

Read First

Explanation of Metacognitive Instruments for Helping Students Become More Effective Learners

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In this Google Collection, I have assembled the complete set of instruments that I have developed and continue to test with colleagues. These instruments are based on the *Transtheoretical Model of Change* (TTM) as described by Prochaska and DiClemente. This model describes three inter-related concepts: Readiness to Change (the degree to which the person is ready to adopt new behaviors and to make genuine changes in his/her life), Self-Efficacy (the set of beliefs of the person about their *ability* or *capacity* to make a change) and Decisional Balance (the person's own assessment of the benefits and costs of making a change -- whether they feel inclined to approach or avoid the change). All three of these constructs are useful in understanding student behavior and motivation in classes and their reactions to active learning assignments and courses. I also have a set of instruments for faculty readiness to change.

A good introductory article to the TTM can be found here:

Prochaska, J.O. & Prochaska, J.M. (1999). Why Don't Continents Move? Why Don't People Change? *Journal of Psychotherapy Integration*, Vol 9, No.1, 83-102.

In my instruments, you will note a couple of changes I have made to the TTM: First, I took the PreContemplation (PC) stage and split it into two, PC1 for the individuals who are essentially in denial, and PC2 for those who believe they have no time, resources, or energy for change, but who acknowledge, in the abstract, that change might be useful; it is just not personally relevant to them. Second, in my TTM Survey instrument, I break apart an assessment of Readiness to Change related to individual study skills with Readiness to Change relevant to participating and using group learning. Originally, I had blended these, but pilot studies clearly suggested that students respond very differently to these two contexts, so they are now separated. Indeed, the distribution of stages on these two parts of the instruments tend to be quite distinct. Apart from the TTM itself, I ask students to complete an assignment called the Personal Learning Plan (PLP) and that I will include here. The PLP asks them to reflect on and interpret their scores in addition to other tasks such as design and describe a specific study plan for the semester and informing me of their assignment choices among the options available in the syllabus. I also ask them to complete the Learning Strategies Self-Assessment (LSSA) at two points in time during the semester. Originally I had them do it three times. The LSSA is a behavioral measure of how often students are using established effective learning strategies for the class as well as a set of reflective questions about their own learning, goals, and strengths and weaknesses. We are currently in the process of updating some of the items on the LSSA and will shortly be

testing the new instrument. I have also submitted a manuscript for review evaluating the psychometrics of the TTM and LSSA instruments and their performance relative to the Revised Study Process Questionnaire, an established instrument that measures Deep vs. Surface approaches to learning (R-SPQ; Biggs, J., Kember, D., & Leung, D.Y.P. (2001). We also have published a comparison of the TTM scale as a way to assess student engagement in the classroom (see Mosholder, R.S. & Tolman, A.O. (2012). Comparing two frameworks of student engagement. *Academic Exchange Quarterly*, 16(3), 164-170 available at <http://rapidintellect.com/AEQweb/>). Several manuscripts are in process.

On the LSSA, there are three variations. Each of these is the same in the quantitative section, but the qualitative/reflective section varies because the instruments are used at the beginning (1), midpoint (2), and end (3) of the semester. If you might be interested in collaborating on testing the relationships between the TTM Survey, the Confidence Survey, and the Pros and Cons Survey, please contact me.

I have previously presented data and descriptions of these instruments as follows; if you describe or discuss these instruments with others, please give appropriate credit. I have also published a recent chapter that describes the use of these instruments in the context of a specific course, Abnormal Psychology. I have now uploaded that article to this collection as well as another document that lays out a possible “road map” of future work in this area. We also just published an edited book focused on explaining student resistance to active learning; that book includes a chapter on metacognition that describes these instruments as well as other approaches to metacognitive methods to reduce student resistance.

Tolman, A.O. & Kremling, J. (Eds). (2017). *Why students resist learning: A practical model for understanding and helping students*. Sterling, VA: Stylus Publishing.

Tolman, A.O. (2011). Creating transformative experiences for students in Abnormal Psychology. In R. L. Miller, E. Balcetis, S. R. Burns, D. B. Daniel, B. K. Saville, & W. D. Woody (Eds.), *Promoting student engagement* (Vol. 2, pp.136-145). Retrieved from the Society for the Teaching of Psychology [APA, Division 2] Web site: <http://teachpsych.org/resources/e-books/pse2011/vol2/index.php>

Tolman, A.O. (May 17, 2011). *Use of Metacognitive Instruments to Understand Student Learning*. Invited web conference presentation for the Higher Education Teaching and Learning (HETL) portal (www.hetl.org).

Kremling, J., & Tolman, A.O. (April 16, 2011). *Assessing the Validity of Three Metacognitive Instruments: TTM, R-SPQ, and LSSA*. Paper presented at the 14th CSU Symposium on University Teaching, California State University at Channel Islands.

Tolman, A.O. & Kremling, J. (March 12, 2011). *Using Metacognitive Instruments to Reduce Student Resistance to Active Learning*. Workshop presented at the 23rd Annual Conference of the International Alliance of Teacher-Scholars (Lilly West), Pomona, CA.

Tolman, A.O., Biggs, B. & Binks, K. (March 12-13, 2010). *Using Metacognitive Instruments to Help Students Become More Effective Learners*. Workshop presented at the Annual Conference of the International Alliance of Teacher Scholars (Lilly West), Pomona, CA.

Tolman, A.O., Tulley, T., & York, S. (April 13, 2009). *Measuring Student Engagement*. Paper presented at the Scholarship of Teaching and Engagement Conference, Utah Valley University, Orem, Utah.

Instruments and Procedures in this Collection:

TTM-Learning Survey (and Key) - Readiness to Change

Interpreting the TTM - document for students explaining the TTM

Learning Strategies Self-Assessment 1 (LSSA1)

LSSA 3

Personal Learning Plan (PLP) Assignment Description (from my Abnormal Psychology course)

Decisional Balance - Students (and Key)

Self-Efficacy - Students (and Key)

Using Metacognitive Instruments in Class

The way I used these instruments in my classes generally followed the pattern below; I have modified this somewhat in my online courses and no longer use the RSPQ:

- 1) First day of class, have them complete the TTM-S either in class or online before class
- 2) By 2nd class, have them complete the RSPQ online or bring to class
- 3) Do NOT give the keys to the students; I quickly score their TTM Surveys and let them know their stages usually via email or our course Learning Management System (LMS)
- 4) By the next class period following my feedback to them of their stage, the PLP is due
- 5) By the next class period after that, their LSSA1 is due and the LSSA3 is due the week before class ends
- 6) The week before class ends, I also ask them to complete the TTM and RSPQ again and to reflect on how their scores have changed (or not) since the start of the semester

Note: I have a specific course objective related to helping students to become more effective learners, so we create time in class to discuss these issues throughout the semester. I generally grade the instruments as complete or incomplete. For the LSSA, full score is obtained if they complete all items and questions and the reflections are genuine. For the PLP, score is based on if they complete all elements of the assignment and due so honestly and with genuine reflection.