

# Teaching Practices Instruments

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## Classroom Observation Protocols

### Reformed Teaching Observation Protocol (RTOP)

This classroom observation protocol measures the extent to which a class embodies various components of “reformed teaching.”

Reference: Piburn, M., and Sawada, D. (2000). Reformed Teaching Observation Protocol (RTOP) Reference Manual. ACEPT Technical Report.

### Teaching Dimensions Observational Protocol (TDOP)

This classroom observation protocol uses a two-minute time sampling method to track classroom teaching practices across five different dimensions: teaching methods, pedagogical strategies, student-teacher interactions, cognitive engagement, and instructional technology. The TDOP was based on a protocol by Osthoff et al. (2009).

Hora, M. T., and Ferrare, J. J. (2013). Instructional systems of practice: A multidimensional analysis of math and science undergraduate course planning and classroom teaching. *J. Learn. Sci.* 22, 212–257.

Reference: Osthoff, E., Clune, W., Ferrare, J., Kretchmar, K., & White, P. (2009). Implementing immersion: Design, professional development, classroom enactment and learning effects of an extended science inquiry unit in an urban district. Madison: University of Wisconsin–Madison, Wisconsin Center for Educational Research.

Webpage: <http://tdop.wceruw.org/>

### Classroom Observation Protocol for Undergraduate STEM (COPUS)

This classroom observation protocol uses a two-minute time sampling method to track instructor and student behaviors during class.

References: Smith, M. K., Jones, F. H. M., Gilbert, S. L., and Wieman, C. E. (2013). The Classroom Observation Protocol for Undergraduate STEM (COPUS): A New Instrument to Characterize University STEM Classroom Practices. *CBE Life Sci Educ* 12:618–627.

Smith, M. K., Vinson, E. L., Smith, J. A., Lewin, J. D., and Stetzer, M. R. (2014). A Campus-Wide Study of STEM Courses: New Perspectives on Teaching Practices and Perceptions. *CBE Life Sci Educ* 13:624–635.

### **UTeach Observation Protocol (UTOP)**

This observational instrument can be used to assess the overall quality of classroom instruction from kindergarten to the undergraduate level. The UTOP was designed to allow individuals to evaluate teaching effectiveness, while valuing different modes of instruction.

Webpage: <http://utop.uteach.utexas.edu/>

### **Oregon-Teacher Observation Protocol (O-TOP)**

This observation protocol measures implementation of reform-based teaching strategies.

Reference: Wainwright, C. L., Flick, L. B., and Morrell, P. D. (2003). Development of instruments for assessment of instructional practices in standards-based teaching. *Journal of Mathematics and Science: Collaborative Explorations* 6:21–46.

### **Inquiring into Science Instruction Observation Protocol (ISIOP)**

This classroom observation protocol is designed to assist evaluators and researchers in determining the extent to which quality pedagogical practices and instruction about scientific inquiry are present in secondary science teaching.

Webpage: <http://isiop.edc.org/>

### **Partnership for Undergraduate Life Sciences Education (PULSE) Vision and Change Rubrics**

These rubrics were developed by the PULSE Vision & Change Leadership Fellows to help departments self-assess the extent to which they have adopted the instructional principles outlined in the *Vision and Change* report (2011).

Reference: Aguirre, K. M., Balser, T. C., Jack, T., Marley, K. E., Miller, K. G., Osgood, M. P., Pape-Lindstrom, P. A., and Romano, S. L. (2013). PULSE Vision & Change rubrics. *CBE Life Sci Educ* 12:579–581.

American Association for the Advancement of Science (AAAS) (2011). *Vision and change in undergraduate biology education: A call to action*, Washington, D.C.

## **Self-Assessment of Teaching Practices and Beliefs**

### **Approaches to Teaching Inventory (ATI)**

The original instrument designed by Prosser and Trigwell (1999) is composed of 16 items that measure two separate dimensions of an instructor's teaching approach. One scale determines the degree to which an instructor is focused on conceptual change/student-focused (CCSF). The other scale measures the degree to which an instructor is focused on information transmission/teacher-focused (ITTF). An additional part of the survey

developed by Lindblom-Ylance et al. (2006) explores teachers' motivation and regulation strategies, including self-regulation, external regulation, and lack of regulation.

References: Trigwell, K., Prosser, M. & Waterhouse, F. (1999) Relations between teachers' approaches to teaching and students' approach to learning, *Higher Education*, 37:73–83.

Trigwell, K. & Prosser, M. (2004). Development and use of the Approaches to Teaching Inventory, *Educational Psychology Review*, 16:409–424.

Lindblom-Ylance, S., Trigwell, K., Nevgi, A., & Ashwin, P. (2006). How approaches to teaching are affected by discipline and teaching context. *Studies in Higher Education*, 31(3):285 - 298.

### **Perceptions of Teaching Environment Inventory (PTE/PTEI)**

This inventory measures perceptions of the departmental support for teaching, control of teaching, enabling student characteristics, appropriate academic workload, appropriate class size, appropriate learning space.

Reference: Prosser M and Trigwell K (1997) Relations between the perceptions of teaching and approaches to teaching. *Educational Psychology* 67(1):25-35.  
DOI: 10.1111/j.2044-8279.1997.tb01224.x

### **Teaching Practices Inventory**

This instrument allows instructors and departments to reflect on their teaching practices, with a particular focus on the extent to which research-based teaching practices are being implemented.

Reference: Wieman, C., and Gilbert, S. (2014). The Teaching Practices Inventory: A New Tool for Characterizing College and University Teaching in Mathematics and Science. *CBE Life Sci Educ* 13:552–569.

## **Teaching Self-Efficacy Scales**

### **Faculty Teaching Efficacy Questionnaire**

This 28 item questionnaire measures faculty perception of their own teaching efficacy in six dimensions, including course design, class management, interpersonal relation, learning assessment, technology usage, and instructional strategy.

Chang, T., Lin, H., and Song, M. (2011). University faculty members' perceptions of their teaching efficacy. *Innovations in Education and Teaching International* 48, 49–60.

### **Teacher's Sense of Efficacy Scale (TSES). Also known as Ohio State Teacher Efficacy Scale (OSTES).**

An instrument that measures a teacher's sense of efficacy on engagement, instruction, and management. Access to the instrument can be found at <http://u.osu.edu/hoy.17/research/instruments/>

Reference: Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education*, 17, 783-805.

### **Teacher Efficacy Scale (TES) Long Form**

An 22 item instrument that measures teaching efficacy and personal efficacy. Access to the instrument can be found at <http://u.osu.edu/hoy.17/research/instruments/>.

Reference: Woolfolk, A. E., & Hoy, W. K. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Journal of Educational Psychology*, 82, 81-91.

### **Teacher Efficacy Scale (TES) Short Form**

A 10 item instrument that measures teaching efficacy and personal efficacy. Access to the instrument can be found at <http://u.osu.edu/hoy.17/research/instruments/>.

Reference: Hoy, W. K., & Woolfolk, A. E. (1990). Organizational socialization of student teachers. *American Educational Research Journal*, 27, 279-300.

### **College Teaching Self-Efficacy Scale (CTSES)**

This is a 51 item general teaching self-efficacy scale for college professors.

Prieto-Navarro, L. (2005). Las creencias de autoeficacia docente del profesorado universitario. Madrid: Universidad Pontificia Comillas.

The web page that contains the CTSES (in English) is <http://www.uky.edu/~eushe2/Pajares/CTSES-Prieto2006.pdf>

### **Self-Efficacy Towards Teaching – Adapted (SETI-A)**

This is a 32 item general teaching self-efficacy instrument designed for graduate teaching assistants.

Reference: Prieto, L.R., Altmaier, E.M. (1994). The relationship of prior training and previous teaching experience to self-efficacy among graduate teaching assistants. *Research in Higher Education*, 35(4), 481-497.

## **Graduate Student Teacher Development and Self-efficacy**

### **Self-Efficacy Toward Teaching Inventory**

This instrument was originally developed by Tollerud (1990) to measure self-efficacy among graduate teaching assistants (GTAs). An adapted version was later used by Prieto (1994).

References: Tollerud, T. R. (1990). The perceived self-efficacy of teaching skills of advanced doctoral students and graduates from counselor education programs, University of Iowa.

Prieto, L. R., & Altmaier, E. M. (1994). The relationship of prior training and previous teaching experience to self-efficacy among graduate teaching assistants. *Research in Higher Education*, 35(4), 481 - 497.

### **STEM GTA Teaching Self-Efficacy Instrument**

This instrument was developed from a general university faculty teaching instrument and measures graduate teaching assistant (GTA) teaching self-efficacy or belief in one's ability to teach students in a specific context.

Reference: DeChenne, S. E., Enochs, L., & Needham, M. (2012). Science, Technology, Engineering, and Mathematics Graduate Teaching Assistants Teaching Self-Efficacy. *Journal of the Scholarship of Teaching and Learning*, 12(4), 102-123.

### **GTA Professional Development Instrument**

This instrument measures how graduate students perceive their learning during courses/seminars on learning how to teach (TA training and professional development).

Reference: DeChenne, S. E., Anderson, S. M., Lesseig, K. R., Li, S. L., Staus, N. L., Barthel, C. (2012). Towards a Measure of Graduate Student Teaching Professional Development. *Journal of Effective Teaching*, 12(1), 4-19.