# Mississippi University for Women
# Quality Enhancement Plan
# *Cultivating Intellectual Curiosity*

## Brief Synopsis

The MUW (Quality Enhancement Plan) QEP is entitled "Cultivating Intellectual Curiosity" and, broadly speaking, it aims to "create a culture of intellectual engagement on campus." The goals of the QEP are to help students to understand how they learn, to promote active learning, and to support students as they pursue their intellectual interests both in and out of the classroom. By encouraging student engagement and active learning, we encourage the development of self-motivated learners—students who produce knowledge as opposed to passively consume it. Students will "take ownership of their own learning" by mastering the necessary skills, processes, and tools needed to articulate and develop research questions, figure out how to approach the problem, do the research, and discover and report the answer, whether individually or as a group. Through the QEP we will prioritize "academic curiosity" and training in the skills necessary to pursue those interests, creating a culture of intellectual engagement in the process.

## Introduction

*If curiosity killed the cat, it was satisfaction that brought it back.*

-Holly Black (2004)

The MUW QEP was inspired by *Academically Adrift* (Arum & Roska, 2011), a recent well documented publication, which suggests that a significant proportion of college students demonstrate little improvement in academic skills as a result of their college experience. These authors state that higher education has drifted away from developing higher order thinking skills to a pervasiveness of "credentialing." Their theory is that with most students, the objective is to simply obtain a degree as opposed to improving critical academic skills like analytical reasoning, effective written and oral communication, and critical thinking. The MUW QEP proposes that our students can become more "academically anchored" by enhancing their intellectual curiosity and encouraging the exploratory behavior, intellectual engagement, and pursuit of knowledge known to be characteristics of intellectually curious individuals.

Intellectual curiosity has been classified as one of three pillars of academic performance. It, along with IQ and conscientiousness (i.e., hard work, organization, etc.), is believed to be a good predictor of students who succeed in college (von Stumm, Hell, & Chamorro-Premuzic, 2011). Curiosity is generally characterized as the need for attaining new knowledge or new sensory experiences that result in exploratory behavior (James, 1890; Berlyne D. , 1950; Loewenstein, 1994). It is believed to be an innate characteristic in most humans. Byrlne (1954) further differentiated between types of curiosity and defined them as *perpetual* and *epistemic*. Perpetual curiosity is "the curiosity that leads to increased perception of stimuli." It is typically stimulated in humans by tactile, auditory, or visual awareness. Epistemic curiosity is defined as the "drive to know." This is demonstrated by actively participating in behaviors that require intellectual

engagement, acquisition of information, and the pursuit of knowledge. Epistemic curiosity is very similar conceptually to intellectual curiosity in that they share trait constructs that "describe tendencies to seek out, engage in, enjoy, and pursue opportunities for effortful cognitive activity" (von Stumm, Hell, & Chamorro-Premuzic, 2011).

Research in this area has included factors that may enhance intellectual curiosity in an academic setting. These factors include a strong need for competence or improved understanding of something. In this form, there is a sense of knowledge deprivation that the individual believes must be addressed; that is, an information gap between "what one knows and what one needs to know" (Litman & Jimerson, 2004). A different view of curiosity was presented by Silvia (2005) who suggests that heightened curiosity may not be due to a lack of knowledge but occurs from enjoyment associated with simply experiencing something novel. This occurs when there is a "take it or leave it' attitude for new information. Additionally, Kashdan & Yuen (2007) observed that intellectual curiosity is enhanced in a supportive learning environment. This includes a challenging curriculum, support from teaching faculty, and a general sense of happiness among students. Researchers in the area have indicated that curiosity can also be suppressed. Environments or situations which generate states of uncertainty, unfamiliarity, or high anxiety contribute to the suppression of curiosity (Byrlne, 1954; Loewenstein, 1994). This observation is consistent with evidence that curiosity in college students is diminished in unsupportive or threatening environments (Peters, 1978). Enhancing factors that stimulate curiosity and reducing factors associated with psychological stress (e.g., high anxiety unfamiliarity, uncertainty) in the academic setting will greatly improve intellectual stimulation.

Perhaps the greatest change in the learning environment over the last decade has been the infusion of technology. The "technology-pervasive learning environment" could greatly increase curiosity in students who are prepared and able to navigate the resources and tools that are immediately available to them (Arnone, Small, & Chauncy, 2011). These authors believe that chat rooms, group gaming, social networks and virtual worlds may create opportunities for "collaborative curiosity" which could positively affect individual intellectual curiosity. Although many students come to college after living completely in the digital age, others lack the skills to access, analyze, and interpret the massive amounts of information available to them. As indicated earlier, students must feel competent and familiar with managing information or curiosity may be suppressed.

Enhancing intellectual curiosity in college students cannot easily occur without considering related constructs such as interest and engagement (Arnone, Small, & Chauncy, 2011). Curiosity, interest, and engagement are inter-related with one affecting the others. In some instances curiosity serves as the trigger for interest and engagement. In others, interest or engagement provides the impetus that leads to curiosity. Regardless of the initial stimulus, all components should be addressed in an attempt to improve student learning.

**Learning Modalities**

*We won't meet the needs for more and better higher education until professors become designers of learning experiences and not teachers.*

-Larry Spence (2001)

"Curiosity typically develops under conditions of novelty and challenge" (von Stumm S. , personal communication, 2013). Additionally, curiosity can be magnified when students have an optimal amount of freedom in their study and where appropriate amounts of uncertainty, complexity and conflict may exist (Berlyne, 1960). Teaching and learning designs that have the greatest chance of stimulating intellectual curiosity are those that encourage active pursuit of varied sources of challenge and novelty and include learning activities that require specific in-depth engagement.

Although there are many methods and frameworks of teaching and learning that acknowledge intellectual curiosity as an important component, four have been identified initially as potentially effective in enhancing curiosity in college students. Those are Inquiry-Based Learning, the Rigor/Relevance Framework, Personal Learning Networks and Cyberlearning. These pedagogical techniques include many of the characteristics believed to enhance intellectual curiosity, in that they actively engage the learner to freely pursue his/her interest by exploring and managing information from a variety of sources.

Inquiry-Based learning (IBL) IBL is a well researched method of teaching and learning that is designed to enhance student questions, research skills, self-reflection, and comprehension. It is employed based on the assumption that all disciplines have specific methods and strategies for gathering information. IBL is successful in an environment where inquiry is the dominant focus and learners are actively engaged in their learning as they develop solutions to problems presented. This technique gives a sense of ownership to the learner and encourages knowledge and skill development that can be readily transferred beyond the academic setting (Hung, 2002).

Rigor and Relevance – The Rigor/Relevance Framework is designed to examine curriculum, instruction, and assessment based on two continuums of learning. The first is a knowledge continuum associated with Bloom's Taxonomy that describes, in six levels, the increasing complex ways in which we think. The second continuum is referred to as the Application Model and consists of five action-oriented levels: 1) knowledge in one discipline, 2) application in one discipline, 3) application across disciplines, 4) application to real-world predictable situations, 5) application to real-world unpredictable situations (Jones, 2010). In this model, "relevance" maintains student interest and "rigor" ensures a challenging experience.

Personal Learning Networks (PLN) - This concept of education is based on the learning theory of "connectivism," which suggests that knowledge exists in systems that are accessed through people with common interests. In supporting and facilitating connections between people, ideas, and resources, PLNs create a learning rich environment that fosters and enhances student curiosity about a particular interest. By design, PLNs provide the learner with more

independence and more responsibility (Attwell, 2007). With guidance from faculty, students develop connections to people and resources, online and offline that will enhance their learning.

Cyberlearning – The National Science Foundation (NSF) Taskforce on Cyberlearning defined cyberlearning as "learning that is mediated by network computing and communications technologies." This group developed recommendations primarily focusing on the STEM disciplines but also included the social and behavioral sciences. The recommendations considered how people learn today and how they will learn in the future. Learning is and will be affected by a "cluster of interacting factors" that has resulted in unprecedented access to information. Among these include numerous open education resources, collaboration opportunities between research laboratories, business, and education, and the ubiquitous nature of devices which have created a new participatory internet culture (Borgman, 2008).

The Center for Teacher and Learning (CTL) will be charged with identifying (or developing) and implementing the teaching strategies (i.e., pedagogical methods and curriculum improvements) believed to positively affect intellectual curiosity in MUW students. This will be achieved by providing ongoing faculty/staff development opportunities. At this time, the pedagogical methods and framework described above appear to be appropriate for enhancing intellectual curiosity; however further research may reveal more or different strategies that could be equally or more effective. Any initiatives implemented should be assessed based on faculty and student response to the effectiveness of the strategy. Information regarding effective strategies should be disseminated across campus. Faculty who are willing to implement effective modalities should be provided with the incentives and resources to do so effectively.

**Assessment Process**

The MUW QEP proposes to create a culture of intellectual curiosity that will improve student learning. This will be reflected by measured increases in academic performance and student engagement. Specifically, the MUW QEP will improve higher order thinking skills including critical thinking, analytical reasoning, analytical writing, and problem solving Academic performance and engagement will be enhanced by MUW faculty implementing pedagogical methodologies, enhancing curriculum, and creating an environment in and out of the classroom that will stimulate growth in curiosity in MUW students (see attached diagram).

Academic performance (i.e., critical thinking, analytical reasoning and problem solving will be assessed by the College Learning Assessment plus (CLA+) (CAE, 2013). The CLA+ retains the Performance Task component of the original CLA but includes a Selected Response section where questions are directly related to the performance task. Subscores of the Performance Task (i.e., analysis and problem solving, writing effectiveness, writing mechanics) and the Selected Response section (i.e., scientific/quantitative reasoning, critical reading and evaluation and critique an argument) are provided at both the University and student levels. Additionally, "value-added" results are provided when freshmen and seniors are assessed. This score reflects differences in higher order thinking between freshmen and seniors by determining whether seniors meet, exceed, or fall below expectations.

The CLA was administered in 2009 to 34 seniors and approximately 56 freshmen. Results were provided as value-added for all students and unadjusted performance scores for seniors and freshmen. Subscores of Performance Task and Analytical Writing Task (including subscores on Make-an-Argument and Critique and Argument are presented in Table 2.

The CLA+ will cost approximately $3,500 per administration for 100 students per administration. Approximately $2,500 will be needed for incentives to take the CLA+. Administration of the CLA+ will follow the recommendations provide by CLA on their website (CAE, 2013).

*Objectives: As a result of implementing "Cultivating Intellectual Curiosity," MUW students will remain at or above the 90th percentile rank for all Value-Added subscores of Performance Task and Selected Response; and remain at or above the 70th percentile rank for all senior subscores of Performance Task & Selected Response; and remain at or above the 30th percentile rank for all freshmen subscores of Performance Task & Selected Response. These objectives may be modified after the initial CLA+ administration.*

Intellectual Curiosity will be assessed by the Need for Cognition Scale (NCS). This instrument quantitatively measures "the tendency for an individual to engage in and enjoy thinking" (Cacioppo & Petty, 1982). Need for cognition is an investment trait construct that describes the tendency for individuals to "seek out, engage in, enjoy, and pursue" opportunities for intellectual curiosity (von Stumm, Hell, & Chamorro-Premuzic, 2011). The NCS consists of 18 items that assess satisfaction realized from thinking. It has been utilized to examine the relationship between college students' academic performance and their need for cognition (Appendix A). Numerous studies have used the NCS including the Wabash National Study of Liberal Arts Education which found that liberal arts experiences had a positive effect on "inclination to inquire and lifelong learning" as measured by the NCS (Seifert, et al., 2008), This instrument is freely available and correlates highly with other established instruments used to assess intellectual engagement (Center of Inquiry, 2013). The NCS will be administered conciminately with the CLA+.

*Objective: To establish the relationship between Intellectual Curiosity (i.e., need for cognition) and academic performance measured by the CLA+. The NCS will be administered to the same students and at the same time as the CLA+. Results will be correlated to observe direction and strength of the relationship.*

Intellectual curiosity is influenced by other constructs including interest and engagement (Arnone, Small, & Chauncy, 2011). An effort to improve curiosity in college students should include initiatives to enhance student engagement. Student engagement will be monitored with the National Survey of Student Engagement (NSSE). Although this instrument includes components that assess engagement in non-academic settings, such as involvement in student government and social clubs, recent revisions have included sections that assess "deep approaches to learning" (NSSE, 2012). "High-impact" learning activities such as conducting research with faculty or participating in a service learning project are examples of this type of quality student learning. The NSSE will cost approximately $3,500 per administration, which

will involve emailing the survey to all freshmen and seniors. NSSE administration will occur in the spring of 2013 and spring of 2015.

In 2009, the NSSE was administered to MUW first-year and senior students. The results were compiled and categorized in five different areas associated with student engagement. MUW results were compared with other southeast, public institutions, other institutions in MUWs Carnegie class and peer's identified by MUW. The results are presented in Table 1.

*Objective: As a result of implementing "Cultivating Intellectual Curiosity," all five NSSE benchmark variables will increase significantly ($p < 0.05$) between 2013 and 2015. Analysis will use the recommended cohort comparison approach (NSSE, 2013), where first-year students in 2013 will be compared to first-year students in 2015 and seniors in 2013 will be compared to seniors in 2015.*

**Curriculum Initiatives**

The primary curriculum change designed to enhance intellectual curiosity in freshmen will be to expand and enhance UN 101 Freshmen Seminar. This could include more reading-and writing intensive activities that are generated from student and faculty interests. Activities that encourage academic skills and exploratory behavior could be the focal point of a revised UN 101. Small colleges that have demonstrated success with this approach are Eureka College in Illinois and Hope College in Michigan. Both institutions, in their freshman experiences classes, use a topics-centered approach to encourage intellectual engagement, acquisition of information, and the pursuit of knowledge. Structuring UN 101 around student interest, as opposed to major, could create an environment that would increase student initiative and remove barriers to exploratory behavior.

Any curriculum modification designed to positively affect MUW students must consider the significant proportion of students that transfer after the freshman year and therefore do not participate in UN 101. Increasing curiosity in these students can be achieved by infusing intellectually engaging activities across program curricula. For instance, Gillen (2006) propose that teaching college students to critically analyze primary research is necessary to effectively engage students in the sciences. Instilling exploratory behavior that would encourage students to successfully seek out primary and other sources would transform students from passive recipients of information to active explorers of knowledge. Additionally, most degree programs include an introductory or foundations course. Courses of this nature typically include career exploration within the field of study. Student interest could drive activities in exploring opportunities that will be available as a result of obtaining the degree.

Additionally, MUW faculty members will be encouraged to develop and implement activities that will cultivate exploratory behaviors in their students. Departments or programs should complete curriculum mapping activities to determine where exploratory activities are being used effectively. This should be facilitated by the CTL. Faculty should be provided with incentives and resources necessary to implement curriculum changes that will enhance *Cultivating Intellectual Curiosity*. Information about effective activities should be disseminated across campus.

**Environmental Factors**

No less important than these pedagogical elements, however, is transforming the campus culture. It is essential to take intellectual activity out of the classroom and make it a visible part of campus life. Many of these changes could be accomplished with minimal cost; for example, a few cafeteria tables could be set apart for students enrolled in foreign language classes who would like to practice conversation. Other departments could follow the Art and Design Department's lead in showcasing student research and creative work in public spaces across campus; Honors research students could be encouraged to present their work in relevant general education classes; the campus website could be used to highlight student research. Other examples include placing quiet study lounges and computer clusters across campus. In particular, the Student Union is an under-utilized space that might serve as a location for a commuter student lounge with quiet study spaces, computers, and access to tutors and other academic resources. Our population of commuter students is large, and it is often difficult to reach them through traditional channels. Funds could be made available for faculty to share meals with a class or travel with students to cultural events, as these opportunities foster informal connections and intellectual conversations that deepen students' engagement with their academic life .Ideally, students should be exposed to a variety of models that show what academic curiosity and passion look like, both through contact with peers and with faculty.

Additionally, the MUW Department of Public Affairs will develop a campus awareness campaign that will target all campus groups, with an emphasis on students. This could include development of a character or visual that will represent *Cultivating Intellectual Curiosity* which will be displayed across campus.

**Common Themes from the Faculty Feedback Sessions**

**Changing UN 101 to be less of a "check-off" class and to focus more on academic topics.** This came up in all but one of the faculty sessions, as well as some of the responses from freshmen enrolled in English 101. In at least two of the faculty sessions, people also brought up the possibility of creating an equivalent course at the 200 or 300 level for transfer students. The most detailed discussion of UN 101 came from the Humanities faculty, who suggested changing it to a multi-credit freshman seminar structured around a specific topic. This is one of the models we considered in our original proposal; institutions with similar programs include Hope College and Millsaps College. (**Note:** This possibility has also been discussed in Academic Advising Committee meetings, and there seems to be broad support for it there as well.)

**Supporting opportunities for students to engage in hands-on learning and learning outside of a formal classroom setting.** In some way, this topic was mentioned in every faculty session. Consistently, the faculty cited travel, work in the community, and hands-on activities as some of the practices most likely to engage students. Specific suggestions varied by department; they included opportunities to engage in archival work and the collection of oral histories; travel to the state capitol when the legislature is in session; travel to conferences; work in a laboratory or clinical setting; and field trips to sites relevant to course work. Opportunities for informal

interaction between faculty and students were also mentioned in several faculty sessions (and by freshmen).

**Undergraduate research.** This is closely linked to the previous point; humanities, business and professional studies, and math / science faculty all mentioned the need to support and showcase student research. One suggestion from the business and professional studies session was holding an internal undergraduate research conference or event. Another frequent common thread was making faculty research more visible, perhaps through presentations on campus.

**Interdisciplinarity.** Both the humanities and math / science faculty mentioned that students needed more opportunities to interact with material outside of their majors and draw connections between disciplines. One math / science faculty member specifically mentioned adding a writing assignment to a lab course. (**Notes:** an enhanced freshman seminar program could have an explicitly interdisciplinary focus; support for writing-across-the-curriculum projects could also be a good way to start meeting the *Academically Adrift* benchmarks for a reading- and writing-intensive education.)

**Technology, tech support, and infrastructure.** A persistent, repeated theme that came up in all of the faculty sessions was the need for better classroom technology, Blackboard training and support, and tutorials accessible to online students. (**Note:** learning technology support could prove to be one of the most important functions of the new CTL!)

**Physical spaces.** Both the business and the math / science faculty cited the lack of a central space for students (and faculty) to gather as a major barrier to student engagement. There was a suggestion that student services should be housed in a centralized learning commons, but even more importantly, faculty highlighted the lack of campus life and social activities that might tempt students to hang around in the evenings and get to know their classmates. (**Note:** This will probably require a broad change in campus culture, and may be the most difficult of the proposed changes to effect from the top down, but I think it is worth a try. Significantly, in both the humanities and science / math sessions, faculty spoke of academic curiosity as essentially a matter of *acculturation*, something that students need to see modeled by their peers if they're not getting those models at home.)

**Five-Year Plan**
**Year One (2012 -2013):**

- Conduct feedback sessions about *Cultivating Intellectual Curiosity* with each College; compile and review the results.
- Review SMART Plans for relevant information.
- Develop specific objectives for *Cultivating Intellectual Curiosity.*
- Develop implementation plan for Center for Teaching & Learning.
- Apply for grants to support a Center for Teaching and Learning.
- Review the first-year experience at MUW and explore ways to structure a freshman seminar that will support *Cultivating Intellectual Curiosity.*
- Beginning planning an internal marketing campaign to promote Cultivating Intellectual Curiosity.
- Purchase copies of *Academically Adrift* and begin a faculty common reading program.

- Administer baseline NSSE assessment to measure students' engagement with a particular interest on the items that address deep approaches to learning.
- Research and identify pedagogical techniques that will support Cultivating *Intellectual Curiosity.*
- Investigate resources that will be useful to faculty in implementing *Cultivating Intellectual Curiosity.*

**Year Two (2013-2014):**

- Administer baseline CLA+ and Need for Cognition Scale as baseline assessments.
- Implement Center for Teaching Learning to begin operation
    - Identify "experts" in who can provide support for implementation of *Cultivating Intellectual Curiosity.*
    - Obtain or develop materials and resources that will support implementation of *Cultivating Intellectual Curiosity*
    - Schedule faculty development activities that will support *Cultivating Intellectual Curiosity*
    - Create an online database of resources for faculty (lesson plans, best practices).
    - Develop Blackboard course to house resources identified as useful to faculty.
- Begin incorporating some of these ideas into UN 101.
- Establish a commuter / transfer student lounge and quiet study spaces in the residence halls.
- Identify CRI reading that will support *Cultivating Intellectual Curiosity* for the 2014-2015 year.
- Review SMART plans for relevant information. Use SMART assessment data to make revisions to departmental curricula where appropriate.
- Showcase scholarly and artistic work including honors college student works.

**Year Three (2014-2015):**

- Administer NSSE for comparison to year one.
- Implement fully redesigned UN 101 transfer to CTL
- Implement CRI related to the QEP.
- Implement all curricular support for *Cultivating Intellectual Curiosity*
- Continue offering faculty development programs through the CTL.
- Review SMART plans for relevant information. Use SMART assessment data to make revisions to departmental curricula where appropriate.

**Year Four (2015-2016):**

- Administer CLA+ and Need for Cognition Scale for comparison to year two.
- Begin offering freshman seminars to all first-year students.
- Encourage faculty who have developed pedagogical techniques that are effective in enhance intellectual curiosity to offer workshops through the CTL.
- Use SMART assessment data to make revisions to departmental curricula where appropriate.

**Year Five (2016-2017):**

- Use all information to improve student learning at MUW.
- CTL will be fully functional, and will offer support for cross-disciplinary courses as well as those housed in individual departments.
- Tutors will be available in dorms.
- Computers, rooms for quiet study, and commuter lounge will be available across campus.
- Freshman seminar program will be in place and will promote reading, writing, and active, student-directed learning.
- Funding should be in place to encourage cultural and intellectual outreach on campus and to foster informal exchanges between students and faculty

**Table 1**
**2009 MUW CLA Selected Results**

| | Value-Added Score | Value-Added %tile Rank | Seniors Mean Score | Seniors Mean Score %tile Rank | Freshmen Mean Score | Freshmen Mean Score %tile Rank |
|---|---|---|---|---|---|---|
| Total CLA | 1.09 | 87 | 1223 | 63 | 1038 | 26 |
| Performance Task* | 1.09 | 90 | 1172 | 58 | 996 | 18 |
| Analytical Writing Task | 0.87 | 83 | 1280 | 68 | 1084 | 39 |
| Make-an Argument | 1.09 | 88 | 1277 | 72 | 1071 | 34 |
| Critique an Argument | 0.58 | 70 | 1284 | 66 | 1090 | 47 |
| EAA | | | 1084 | 58 | 1005 | 35 |

**Table 2**
**2009 MUW NSSE Mean Comparisons**

| | | **MUW** | **Southeast Public** | | **Carnegie Class** | | **Selected Peers** | |
|---|---|---|---|---|---|---|---|---|
| | *Class* | *Mean* [a] | *Mean* [a] | *Effect Size* [c] | *Mean* [a] | *Effect Size* [c] | *Mean* [a] | *Effect Size* [c] |
| Level of Academic Challenge (LAC) | First-Year | 51.3 | 52.4 | -.08 | 53.8 | -.18 | 51.5 | -.02 |
| | Senior | 60.4 | 56.1** | .30 | 57.7 | 19 | 56.5* | .27 |
| Active and Collaborative Learning (ACL) | First-Year | 40.7 | 43.0 | -.14 | 45.1* | -.26 | 44.7 | -.23 |
| | Senior | 52.0 | 51.1 | .05 | 53.8 | -.11 | 53.5 | -.08 |
| Student Faculty Interaction (SFI) | First-Year | 35.0 | 35.5 | -.03 | 36.6 | -.08 | 37.9 | -.15 |
| | Senior | 45.2 | 42.9 | .11 | 45.3 | -.01 | 44.4 | .04 |
| Enriching Edu. Experience (EEE) | First-Year | 27.3 | 28.1 | -.06 | 27.3 | .00 | 26.8 | .04 |
| | Senior | 42.0 | 40.0 | .11 | 41.1 | .05 | 37.5* | .25 |
| Supportive Campus Environment (SCE) | First-Year | 60.6 | 61.1 | -.03 | 63.8 | -.17 | 62.3 | -.09 |
| | Senior | 62.7 | 58.0* | .24 | 62.9 | -.01 | 61.3 | .07 |

[a] Weighted by gender, enrollment status, and institutional size.
[b] * p<.05 ** p<.01 ***p<.001 (2-tailed).
[c] Mean difference divided by the pooled standard deviation.

*Note: The CLA+ Performance Task subscores now include "analysis & problem solving, writing effectiveness, and writing mechanics." Additionally the new Selected Response section includes subscores in "scientific/quantitative reasoning, critical reading and evaluation, critique an argument."

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## Appendix A
## The Need for Cognition Scale
## Items

1. I would prefer complex to simple problems.
2. I like to have the responsibility of handling a situation that requires a lot of thinking.
3. Thinking is not my idea of fun.*
4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.*
5. I try to anticipate and avoid situations where there is likely a chance I will have to think in depth about something.*
6. I find satisfaction in deliberating hard and for long hours.
7. I only think as hard as I have to.*
8. I prefer to think about small, daily projects to long-term ones.*
9. I like tasks that require little thought once I've learned them.*
10. The idea of relying on thought to make my way to the top appeals to me.
11. I really enjoy a task that involves coming up with new solutions to problems.
12. Learning new ways to think doesn't excite me very much.*
13. I prefer my life to be filled with puzzles that I must solve.
14. The notion of thinking abstractly is appealing to me.
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.*
17. It's enough for me that something gets the job done; I don't care how or why it works.*
18. I usually end up deliberating about issues even when they do not affect me personally.

* Items are reversed scored.

The scale asks participants to describe the extent to which they agree with each statement using a 9-point scale with the following values:

+4 = very strong agreement
+3 = strong agreement
+2 = moderate agreement
+1 = slight agreement
0 = neither agreement nor disagreement
-1 = slight disagreement
-2 = moderate disagreement
-3 = strong disagreement
-4 = very strong disagreement

The Wabash National Study used a shorter 5-point scale. The scale included the following choices: extremely characteristic, somewhat characteristic, uncertain, somewhat uncharacteristic, and extremely uncharacteristic (Center of Inquiry, 2013).