## **Resources and References**

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## Resources

- A Short Primer for Writing Learning Outcomes (PDF) by Valerie Lopes
   Whereas we focus more on the Cognitive Domain in this section, the primer will give a
   brief introduction to the Psychomotor Domain and the Affective Domain. Separating
   the three domains has been criticized, as they are more intertwined than isolated in
   their characteristics. However, more attention is generally given to the Cognitive
   Domain.
- Common Problems with Learning Outcomes (PDF) by Valerie Lopes
   This document is designed to be used in conjunction with the Learning Outcomes
   Primer. It explains the common problems associated with learning outcomes and
   offers examples and solutions.
- 3. A Model of Learning Objectives by Iowa State University Center for Excellence in Learning and Teaching This document offers a summary of the Knowledge Dimension and the Cognitive Process Dimension as represented in Bloom's revised taxonomy, as well as a threedimensional representation, developed by Rex Heer, which provides examples of learning outcomes from each section.
- 4. A longer piece on the Taxonomy of Bloom by Pedro de Bruyckere In this piece, de Bruyckere discusses why the triangular representation of Bloom's taxonomy is problematic and contributes to our notion of a false hierarchy. He draws from the work of Anderson and Krathwohl, as he clarifies our misunderstandings of the Taxonomy.
- 5. Retrieval Practice and Bloom's Taxonomy: Do Students Need Fact Knowledge Before Higher Order Learning? By Pooja K. Agarwal Authors Educational Impact and Implications Statement: This study demonstrates that students' higher order learning increases most from higher order retrieval practice, or no-stakes quizzes with complex materials that engage students in bringing what they know to mind. Although fact quizzes were beneficial for fact learning, they did not facilitate higher order learning, contrary to popular intuition based on Bloom's taxonomy.

You can also find a Seneca summary of this paper here: Seneca's Summary of Pooja's paper (PDF)

6. HEQCO's Guide to Developing Course and Program Learning Outcomes by Jess McKeown

This guide provides information on how to develop both course and program learning outcomes.

## References

Anderson, L.W. & Krathwohl, D.R. (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. New York: Longman.

Biggs, J. & Tang, C. (2011). Teaching for Quality Learning at University: What the student does. UK: Open University Press. Heer, R. (2012).

Bloom's Taxonomy of Learning.

Krathwohl, D. (2002). A Revision of Bloom's Taxonomy: An Overview. Theory into Practice 41 (4).

Lemov, D. (2017). Bloom's Taxonomy – That Pyramid is a Problem.

McMahon, T., & Thakore, H. (2006). Achieving Constructive Alignment: Putting Outcomes First. Quality of Higher Education, 3, 10-19.

Potter, M. K. and Kustra, E. (2012). A Primer on Learning Outcomes and the Solo Taxonomy.

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