"MIND-BLOWING"

Fostering self-regulated learning in information literacy instruction

Eveline Houtman
University of Toronto

The new ACRL *Framework for Information Literacy for Higher Education* brings a new emphasis into our instruction on student metacognition and dispositions. In this article I introduce self-regulated learning, a related concept from the field of education; it encompasses metacognition, emotions, motivations and behaviors. I discuss how this concept could be important and helpful in implementing the related elements in the ACRL *Framework* and draw on the concept to devise strategies and activities that promote students' self-awareness and learning skills. This focus promotes a more learner-centered approach to teaching. The article also adds to the conversation on developing a self-reflective pedagogical praxis in information literacy instruction.

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INTRODUCTION

> "One of the best gifts teachers can give students are the experiences that open their eyes to themselves as learners." (Weimer, 2014)

The new ACRL *Framework for Information Literacy for Higher Education* (2015) brings a new emphasis into our instruction on *metacognition*, the monitoring of one's thinking and learning processes. It also introduces *dispositions*, ways of thinking and acting related to information literacy that "address the affective, attitudinal, or valuing dimension of learning" (ACRL, 2015, p. 2). The *Framework* does not address implementation, which is now the task of teaching librarians going forward. In this article, I introduce self-regulated learning, a related concept from the field of education, and discuss why this concept could be important and helpful in implementing these elements of the *Framework*. I draw on this concept to devise strategies and activities that promote students' self-awareness and learning skills.

Self-regulated learning encompasses metacognition, but is also the broader term, encompassing "awareness and control over one's emotions, motivations, behavior, and environment as related to learning" (Nilson, 2013, p. 5) — in other words, it encompasses metacognition *and* dispositions. Self-regulated learning is

> *the voice in your head that asks you questions about your learning… [It is] the conscious planning, monitoring, evaluation, and ultimately control of one's learning in order to maximize it… It means being mindful, intentional, reflective, introspective, self-aware, self-controlled, and self-disciplined about learning, and it leads to becoming self-directed. (Nilson, 2014)*

Such an approach to learning demands of us a reflective, self-aware, and intentional approach to teaching (Booth, 2011) — and demands also a reflective approach in writing this article. This is not intended as a prescriptive "how I did it good" article (Wilson, 2013), but more a reflective "this is what I tried to do (and why), this is what worked (or not), this is what I'll try next" article. The article adds to the conversation on developing a self-reflexive pedagogical praxis in information literacy instruction (Jacobs, 2008).

THE "WHY?" AND "SO WHAT?" OF SELF-REGULATED LEARNING

Self-regulated learning is a well-established concept in education, with an extensive research base (to get a sense of the research, see Zimmerman & Schunk, 2011). Decades of studies have shown its strong positive effect on student learning. Hattie (2009) has synthesized hundreds of meta-analyses of educational research in order to compare the statistical effect size of different factors related to student achievement. He has found that elements of self-regulated learning, such as metacognitive strategies, self-questioning, and study skills, show a *large* effect on learning. To put this in perspective, time on task has a *medium* effect; homework has a *small-medium* effect; problem-based learning and mentoring both have a *small* effect on student achievement.

If self-regulated learning is so important, why has the LIS literature previously paid no attention to the concept? It may be that, like faculty, we have been more focused on delivering content in our instruction. The importance of the concept was first brought to my attention at a conference of the Society for Teaching and Learning in Higher Education; the idea seemed equally new to the faculty in the room. It may be that we consider self-regulated learning to be the province of our academic success centers with their classes on topics such as study skills and procrastination. Yet self-regulated learning can be general — study skills — or domain specific (Boekaerts, 1997) — how to study for a test in a particular subject. In fact, the point of the conference session I attended (Knaack, 2014) was to give faculty tips for helping students learn how to learn in the context of the faculty members' own domain-specific classes.

Nilson (2013), referenced at the conference session, advocates for embedding learning objectives and activities related to self-regulated learning in *all* courses. She suggests the use of *wrappers* (Lovett, 2008), which she describes as

> *activities and assignments that direct students' attention to self-regulation before, during, or after regular course components. As the word suggests, they wrap around assigned readings, videos, podcasts, lectures, regular course assignments, quizzes, and exams. Their purpose if to heighten students' conscious awareness of their learning process: what they are and are not understanding or retaining, how they are or are not learning, what they are deeming important, how they are tackling and proceeding with an assignment… how much confidence they may have in their knowledge and skills, how much they may be overestimating their knowledge and skills… Wrappers not only enhance students' performance on their regular course components but also teach them how their mind works and how to make it learn and perform better. In doing so, wrappers multiply the learning value of every standard class activity and assignment. (p. 13)*

This, then, was what initially hooked me on the idea of self-regulated learning: what, I wondered, would self-regulated learning wrappers look like in the domain of information literacy instruction?

It should be noted that the LIS literature *has* focused, to some extent, on various elements of self-regulated learning, such as metacognition (Mackey & Jacobson, 2014), affect (Kuhlthau, 2004), self-efficacy beliefs (Kurbanoglu, 2003), and more. What the concept of self-regulated learning allows us to do is pull together all the different elements that put students at the center of their own learning. This in turn allows us to look at student learning differently. The LIS literature tends to emphasize the importance of learning theory, such as constructivism, for instructional literacy (Booth, 2011). The self-regulated learning literature instead tends to emphasize how learning is understood and experienced by the students themselves. For example:

- students may think of themselves

as students rather than learners (Weimer, 2012);
- most students don't think about how they learn; they may struggle to produce any insights into their own learning (Weimer, 2014);
- they may harbor misconceptions about learning:
  - they may think their ability to learn is fixed (e.g. "I suck at math"), rather than something that is mutable (Dweck, 2006)
  - they may think learning should be easy rather than something hard and effortful (Nilson, 2013)
  - they may attribute their learning, or lack of learning, to sources outside themselves (the teacher, the curriculum) rather than to their own effort (Nilson, 2013);
  - the less they know, the more confident they are likely to be in their knowledge and skills (Nilson, 2013).

We have all encountered students with these beliefs and attitudes. Luckily, teaching them strategies for metacognition and self-regulated learning makes a difference to how students see their learning and therefore how they approach learning (Lovett, 2008; Nilson, 2013). In addition to the research literature, there is a body of practice-focused but research-based literature that can provide us with teaching ideas in this area (for example, Nilson, 2013).

"Why?' and "so what?" are important questions for student understanding and learning; as Wiggins and McTighe (2005) point out, "without such explicit and transparent priorities, many students find day-to-day work confusing and frustrating" (p. 16). Clarity around these questions also helps us in designing our teaching. The *Framework* doesn't directly address these questions; rather it assumes the importance of metacognition and dispositions (and in fact the importance of information literacy) without explicitly making a case for any of these (Houtman, 2015).

Self-regulated learning may help us formulate one answer to the "why?" and "so what?" questions. Consider this statement: "The goal of learner-centered teaching is the development of students as autonomous, self-directed, and self-regulating learners" (Weimer, 2013, p. 10). *If* we accept the need to become more learner-centered, and if we accept self-regulated learning as a central goal, we might then add, "Our goal is to introduce strategies and activities into our instruction to make students more reflective, intentional, and self-aware of their learning *in the domain of information literacy*, in order to help our students develop as self-regulating learners."

This has been one of my goals for the last year, as I discuss in the next sections.

MY CONTEXT

My examples in this article come from a workshop series that I have coordinated for several years called Essential Research Skills. It consists of four 80-minute sessions, each offered several times over the year:

- Getting Started
- Finding Scholarly Sources
- Choosing the Best Sources for Your Topic
- Citing and Organizing Your Sources

The series has been developed collaboratively with other librarians over several years[1], with a genealogy that goes back to simpler how-to-search-the-database classes. In the previous two years, the collaboration also included two writing instructors. Although this year there is no formal collaboration with the writing centers, their influence can still be seen in some of the elements of the workshops. From year to year we have reassessed the entire series, adding, removing, rearranging, and refining the various elements as necessary. For example, this is the first year with a whole session devoted to evaluating sources. This is also the first year where self -regulated learning has been an explicit focus, although elements such as reflective exercises were already present.

The workshops are open registration: that is, generic classes rather than classes integrated into students' coursework. The broader context is a very large research-intensive institution with no common first year composition class where students might get information literacy instruction and with uneven integration of librarians into academic departments. For some students, then, the open registration classes are their only opportunity to experience formal library instruction. The series also allows us to provide more extensive instruction than in the too-typical one-shots that faculty request. Students sign up for individual classes. If they take all four classes (in any order at any time) *and* complete a written reflective exercise, they can get credit in the institution's Co-Curricular Record. This is the approach the institution has taken to recognize extra-curricular activities, rather than badging.

The workshops were designed with early undergraduates in mind. However I purposely did not put that information in any descriptions of the workshops since in my experience students come to writing and research — and the recognition that they need help with these — at different stages in their academic careers. Surprisingly, this year a fair number of graduate students also took the classes (possibly because the series' name attracts them more strongly than the previous year's "Core Library Skills"), in some classes outnumbering the undergraduates. This did affect the dynamic of the classes and going forward to next year we need to consider whether to establish separate workshop series for undergraduate and graduate students.

Several librarians teach these classes from a common outline; I can speak only to my own teaching experiences in this article. Each workshop consists of student reflections, exercises, small and large group discussion, and *lecturettes*, a term adopted from our Centre for Teaching Support and Innovation to remind us to keep lectures short. Because each workshop is driven by the participation, questions and interests of the students in the class that particular day — and students are *not* a homogenous group — the same workshop can be quite different each time. This means giving up some control. It can also set up a tension between wanting to follow the students' lead and wanting to cover what was promised. And

although the format typically promotes student engagement, some students resist engagement and make it clear they would prefer to sit passively while the instructor does the work.

We value this workshop series for the lively learning that generally occurs there, but also as a space to try out innovations in our teaching. The myth about innovation is that things immediately improve. The reality, as education reform expert Michael Fullan (2001) points out, is that there is inevitably an implementation dip where performance and confidence goes down — something we may all want to keep in mind as we implement the new *Framework*. These workshops allow us to try something new, reflect on what happened, and try again until we feel we're getting it right.

In the next sections I describe some of the self-regulated learning activities we've tried in these workshops.

Reflective activities embedded in the class

Student reflection is at the heart of self-regulated learning and it is threaded through these workshops. Each workshop starts with a reflective exercise in the form of a think-pair-share exercise, where students first think to themselves about a given prompt, then discuss their ideas with their neighbor(s), and then share what they choose with the class as a whole. These reflections may focus on the students' experience, or on how they go about a particular process, or on "why?" or purpose questions. These opening reflections serve several functions:

- they break the ice — students who talk to each other first are more likely to speak to the class and the instructor too;
- they set the tone and let students know what to expect (i.e. they will be asked to think and talk in the class);
- they create a buffer at the beginning of class, something students can start to work on while other students inevitably trickle in late;
- they focus the students on themselves and their own learning (The knock against generic instruction is that students will not engage because they don't understand how it is relevant to them. This makes the session immediately personal and therefore relevant to them.);
- they allow the instructor to learn something about the students in the room;
- they allow the students to hear from other students, to learn from their peers' perspectives and knowledge and questions.

The prompt for the reflection at the beginning of the Getting Started class is drawn from Project Information Literacy (Head & Eisenberg, 2010): "84% of students find getting started is the hardest part of the research process. Do you agree? Disagree? Why?" We verbally prompt the students to either think of a specific assignment or to think more generally. The students, by the way, are tickled to think that someone is researching *them*.

This exercise generally brings up the expected issues – not knowing anything about the assigned topic, how to navigate too much information, how to narrow a topic, how to know what is a "good" topic – but it allows students to articulate them for themselves. Sometimes a more general issue comes up, such as procrastination or writing with English as a second language, and we refer the student to other classes and resources on campus.

We follow this exercise with a lecturette that introduces Kuhlthau's (2004) model of the information search process (ISP). Our initial purpose with this is to address the common student misconception that the search process is a linear, "efficient" process that simply involves picking a topic, searching and finding the required number of sources, and then writing up the assignment. It is also a way to begin to introduce the perspectives in the *Framework*'s "Research as inquiry" frame (ACRL, 2015, p. 9-10), although we don't reference it in class or use its language. Drawing on the frame more explicitly is possibly something to consider going forward.

We illustrate our representation of the ISP with emoticons and we talk about the emotions, such as uncertainty or confusion, that Kuhlthau's (2004) research has found associated with the different stages of the process. In the class discussion that follows, I find that somewhat unexpectedly the ISP model serves also as a scaffold to extend the reflective discussion that began with the initial exercise. Students are now more likely to bring up their own feelings, or to highlight a specific part of the process as being particularly difficult for them, or to ask more pointed questions. The first four stages of the ISP – initiation, topic selection, exploration, and topic focus – also serve as the outline for the rest of the class, thus extending even further students' chances to reflect on the model and to test its usefulness against their own experience.

The opening reflection for the Finding Scholarly Sources class instead focuses on process. The students are asked to pick one of three possible topics. They are then given a scenario: it's 11:30 pm, their assignment outline is due the next day, and the assignment requirements include identifying three to five scholarly sources they plan to use. They are asked to keep track of the process they use to find the scholarly sources. Again, the discussion allows the students to compare their own processes with their peers.

The students continue to work on their chosen question for the rest of the workshop in small groups with others who chose the same question. At the very end they are asked to go back to the opening scenario and reflect on what they would now do differently. This exercise falls completely flat. Yes, they'll do things differently, the students assure me as they pack up to leave. I think this is a case of too much reflection, particularly since we also ask them to complete a one-minute paper at the end of each workshop. I continue to use the prompt in the hope that when the students are *actually* faced with a similar scenario, it will remind the voice in their head to ask questions about the process.

In the Choosing the Best Sources for Your Topic workshop, we start off by looking at web sources. We ask the students to do a

Google search on "tar sands" and then to be conscious of the types of sources they find, which ones they would choose to use in an assignment, and what criteria they use to make that decision. This is the initial reflective exercise that students struggle with the most; it seems to completely flummox many of them. In return, I struggle with what to do with the exercise. Part of me wonders how I can scaffold this activity to make it more effective. Part of me says it's more effective to let the students struggle, so they will better appreciate the tools we introduce in the class.

Our current purpose in this workshop is to give the students various tools and criteria from which they can develop their own list of the criteria that matter to *them* – it's not self-regulated learning if we just tell them what *should* matter. This goal cries out for a final reflective exercise, currently lacking, where the students are asked to identify their own personal top three (or so) criteria. I think this would work best anonymously, so they can be honest; I've thought of setting up an electronic poll. This again would let the students test their ideas against the ideas of their peers.

The opening reflective exercise in the Citing and Organizing Your Sources session focuses on a "why?" or purpose question: "Why is it important to cite your sources *besides* because it's required?" In this case the students can test their answers against the expert ideas of 20 faculty members who were asked the same question. The students do quite well on this particular purpose question, but this isn't true of all such questions. In the Getting Started class, we provide two sample assignments for discussion and the students often have trouble decoding the professors' language in order to understand the purpose of the assignment. To help them, we provide a handout from the Writing Centres that decodes terms such as "evaluate," "compare" or "analyze," and urge them to ask questions in class when they don't understand, which they're usually reluctant to do. Students also often struggle with questions of broader purpose, such as "why write? (besides because it's required)." Some students seem to be unaware of such overarching goals for higher education as critical thinking.

Reflective activities as assessment

We also use reflective activities for written formative and summative assessment. At the end of each workshop we ask students to complete an anonymous one-minute paper with two questions:

1. What did you find useful about today's session?
2. What would you still like to know more about?

We also leave room for comments. These questions are generic, and as noted above, it might be more interesting and useful to ask questions specific to the individual workshops.

Once the students have completed all four workshops, they need to complete a longer reflective exercise to get credit in the Co-Curricular Record. The first year we became part of this program, I scrambled to find a model to adapt. I settled on a modified version of Dietz-Uhler and Lanter's (2009) four-questions technique:

1. Identify one important concept, idea or skill that you learned while completing the Essential Research Skills workshops.
2. Why do you believe that this concept, idea or skill is important?
3. Apply what you have learned from these workshops to some aspect of your life.
4. What question(s) has the workshops raised for you? What are you still wondering about? (You can't say "nothing"!)

The underlying logic to these questions is What? - So what? - Now what? (Kolb, 1984) — questions that can be helpful in generating many other prompts.

This final exercise allows the students to reflect after the fact on what they have learned. Some students write long, thoughtful responses, others do the minimum. I have thought about instituting a minimum word count — Dietz-Uhler and Lanter (2009) specify 100 words — but this would then require me to police it, something I'm not eager to do. This final exercise also allows us to learn more about our students and what they learn in our workshops, though I actually usually find students' in-class questions and discussions more revealing.

TOOLS FOR THINKING AND LEARNING

We introduce a number of different tools in these workshops. These include concept maps, which surprisingly few students have used before; Bizup's (2008) BEAM, which no one, including myself, has used before (I heard about BEAM in a Tweet about a conference session that has now been turned into an article; Rubick, 2015); and citation counts in Google Scholar, also new to most students. The goal with these tools is to give students structures and ways of thinking that can be helpful to their learning. We use concept maps in the workshops to help students begin to map out an unfamiliar topic, and then narrow in on one aspect of it. BEAM provides a way of evaluating possible sources by keeping in mind their function in the writing: B is for background; E is for exhibit or evidence; A is for argument; and M is for method, including methodological theory. Gauging academic importance by citation counts lets students, who may initially know little about a particular subject, still distinguish who are the Big Names they should pay attention to.

One tool that is less successful in these workshops is the well-known CRAAP test for systematically evaluating web sources. The *way* it does not work provides insight into how students are thinking about the issue. CRAAP of course stands for Currency – Relevance – Accuracy – Authority – Purpose, which serves as a checklist for evaluation. We introduce CRAAP as part of our focus on various evaluation criteria. After we introduce the tool, we ask students to evaluate one of two assigned tar sands-related websites and determine whether they would use it in an assignment. Despite using CRAAP, students have trouble in making that determination; CRAAP doesn't seem to help them in any meaningful way. For example, despite my strong hints, students typically don't think to Google the organization that creates the site when thinking about authority, although this would give them useful information

(e.g. affiliations, funding) that could inform their evaluation. Once I open the discussion up to questions they quickly lose interest in CRAAP.

What students ask about instead are specific websites or types of sites and whether they can use them in their assignments. They appear to want a simple, clear-cut, yes-or-no answer from me as the expert. I see this desire for a clear-cut answer also when we do the BEAM exercise, in which we look at the function of different citations in a scholarly article. The students seem disproportionately distressed when my reading of a citation – my "answer" -- is different than theirs.

Instead of giving yes-or-no answers I open up a discussion of how the use of sources is dependent on context. The idea of context engages and challenges the students in a way that CRAAP does not; for example, student questions about context become threaded through the rest of the session. This tells me that the Choosing Sources workshop may need a deeper rethink. Context might be the starting point, I think now, rather than a range of criteria. It's also clear that students struggle with evaluating authority and purpose and need more support, structure, and, in fact, direction in these key areas. These issues of course connect directly to the *Framework*'s "Information Creation as a Process" and "Authority is Constructed and Contextual" (ACRL, 2015); I would like to draw more explicitly on these frames going forward. It seems that the Framework is a more useful "tool" for thinking and learning – and creating self-regulated learners -- than CRAAP.

CONCLUSION

Reflecting on these self-regulated learning activities through the writing of this article has given me a space to think closely not just about the activities — about what is working, what is not, and what I could improve — but also about what I am trying to accomplish in my teaching. A recurrent theme has been the need to be as clear as possible about this in my own thinking, and then to be more explicit about the "so what?" of each concept and activity I introduce so students can better understand the connection to their learning. This leads to questions of how to more broadly frame the "so what?" of self-regulated learning. Nilson (2013) recommends that academic courses include self-regulating learning objectives as well as disciplinary objectives, and that faculty explain from the beginning how learning how to learn will benefit the students. Should we be open with the students about our self-regulated learning objectives for the workshops? Should we explicitly discuss the benefits of learning how to learn in all our information literacy instruction? I wonder how students would respond. Is this a way to frame information literacy instruction to faculty? I wonder how *they* would respond.

Weimer (2013) describes her transformation to learner-centered teacher: "I began to see course content in a different light. It moved from being the end to being the means. It went from being something I covered to something I used to develop learning skills and an awareness of learning processes (p. 8)." As a teacher I still find myself caught somewhere between content-centered and learner-centered, but my thinking is shifting. I started by seeing self-regulated learning

activities as wrappers around my content; I now see them as central to my teaching and to students' learning.

Not everything I have tried using a self-regulated learning focus has worked. Not all students respond well to this approach. On the other hand, I received possibly my favorite comment ever on my teaching, from a student who took the whole workshop series with me: she told me it was "mind-blowing"[2].

NOTES

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2. Comment used with permission.

REFERENCES

Association of College and Research Libraries. (2015). *Framework for information literacy for higher education*. Retrieved from http://acrl.ala.org/ilstandards/wp-content/uploads/2015/01/Framework-MW15-Board-Docs.pdf

Bizup, J. (2008). BEAM: A rhetorical vocabulary for teaching research-based writing. *Rhetoric Review*, *27*(1), 72–86. doi:10.1080/07350190701738858

Boekaerts, M. (1997). Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers, and students. *Learning and Instruction*, *7*, 161–186. doi:10.1016/S0959-4752(96)00015-1

Booth, C. (2011). *Reflective teaching, effective learning: Instructional literacy for library educators*. Chicago, IL: American Library Association.

Dietz-Uhler, B., & Lanter, J. R. (2009). Using the four-questions technique to enhance learning. *Teaching of Psychology*, *36*(1), 38–41. doi:10.1080/00986280802529327

Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York, NY: Random House.

Fullan, M. (2001). *Leading in a culture of change*. San Francisco, CA: Jossey-Bass.

Hattie, J. A. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London, UK: Routledge.

Head, A. J., & Eisenberg, M. (2010). Truth be told: How college students evaluate and use information in the digital age. *Project Information Literacy*. Retrieved from http://projectinfolit.org/images/pdfs/pil_fall2010_survey_fullreport1.pdf

Houtman, E. (2015, March 16). Teaching with big ideas: How a late addition to the ACRL Framework might make us rethink threshold concepts [blog post]. *ACRLog*. Retrieved from http://acrlog.org/2015/03/16/teaching-with-big-ideas-how-a-late-addition-to-the-acrl-framework-might-make-us-rethink-threshold-concepts/

Jacobs, H. L. M. (2008). Information literacy and reflective pedagogical praxis.

The Journal of Academic Librarianship, *34* (3), 256–262. doi:10.1016/j.acalib.2008.03.009

Knaack, L. (2014, June). *Learning to think, learning to learn: Metacognitive teaching and learning strategies for faculty*. Abstract of presentation at *Transforming our learning experiences,* the annual conference of the Society for Teaching and Learning in Higher Education, Kingston, ON. Retrieved from http://www.queensu.ca/stlhe2014/sites/webpublish.queensu.ca.stlhewww/files/files/Program PDFs/STLHE COMPLETE PROGRAM FINAL-concurrent sessions.pdf

Kolb, D. (1984). *Experiential learning*. Englewood Cliffs, NJ: Prentice Hall.

Kuhlthau, C. C. (2004). *Seeking meaning: A process approach to library and information services* (2nd ed.). Westport, CT: Libraries Unlimited.

Kurbanoglu, S. S. (2003). Self-efficacy: A concept closely linked to information literacy and lifelong learning. *Journal of Documentation*, *59*(6), 635–646. doi:10.1108/00220410310506295

Lovett, M. C. (2008, January). *Teaching metacognition*. Presented at the annual meeting of the Educause Learning Initiative, San Antonio, TX. Retrieved from https://net.educause.edu/ir/library/pdf/ELI08104.pdf

Mackey, T. P., & Jacobson, T. E. (2014). *Metaliteracy: Reinventing information literacy to empower learners*. Chicago, IL: Neal-Schuman.

Nilson, L. B. (2013). *Creating self-regulated learners: Strategies to strengthen students' self-awareness and learning skills*. Sterling, VA: Stylus.

Nilson, L. B. (2014, June 16). The secret of self-regulated learning [blog post]. *Faculty Focus*. Retrieved from http://www.facultyfocus.com/articles/teaching-and-learning/secret-self-regulated-learning/

Rubick, K. (2015). Flashlight: Using Bizup's BEAM to illuminate the rhetoric of research. *Reference Services Review*, *43*(1), 98–111. doi:10.1108/RSR-10-2014-0047

Weimer, M. (2012, October 31). Teaching metacognition to improve student learning [blog post]. *Faculty Focus*. Retrieved from http://www.facultyfocus.com/articles/teaching-professor-blog/teaching-metacognition-to-improve-student-learning/

Weimer, M. (2013). *Learner-centered teaching: Five key changes to practice* (2nd ed.). San Francisco, CA: Jossey-Bass.

Weimer, M. (2014, November 12). Prompts to help students reflect on how they approach learning [blog post]. *Faculty Focus*. Retrieved from http://www.facultyfocus.com/articles/teaching-professor-blog/prompts-help-students-reflect-approach-learning/

Wiggins, G., & McTighe, J. (2005). *Understanding by design* (2nd expanded ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Wilson, V. (2013). Formalized curiosity: Reflecting on the librarian practitioner-researcher. *Evidence Based Library and Information Practice*, *8*(1), 111–117.

Retrieved from http://wigan-ojs.library.ualberta.ca/index.php/EBLIP/article/view/18901/14834

Zimmerman, B. J., & Schunk, D. H. (Eds.). (2011). *Handbook of self-regulation of learning and performance*. New York, NY: Routledge.