instructional decisions that must adapt to the classroom context). As a result, we began developing a two-part template – a planning framework (See Figure 1.) that would be used by instructional leaders in group settings to familiarize high school mathematics teachers with literacy integration and an implementation checklist (See Figure 2.) to be used individually by teachers to reflect on their literacy integration once they had internalized the process.

Figure 1. Mathematics-Literacy Planning Framework

Mathematics-Literacy Planning Framework

Context:

Name:	Date:	Math topic:	Where in the unit:

What is the purpose of the lesson?

__ Activate prior knowledge __ Introduce new concept(s) __ Focus on 1 or more key concepts

__ Compare/contrast specific concepts __ Reinforce concepts already introduced __ Informally evaluate prior knowledge

__ Formally evaluate learning of a topic __ Provide students w/ application of a concept

Where in the lesson will students need extra support? For content learning? For language use?

What accommodations/differentiated instruction are needed? For content learning? For language use?

What mathematics vocabulary/concepts are central to the lesson?

Planning:

Parts of the lesson	Math skills/knowledge	Literacy challenge of lesson (V, C, W, or S)?*	Mathematics-Literacy Strategy
Standards			
Guiding questions			
Learning outcomes			
Materials/resources			
Classroom/student organization			
Introduction			
Explanation			
Modeling			
Independent practice			
Closure			
Homework			
Formative assessment			
Summative assessment			

* V = Vocabulary   C = Reading Comprehension   W = Writing   S = Study

*Possible mathematics-literacy strategies to use: V = Vocabulary   C = Reading Comprehension   W = Writing   S = Study
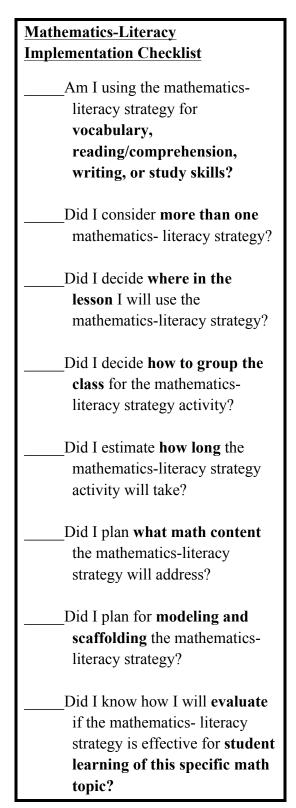
STRATEGY	V	C	S	W
Anticipation Guide		x		
B-D-A (Before, During, After Reading)		x		
Concept Definition Map	x	x		
Cloze	x	x		
Cornell Method (Split Page Notetaking)			x	
Cubing		x		x
Directed Reading-Thinking Activity (DR-TA)		x		
Embedded Questions		x		
Feature Analysis (Semantic Feature Analysis)	x			
Frayer Model	x			
Graphic Organizers	x	x	x	x
Inquiry Charts (I-Chart)		x	x	x
Journal Writing				
Knowledge Rating	x			
KWL		x		
KNWS		x		
Learning Logs				x
Math Reading Keys	x	x		
Mind Mapping	x	x		
Question-Answer-Relationships (QARs)	x	x		x
Quick Writes				x
RAFT (Role, Audience, Format, Topic)				x
Reciprocal Teaching		x		
Semantic Map	x			
SQRQCQ			x	
Three Level Study Guide		x		
Verbal and Visual Word Association	x			
Vocabulary Overview Guide	x			
Vocabulary Self Collection Strategy	x			
Word Family Trees	x			
Word Sorts	x			

Post-lesson notes:

Was the mathematics-literacy strategy appropriate for my goals (or would another strategy have worked better)?
Ideas to improve the implementation of the mathematics-literacy strategy.

Figure 2. Mathematics-Literacy Implementation Checklist

> **Mathematics-Literacy**
> **Implementation Checklist**
>
> _____Am I using the mathematics-
>   literacy strategy for
>   **vocabulary,**
>   **reading/comprehension,**
>   **writing, or study skills?**
>
> _____Did I consider **more than one**
>   mathematics- literacy strategy?
>
> _____Did I decide **where in the**
>   **lesson** I will use the
>   mathematics-literacy strategy?
>
> _____Did I decide **how to group the**
>   **class** for the mathematics-
>   literacy strategy activity?
>
> _____Did I estimate **how long** the
>   mathematics-literacy strategy
>   activity will take?
>
> _____Did I plan **what math content**
>   the mathematics-literacy
>   strategy will address?
>
> _____Did I plan for **modeling and**
>   **scaffolding** the mathematics-
>   literacy strategy?
>
> _____Did I know how I will **evaluate**
>   if the mathematics- literacy
>   strategy is effective for **student**
>   **learning of this specific math**
>   **topic?**

In order to obtain middle school mathematics teachers' perspectives of these tools, we then individually interviewed two experienced 7th and 8th grade mathematics teachers who consistently and effectively integrate literacy strategies into mathematics instruction (see Friedland, McMillen, & del Prado Hill, 2010-11). Jane (all names are pseudonyms) had four years of teaching experiences in an urban school. Rebecca had six years of teaching experience in a suburban school. We made revisions to the Planning Framework and Implementation Checklist based on the two teachers' suggestions such as adding an area for homework and a list of possible strategies as well as emphasizing that the literacy strategies are being utilized for deeper understanding of the mathematics content.

Teacher Input: Using the Checklist

Teachers can use one or both tools depending on their individual needs. Jane and Rebecca both noted the value in using the two tools but had different perspectives on how and when they could be used. Rebecca stated that the Planning Framework would be useful for all teachers and could be used in team instructional planning: "…it would help them…it will be all their plan. It's not just talking about literacy." Jane, on the other hand, suggested that the Implementation Checklist could be used in conjunction with the Planning Framework:

> I can definitely see them working together…I think just having this [Implementation Checklist] around somewhere…I could absolutely see that being helpful [and] kind of hold you accountable and just kind of [provide] reminders for yourself, like these are things that you can do, these are things that would help you. Are you still using them or not? Are you using them as much as you could be?

Our final step in the development process was to share the revised tools with a group of five experienced urban high school mathematics teachers to hear their feedback and suggestions for how the tools might be used. This hour-long focus group supported Jane and Rebecca's contention that the Planning Framework could serve as a collaborative tool, particularly for teachers newer to the process of mathematics-literacy integration. All five teachers saw the Implementation Checklist as a helpful individual reminder for teachers who had internalized the process and suggested that it should be formatted as a bookmark or wall poster.

The authors individually reviewed the transcript of the discussion with these teachers and determined that their comments focused on the following areas: (1) vocabulary and using

language skills to solve problems, (2) planning, (3) assessment, and (4) reflection and collaboration. In this section we include the teachers' ideas as well as our suggestions for how the tools might be used by mathematics leaders and teachers to address these areas of concern.

Vocabulary and Using Language Skills to Solve Problems

Vocabulary was the greatest concern for the math teachers we interviewed. "I usually think about the vocab in the lesson and have they had it before? Do they know it? Do they need to go over that vocabulary first…Is it the words they are getting tripped up on or the math? So, vocab is a big part of what I have to plan out for that." Vocabulary has an even greater emphasis with the implementation of the CCSS, and the Mathematics Glossary of the CCSS provides a list of academic language required to conceptualize, discuss, and apply mathematics content (see http://www.corestandards.org/Math/Content/mathematics-glossary/glossary/).

Because of this emphasis, the Planning Framework gives special attention to the discipline specific vocabulary that math teachers and students need to utilize. By identifying the specific vocabulary to be used in a lesson, teachers consider key mathematical concepts. Then, as they move through the Planning Framework, they can decide on effective ways to use literacy strategies to support conceptual development.

In addition to vocabulary, a teacher noted that the CCSS require "more higher order thinking so I can't even think of a lesson where literacy isn't a part of it." Also noted was the need for students to be able to use language that reflects their understanding of difficult concepts. "Just getting them [students] to internalize and explain what they're doing … I think in the Common Core, they're going to have to start doing a lot more things like that and having a much more complete understanding of math and expressing it." This emphasis is expressed in the Mathematical Practices of the CCSS which places important emphasis on communication of mathematical ideas. Moreover, the Key Shifts in ELA/Literacy note that, in grades 6-12, the standards for literacy "ensure that students can independently build knowledge in these disciplines through reading and writing. Reading, writing, speaking, listening should span the school day from K-12 as integral parts of every subject." (See: http://www.corestandards.org/other-resources/key-shifts-in-english-language-arts/). We have designed the two tools to help instructional coaches and specialists support teachers as they prepare, deliver, and evaluate lessons that will help their students meet these challenging goals.

Word problems present a particular kind of literacy challenge, and the teachers recognized that these types of problems require strong reading skills (e.g. the ability to discern embedded clues or key words and phrases that guide thinking toward a solution) "because [students are] not strong readers to begin with." The teachers noted that the new assessments require critical comprehension and the ability to understand what is being asked. Therefore, instruction should be focused on developing those skills. "It's not a straightforward question anymore. It's embedded within the question. It's okay, take it apart, what are they asking for?" This often requires close reading which is defined by PARCC (2011) as "engaging with a text ... directly and examining its meaning thoroughly and methodically, encouraging students to read and reread deliberately" (p. 6). The Planning Framework can help instructional coaches and specialists encourage teachers to scaffold instruction to develop students' comprehension skills that are required for interpreting word problems.

Planning

The CCSS asks teachers to shift from teacher-centered modes of instruction to more learner-centered ones. As noted by one math teacher, "We have to move more towards student-centered classrooms. I'm guessing more stations, more constructivist, not so much direct teaching." So there is an interest in using the checklist to provide students with more structured and supported time to work. In the planning section of the Planning Framework, we hoped to make clear that literacy can support content learning in each aspect of the math lesson design. Literacy does not have to be part of each aspect, but any of the six language processes (speaking, listening, writing, reading, viewing, and visually representing) could be utilized to improve student learning of mathematics. The list of strategies includes suggestions for ways to teach mathematics through vocabulary (V), comprehension (C), study skills (S), and writing (W). In our work with teachers, teacher candidates, and students, we have found these to be particularly effective for high school mathematics. Other suggestions can be found at www.readwritethink.org as well as in an annotated bibliography describing examples of literacy strategies used in mathematics instruction (Friedland, McMillen, & del Prado Hill, 2011).

The teachers saw the Planning Framework as a tool for common long-term planning but viewed the Implementation Checklist as a tool for individual daily use. While seemingly simple, checklists offer support for complex tasks as noted above. Thus, the Implementation Checklist is

designed to serve as a "cognitive safety net" to remind teachers to use literacy in the service of mathematics as they do a final review of a lesson and enter the classroom. The first question is in the present tense to emphasize to teachers the literacy goal of the math lesson as they begin teaching. The subsequent questions are in the past tense so that teachers are directed to check the parts of the math lesson.

Assessment

The math teachers noticed that the tools also address on-going and culminating assessment of mathematics concepts and the literacy learning. One teacher commented, "I like how it's got the formative and the summative because that's something we are being asked to do, so how are you addressing that in your lesson?" Literacy strategies can serve as ongoing assessment tools to determine students' understanding and misunderstanding in order to modify instruction accordingly. For this reason, the tools ask teachers to consider the mathematics skills/knowledge as well as the literacy challenge for the formative assessment to be used in the lesson. This is particularly important as teachers address learner differences. The Planning Framework also includes consideration of learner differences as part of the lesson context. Then, in the planning section of the Framework, teachers can contemplate how literacy strategies can serve as tools to differentiate, accommodate, and support students as they work with the mathematics content.

Reflection and Collaboration

Based on teacher feedback and suggestions, we included questions for reflection on both tools. "I like the reflection part, too. I know for me that is something I do not always do because we are always moving…I think it would be good and especially collaboratively, if we could take time to reflect on lessons a bit more." The post-lesson notes are intended to be a quick way for teachers to jot reminders for future discussion and/or collaboration with colleagues for how to improve the particular lesson or mathematics-literacy integration more generally.

The math teachers we interviewed all wanted opportunities to learn from other teachers. One articulated this hope for the whole group. "What you find out is that people are doing some really great stuff, so maybe we need more opportunities to work together to collaborate." In particular, the experienced teachers expressed an interest in less time with "outside experts" and

more time with math leaders and math teachers who understand the context of the day-to-day classroom. They were especially interested in working collaboratively with the Planning Framework to plan instructional units.

Final Thoughts

The titles of our two tools use "Mathematics-Literacy" purposefully to indicate that mathematics content and literacy processes are linked. For the Planning Framework, literacy is being used in the service of mathematics content as math teachers intentionally plan how literacy can support mathematics learning. This tool is designed to generate discussion between mathematics and literacy building coaches/leaders as well as among mathematics teachers as they plan together. The goal of the tools is to articulate the mathematics-literacy connection so teachers internalize the processes required for developing integrated curriculum. The Implementation Checklist also emphasizes the mathematics-literacy link and is designed as a final check before delivery of a lesson to remind teachers where and how literacy can support mathematics learning.

We encourage mathematics specialists and literacy specialists to use the tools as they work together to design professional development that ensures mathematics teachers understand specific literacy strategies and how to apply them to mathematics instruction. It is important that mathematics teachers see examples of the mathematics-literacy strategies applied to appropriate grade-level mathematics content (as determined by the CCSS) and also that they have opportunities for reflective discussions with their colleagues about the impact on student learning. Specifically, we recommend that mathematics coaches and mathematics specialists:

1. Collaborate with literacy leaders to use the Planning Framework and Implementation Checklist as starting points for discussions among building leaders and mathematics teachers about the numerous possibilities in creating lessons or units incorporating literacy strategies into mathematics instruction. We believe these discussions will provide an opportunity to find new ways to address the specific requirements of the CCSS and the diverse needs of students.

2. Collaborate with their mathematics team to develop lessons using the Planning Framework, revising it to suit their needs.

3. Use the Implementation Checklist to reflect on mathematics-literacy strategy integration. It may be helpful to copy and laminate the Implementation Checklist shown in Figure 2 as a bookmark.

4. Discuss the adoption of the two tools with other content area leaders in a school-wide effort to integrate literacy into disciplinary instruction to address the CCSS.

Because of the CCSS, there is an immediate need for math teachers to have a working knowledge of a variety of instructional strategies that facilitate students' comprehension of text, acquisition of content, and the ability to communicate what they learn. The Mathematics-Literacy Planning Framework and Implementation Checklist are pedagogical innovations designed to provide specific tools to guide math teachers to plan efficiently and effectively to integrate vocabulary, comprehension, study, and writing strategies into their instruction and to reflect on their practice. As teaching becomes an increasingly complex endeavor, we recommend that educators use the seemingly simple tool, the checklist, to improve instruction in a systematic way while simultaneously using planning tools such as the Planning Framework to reflect, collaborate, and critically move toward best practices.

References

Adams, A. E., & Pegg, J. (2012). Teachers' enactment of content literacy strategies in secondary science and mathematics classes. *Journal of Adolescent & Adult Literacy, 56*(2), 151-161.

Barry, A. L. (2002). Reading strategies teachers say they use. *Journal of Adolescent & Adult Literacy, 46*, 132-141.

Bialis, J. & Boon, R. (2010). Effects of self-monitoring on the classroom preparedness skills of kindergarten students at-risk for developmental disabilities. *Australasian Journal of Early Childhood, 35*(4), 40-52.

Bintz, W.P. (1997). Exploring reading nightmares of middle and secondary school teachers. *Journal of Adolescent & Adult Literacy, 41*(1), 12-24.

Cavanaugh, T., Lamkin, M.L., & Hu, H. (2012). Using a generalized checklist to improve student assignment submission times in an on-line course. *Journal of Asynchronous Learning Networks, 16*(4), 39-44.

Craft Al-Hazza, T., & Gupta, A. (2006). Reading tutor checklist: A guide for supplemental support for volunteer tutors. *Preventing School Failure, 50*(4), 15-22.

Common Core State Standards (2010). Retrieved from http://www.p12.nysed.gov/ciai/common_core_standards/

Echevarría,J, Vogt, M, & Short, D. J. (2013). *Making content comprehensible for English learners: The SIOP Model* (4th ed.). Boston: Pearson.

Elmas, R., Demirdogen, B., & Geban, O. (2011). Preservice chemistry teachers' images about science teaching in their future classrooms. *Hacettepe University Journal of Education, 40*, 164-175.

Fang, Z. & Coatoam, S. (2013). Disciplinary literacy: What you want to know about it. *Journal of Adolescent & Adult Literacy, 56*(8), 627-632.

Fiedler, C. R., Chiang, B., Van Haren, B., Jorgensen, J., Halberg, S., & Boreson, L. (2008). Culturally responsive practices in schools: A checklist to address disproportionality in special education. *Teaching Exceptional Children, 40*(5), 52-59.

Fisher, D., & Frey, N. (2008). Homework and the gradual release of responsibility: Making responsibility possible. *English Journal, 98*(2), 40-45.

Friedland, E. S., McMillen, S. E., & del Prado Hill, P. (2011). Collaborating to cross the mathematics–literacy divide: An annotated bibliography of literacy strategies for mathematics classrooms. *Journal of Adolescent & Adult Literacy*, *55*(1), 57-66.

Friedland, E.S., McMillen, S.E., & del Prado Hill, P. (2010-2011). Moving beyond the word wall: How middle school teachers use literacy strategies. *NCSM Journal of Mathematics Education Leadership, 13* (1) 6-18.

Gawande, A. (2010). *The checklist manifesto: How to get things right.* New York, NY: Picador.

Gillis, V. (2014). Disciplinary literacy: Adapt not adopt. *Journal of Adolescent & Adult Literacy, 57*, 614-623.Hales, B., Terblanche, M., Fowler, R., & Sibbald, W. (2007). Development of medical checklists for improved quality of patient care. *International Journal for Quality in Health Care, 20*(1), 22-30.

Hall, L.A. (2005). Teaching and content area reading: Attitudes, beliefs and change. *Teaching and Teacher Education: An International Journal of Research and Studies, 21*(4), 403-414. Retrieved from http://www.sciencedirect.com/science/article/B6V D8-4FR3NBR-1/2/7831b6adf518a0b72f742d4ae60d7860.

Hosie, P., & Schibeci, R. (2005). Checklist and context-bound evaluations of online learning in higher education. *British Journal of Educational Technology, 36*(5), 881-895, 1-12.

International Reading Association (2012). *Adolescent literacy: A position statement of the International Reading Association.* Newark, DE: Author. Retrieved from http://www.reading.org/Libraries/resources/ps1079_adolescentliteracy_rev2012.pdf

Ishii, D. N., & Baba, K. (2003). Locally developed oral skills evaluation in ESL/EFL classrooms: A checklist for developing meaningful assessment procedures. *TESL Canada Journal, 21*(1), 79-96.

Keeley, J., Smith, D., & Buskist, W. (2006). The teacher behaviors checklist: Factor analysis of its utility for evaluating teaching. *Teaching Psychology, 33*(2), 84-91.

McMillen, S. E., del Prado Hill, P.; & Friedland, E. S. (2010). Literacy strategies in mathematics instruction: A look at New York State classrooms. *New York State Mathematics Teachers Journal, 60*(3), 101–103, 110.

Moje, E. B. (2008). Foregrounding the disciplines in secondary literacy teaching and learning: A call for change. *Journal of Adolescent & Adult Literacy, 52*, 96-107.

National Council of Teachers in Mathematics (NCTM). *Curriculum Standards for School Mathematics*. Reston, VA: NCTM, 2000.

Partnership for Assessment of Readiness for College and Careers. (2011). Model content frameworks: English language arts/literacy, grade 3-11. Retrieved May 25, 2016, from http://www.parcconline.org/resources/educator-resources/model-content-frameworks/ela-model-content-framework/structure-of-the-model-content-frameworks-for-ela-literacy

Shanahan, C. & Shanahan, T. (2014). The implications of disciplinary literacy. *Journal of Adolescent & Adult Literacy, 57*, 628-631.

Spor, M. W., & Schneider, B. K. (2001). A quantitative description of the content reading practices of beginning teachers. *Reading Horizons, 41*(4), 257-273.

Tompkins, G.E. (1998). Language arts: Content and teaching strategies (4th ed.). Saddle River, NJ: Merrill Publishing Company.

Turner, S. L. (2008). Using the learning sciences and knowledge about how people learn to support reluctant and disengaged secondary school learners. *American Secondary Education, 37*(1), 4-16.

Wedman, J. M., & Robinson, R. (1988). Effects of extended in-service on secondary teachers use of content reading instruction strategies. *Journal of Research and Development in Education, 21*(3), 65-70.

Zrebiec, U. H., Mastropieri, M., & Scruggs, T. (2004). Check it off: Individualizing a math algorithm for students with disabilities via self-monitoring checklists. *Intervention in School and Clinic, 39*(5), 269-275.