

Instruments for Characterizing Instructors' Teaching Practices: A Review

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Abstract

Recent trends in higher education such as distance education and student-centered learning have challenged instructors to evaluate and reevaluate their teaching practices and philosophies. Several instruments have been developed to help instructors describe their teaching philosophies and improve their instructional effectiveness through self-reflection, however these instruments are seldom mentioned or reported in the literature. These include the Approaches to Teaching Inventory, Teaching Perspectives Inventory, Teaching Goals Inventory and Teaching Styles Inventories. The aim of this review is to summarize what information these inventories provide teachers.

Introduction

There are a number of trends and considerations that confront instructors in higher education. For example, many instructors have replaced the traditional lecture format with flipped teaching, by providing students with short videos to watch at the beginning of lecture and then facilitating classroom activities such as discussion and group projects. Other trends include the increase in popularity of distance education and student-centered learning. Amidst these happenings and considerations, a discussion that encourages personal reflection on teaching characteristics would be helpful for instructors working to establish their teaching identities within the context of established frameworks.

Attempts have been made to characterize students' individual learning styles (Romanelli et al., 2009). For example, David Kolb's model is based on experiential learning theory and categorizes the way a person prefers to acquire and process information according to whether they are a converger, diverger, assimilator or accommodator (Kolb, 1994). Also commonly used, Neil Fleming's learning model categorizes whether learners prefer to acquire new information by visual, auditory or tactile observations (Fleming and Mills, 1992). The model developed by Felder and Silverman is also popular, as it characterizes how students perceive information, what forms of information they prefer, how they organize information and how they progress in understanding information (Felder and Brent, 2005).

On the other hand, frameworks that recognize differences in instructors' teaching characteristics are scarcely mentioned. Similar to students and teachers who identify their learning styles and accordingly adopt strategies to enhance their studying effectiveness, instructors interested in improving their teaching skills could benefit from identifying their teaching characteristics. Just as there are a variety of questionnaires and models used for identifying students' learning characteristics, a variety of instruments have been developed for characterizing instructors' teaching practices. This topic is an active area of scholarship, though it has been studied less than students' learning styles (Meyer and Eley, 2006).

The objectives of this manuscript are to review some instruments for characterizing teaching practices and discuss their usefulness for instructors wanting to craft their teaching philosophy and hone their teaching skills.

The questions addressed in this paper are:

1. What instruments have been developed for teachers to improve their instructional effectiveness and what information do these inventories provide teachers?
2. What are some key findings of studies reported in the literature that involve these instruments?

Instruments for Characterizing Teaching Practices

Approaches to Teaching Inventory:

Identifying Student- vs. Teacher-Centered Instructors

The Approaches to Teaching Inventory (ATI) model was originally developed while studying the relationship between students' and teachers' approaches to learning (Trigwell and Prosser, 2004; Prosser and Trigwell, 2006). This model suggests that instructors' intentions of lecturing range from transmitting information with the expectation that students will understand and grasp important concepts on their own to deliberately working with students to facilitate their confrontation of the concepts. The ATI organizes such teaching intentions and strategies into five categories as illustrated in

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Table 1. The process for identifying and categorizing instructors' teaching strategies and intentions originally entailed qualitative interviews and has evolved into a simple questionnaire for instructors to complete (Trigwell and Prosser, 2004).

The ATI is useful for instructors deciding when, where and how they expect their students to accomplish particular learning outcomes, as it helps with the decision between employing a traditional lecture format or active learning techniques during the class period. In a traditional lecture, the instructor dominates the majority of the lecture time by disseminating a predetermined amount of subject matter, as depicted by Approaches A and B (Table 1). Students taught in this format are held responsible for identifying and mastering important concepts on their own time, while completing homework assignments, projects, laboratory activities and studying for exams outside of class. The deepest learning occurs in the absence of the instructor.

Teacher-centered approaches can be effective and justified, depending on the instructors' objectives. Bligh (2000), McKeachie (2002) and Nilson (2010) suggested several such examples:

1. Modeling approaches to problem-solving or higher-order thinking skills for students prior to expecting them to do the same.
2. Providing quick background knowledge that is not summarized in print.
3. Adapting sophisticated knowledge to students' level and needs in a way that no other available source does.
4. Presenting a particular organization of material that clarifies the structure of the reading, the course or the field.
5. Adding personal viewpoints on the material or related research.
6. Updating students with the very latest material, especially if it is not yet available in a source targeted to the students' level
7. Piquing students' curiosity and motivation if the instructor's style is very expressive.

Currently there is a trend toward student-centered teaching approaches in higher education (Stamm, 2011; Wright, 2011). In this approach, for example, instructors provide some sort of learning module such as a video lesson and/or reading assignment that summarizes the main learning objectives and subject matter for students to complete prior to or at the beginning of the class period and thereby free up the majority of the class period for interacting with students and facilitating learning activities instead of lecturing. The intentions of these lecture activities are to engage students' mastery of important concepts, thus flipped teaching is characterized by Approaches D and E (Table 1).

Table 1. Five approaches to teaching categorized according to intentions and strategies in teaching (adapted from Prosser and Trigwell, 2006). This spectrum of intentions of teaching ranging from information transmission to conceptual change is exercised by teaching strategies ranging from teacher-focused to student-focused, respectively.

Intention	Strategy (Act)		
	Teacher-Focused	Student/Teacher Interaction	Student-Focused
Information transmission	Approach A		
Concept acquisition	Approach B	Approach C	
Concept development			Approach D
Conceptual change			Approach E

Replacing a teacher-centered with a student-centered teaching approach can be a worthwhile investment. Instructors' adoptions of student-centered learning have been shown to result in deeper student learning (Trigwell and Prosser, 2004). This can provide personal satisfaction for the instructor, as he/she spends more time interacting with and mentoring students as they grasp key concepts. In addition, instructors' emotions while teaching have been shown to be more positive while using a student-focused approach than a teacher-focused approach (Trigwell, 2012). However, becoming proficient in student-centered teaching requires practice and experience with facilitating active learning sessions and this could be a new skill for many instructors. Some of the most effective active learning exercises such as service-learning have been shown to be used the least by instructors striving to create a student-centered classroom (Webber and Tschepikow, 2011).

Attempts have been made to characterize approaches to teaching according to instructor factors. Empirical evidence has been used to suggest that instructors who understand how the subject matters they teach relates to the concepts, issues and theories within their fields of study often take student-centered approaches to teaching (Prosser et al., 2008). Also, instructors who continuously re-interpret and question their subject matter are more likely to adopt a student-centered approach to teaching, as compared to those who do not experience change in the understanding of their subject matter (Trigwell et al., 2005). Gender has been suggested to play a role in instructors' approaches to teaching, as male faculty members have been reported to adopt teaching strategies that are more teacher-centered (Singer, 1996; Lacey and Saleh, 1998). Specifically, female instructors in higher education have been reported to spend more class time on active learning exercises, as opposed to lecturing, than males (Laird et al., 2011).

Several studies have also sought to characterize approaches to teaching according to a variety of institutional factors. For example, empirical data has been used to demonstrate how instructors' approaches to teaching depend on their perceptions of the degrees to which administrators' and colleagues' are committed to learning and teaching (Ramsden et al., 2007). Also, participation in faculty development programs has been associated with junior faculty members shifting their approaches to teaching towards a student-focused teaching approach (Light et al., 2009), thus continuing education on facilitating active learning classroom

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environments increases the effectiveness of instructors wishing to create student-centered courses. There are conflicting reports on whether approaches to teaching vary according to the discipline being taught. For example, while the ATI has been used to demonstrate that instructors in “hard disciplines” such as chemistry and medicine tend to use teacher-centered approaches, whereas student-centered approaches are more commonly used in “soft disciplines” such as history and education (Lindblom-Ylanne et al., 2006; Lueddeke, 2003), other studies have reported no differences between disciplines (Stes et al., 2008).

Teaching Perspectives Inventory: Identifying the Beliefs, Intentions and Actions of Instructors

The Teaching Perspectives Inventory (TPI) categorizes instructors’ perspectives on teaching as transmission, apprenticeships, developmental, nurturing, or social reform, as defined below (Pratt, 1998; Collins and Pratt, 2011):

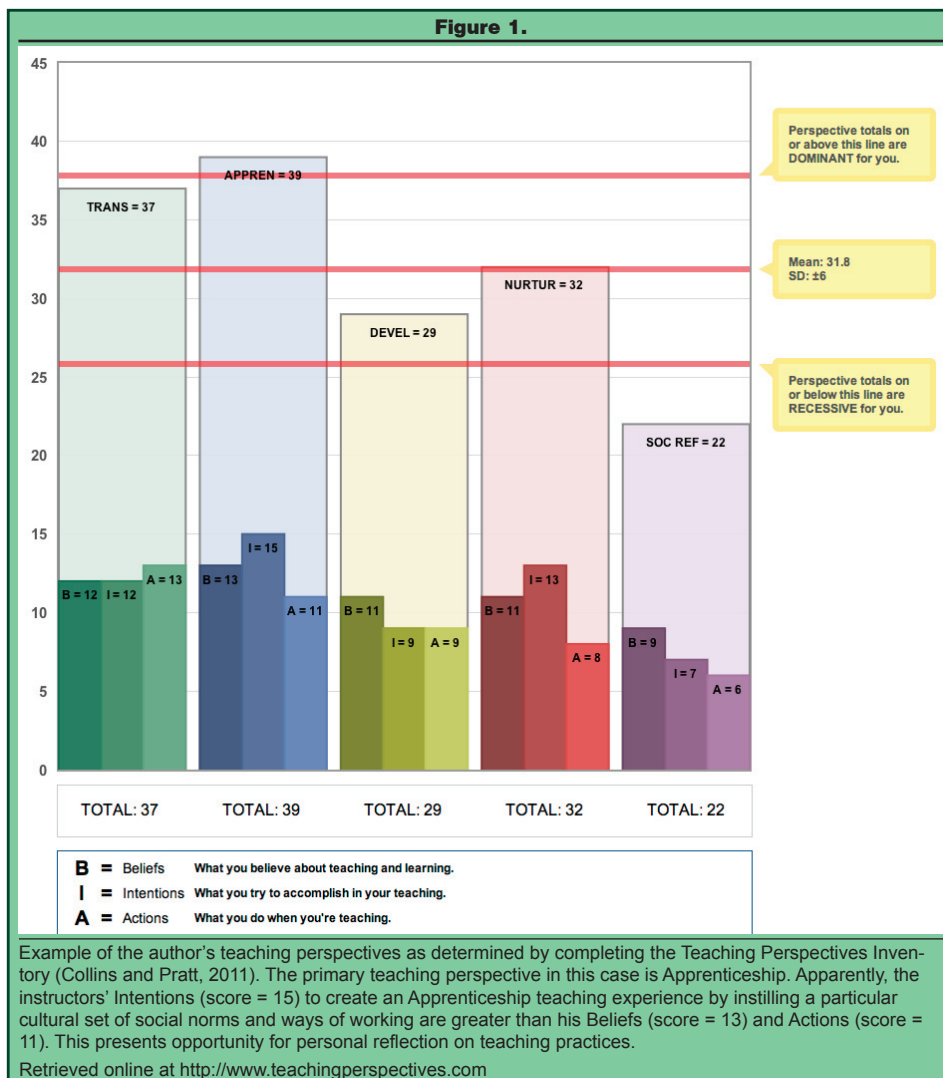
1. Transmission: “Effective teaching requires a substantial commitment to the content or subject matter”
2. Apprenticeship: “Effective teaching is a process of teaching students a particular cultural set of social norms and ways of working”
3. Developmental: “Effective teaching must be planned and conducted “from the learner’s point of view”
4. Nurturing: “Effective teaching assumes that long-term, hard, persistent effort to achieve comes from the heart, as well as the head”
5. Social reform: “Effective teaching seeks to change society in substantive ways”

In the TPI model instructors are asked questions that are used to rank their actions, intentions and beliefs about teaching. A 5-point frequency scale ranging from “never” to “always” is used to score what instructors do and try to accomplish while teaching and a 5-point scale ranging from “strongly agree” to “strongly disagree” is used to score what instructors believe about teaching. After completing the TPI survey, a report is generated that characterizes instructors’ recessive and dominant perspectives, as well the scores of their actions, intentions and beliefs about each per-

spective. This survey is available for free at <http://www.teachingperspectives.com> (Collins and Pratt, 2013).

The TPI is a useful tool for instructors interested in identifying their perspective and taking this a step further to evaluate whether their actions in teaching are aligned with their beliefs and intentions. For example, Figure 1 illustrates an instructor whose dominant beliefs and intentions about teaching reflect the Apprenticeship perspective, but the actions that this instructor practices are more in line with the Transmission perspective. For this instructor to embrace their dominant perspective, they could consider adopting more teaching activities that focus students on learning how to work in a cultural set of norms (Apprenticeship activities) to solve problems and fewer activities focused on acquiring and understanding concepts and content (Transmission activities).

The TPI has not been studied to the same extent as the ATI, though it has been shown to be useful during peer reviews of teaching. Peer reviews of teaching tend to be lower when the instructor being reviewed holds a different perspective than the peer reviewer (Courneya et al., 2008).



Teaching Goals Inventory: Linking Instructor Goals to Assessment Activities Used

The Teaching Goals Inventory (TGI) was developed to help instructors align their classroom assessment techniques with the goals they have for their students (Angelo and Cross, 1993). This inventory is produced after instructors complete a 52-question survey, ranking how important they believe certain student accomplishments are on a 5-point scale ranging from “essential” to “unimportant” or “not applicable.” The last question of this survey asks the instructor to choose one of six statements that best describes what their primary role as a teaching professor is.

A report is generated that categorizes the instructor’s responses into seven clusters, according to which of the following goals the instructor deemed to be essential (Table 2).

1. Higher order thinking skills
2. Basic academic success skills
3. Discipline-specific knowledge and skills
4. Liberal arts and academic values
5. Work and career preparation
6. Personal development

This questionnaire is available over the Internet: http://fm.iowa.uiowa.edu/fmi/xsl/tgi/data_entry.xml?db=tgi_data&lay=Layout01&view (Angelo and Cross, 2013).

The TGI is useful for describing the anticipated learning outcomes and objectives of lessons and courses. After completing this inventory, instructors are given a report that distinguishes which teaching goals they rated essential, very important, important, unimportant and not important. Identifying and recognizing the goals of a lesson or course in this manner allows an instructor to find the appropriate learning activities to complement those goals. For example, the instructor whose TGI is illustrated in Table 2 should consider activities that mostly facilitate higher order thinking skills and some work and career preparation. The book Classroom Assessment Techniques (Angelo and Cross, 1993) provides 50 activities for instructors to consider facilitating in their classrooms and specifies which of these activities accomplish the various six goals in the TGI.

The TGI has not been studied as much as the ATI, however it has been the subject of some studies relating faculty cultures with teaching goals. Faculty who

view themselves as student-centered emphasize the importance of Higher Order Thinking Skills, Liberal Arts and Academic Values, Work and Career Preparation and Personal Development more than instructors who adopt teacher-centered approaches (Fox, 1997). These same goals are more common amongst instructors in academic cultures with low barriers to their exchange of ideas about their teaching goals than those in other cultures. Fox (1997) also demonstrated that the more experienced faculty members become, the less they emphasize Higher Order Thinking Skills and Work and Career Preparation. Faculty teaching web-based classes have been shown to have a higher preference for Higher Order Thinking Skills, perhaps because teaching online forces faculty to reflect on learning activities more than teaching face-to-face courses (Hardy, 2002). These examples of differences in teaching goals illustrate the usefulness of the TGI for faculty engaging in conversations about the goals of their academic programs.

Teaching Style Inventories: Three Instruments for Identifying How Instructors Teach

Similar to the TPI, the Grasha-Riechmann Teaching Style Inventory (TSI) is a useful resource for instructors interested in identifying their preferred instruction style (Grasha, 1996). This 40-question survey asks instructors to provide responses to statements about how they teach, e.g. “students typically work on course projects alone with little supervision from me” and “students would describe my standards and expectations as somewhat strict or rigid” on a 5-point scale ranging from “strongly agree” to “strongly disagree.” These responses are then used to generate scores for matching how much the instructor’s style lines up with five different teaching styles:

1. Expert: the instructor possesses the knowledge and expertise that students need to acquire
2. Formal authority: the students acknowledge the instructor’s status because of his/her knowledge and role as a faculty member
3. Personal model: the instructor strives to teach by personal example
4. Facilitator: the instructor emphasizes teacher-student interactions and guides students by guiding them towards independent learning
5. Delegator: the instructor delegates the learning process to students in a manner that gives students

the autonomy to learn on their own terms

The original publication describes advantages and disadvantages of each teaching style. Grasha (1996) proposed an integrated approach that connects particular teaching styles with learning activities according to the learning style preferences of students.

Another method for identifying teaching styles is the Staffordshire

Table 2. Example of the author’s teaching goals as determined by completing the Teaching Goals Inventory (Angelo and Cross, 1993). The TGI in this case was useful to the instructor in identifying his primary objective was for students to accomplish Higher Order Thinking Skills, as he rated 100% of the goals in this cluster as “Essential.” In contrast, the least important objective to this instructor was the Personal Development cluster. None of the goals in this cluster received an “Essential” rating and the mean rating of this cluster was a 1.00 on a five-point scale.

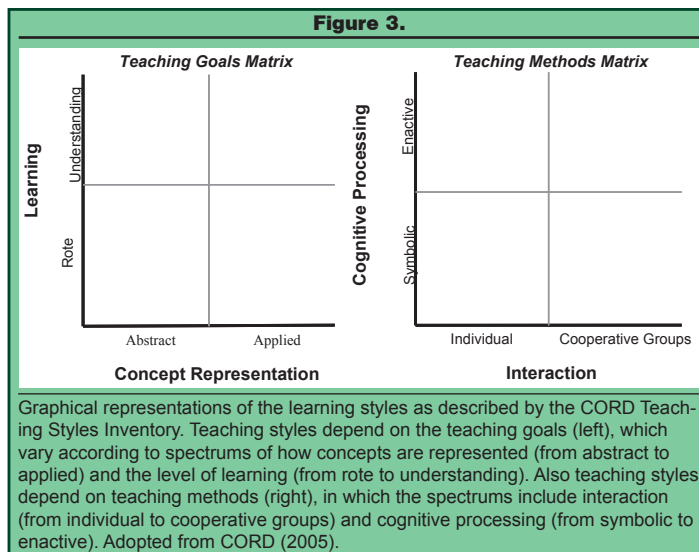
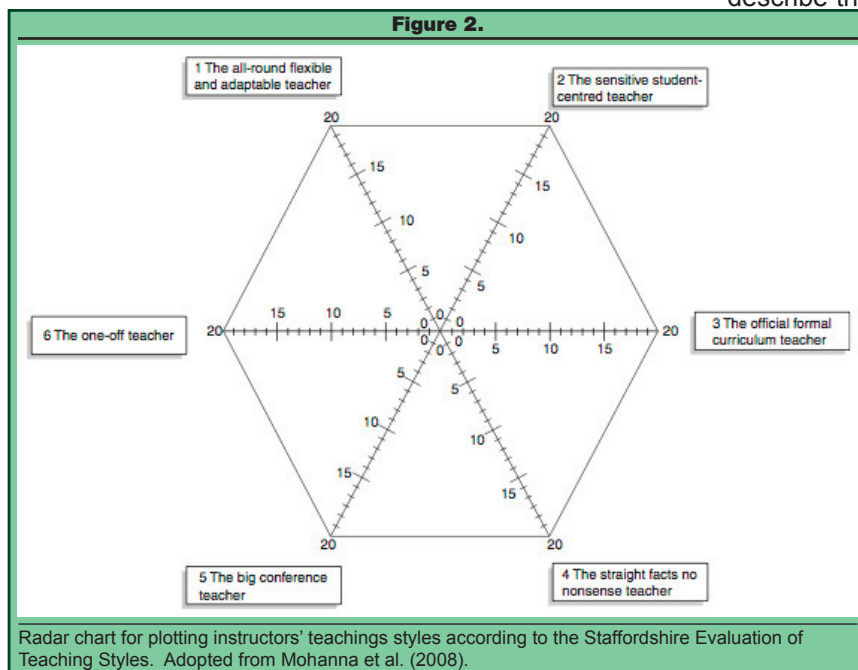
Cluster	Goals Included in Cluster	Percent Rated “Essential”	Mean Rating
1. Higher Order Thinking Skills	1-8	100%	5.00
2. Basic Academic Success Skills	9-17	11%	2.67
3. Discipline-Specific Knowledge and Skills	18-25	0%	2.63
4. Liberal Arts and Academic Values	26-35	0%	1.2
5. Work and Career Preparation	36-43	13%	2.88
6. Personal Development	44-52	0%	1.00

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Evaluation of Teaching Styles (Mohanna et al., 2008). This inventory is different from the Grasha-Riechmann TSI, as it characterizes what instructors prefer to do with their class time. It consists of 24 questions that ask to what extent instructors like to employ various teaching techniques. These responses are used to characterize instructors' preferred teaching styles according to the following categories (Figure 2):

1. The all-around flexible and adaptive teacher: "can use many different skills, can teach both peers and juniors and is very aware of the whole environment both of teaching and of the learners."
2. The sensitive and student-centered teacher "is very learner-centered, teaches in small groups, with emotions to the fore, using role-play and drama and is not comfortable doing straight presentations."
3. The official formal curriculum teacher: "is very well prepared, accredited, is very aware of and adheres to the formal curriculum and follows external targets."
4. The straight facts no nonsense teacher: "likes to teach the clear facts, with straight talking, concentrating on specific skills and much prefers not to be involved with multiprofessional teaching and learning."
5. The big conference teacher: "likes nothing better than to stand up in front of a big audience and does not like sitting in groups or one to one teaching."
6. The one-off teacher: "likes to deliver small self-contained bits of teaching on a one to one basis, with no props to help and no follow up."

The Center for Occupational Research and Development (CORD) Teaching Styles Inventory considers teaching approaches and teaching goals CORD (2005) and is available over the Internet (<http://www.texascol->



laborative.org/tools/TSI.pdf). This 12-question inventory is used to characterize instructors' teaching goals according to what extent they believe the learning process should be rote vs. focused on developing understanding whether concepts are abstract vs. applied. It also characterizes instructors' teaching methods according to whether their students' cognitive processing is described as symbolic or enactive and whether classroom interactions are described as individual vs. cooperative groups (Figure 3).

These inventories for characterizing teaching styles have scarcely been studied and reported in the literature. Further, research on whether the act of catering a teaching style to students learning styles results in increased student success has been inconclusive (Dincol et al., 2011).

Summary

This article sought to describe some instruments that describe the various characteristics of instructors within the contexts of established models. The instruments that were discussed included the Approaches to Teaching Inventory, Teaching Perspectives Inventory, Teaching Goals Inventory and three different inventories for characterizing teaching styles (Table 3). Each of these instruments consist of a series of questions for instructors to answer, the results of which are used to classify the instructors' teaching characteristics into various categories. As implied in the various names of these instruments, the types of information they provide instructors differ. However, commonalities exist in the how these instruments characterize the ways instructors approach the teaching process, aim to accomplish various goals while teaching and reflect on their roles as instructors.

These instruments hold value for both instructors and programs interested in

Table 3. Summary of instruments useful for characterizing teaching practices.

Inventory	Authors	Usefulness	Inventory Availability
Approaches to Teaching Inventory	Trigwell and Prosser	Identifies instructors' approaches to teaching in terms of where on the student- vs. teacher-centered and conceptual change vs. information transmission continua they lay. Useful for reflection on instructional design considerations.	No website. Available in the manuscript (Trigwell and Prosser, 2004) book (Trigwell and Prosser, 1999)
Teaching Perspectives Inventory	Pratt and Collins	Categorizes instructors' overall perspectives on teaching as transmission, apprenticeship, developmental, nurturing, or social reform. Provides scores for determining whether instructors' beliefs and intentions while teaching actually match their actions.	Website: http://www.teachingperspectives.com Also available in book (Pratt, 1998)
Teaching Goals Inventory	Angelo and Cross	Categorizes instructors' teaching goals as higher order thinking skills, basic academic success skills, discipline-specific knowledge and skills, liberal arts and academic values, work and career preparation, and/or personal development. The authors' book suggests customized classroom assessment techniques for achieving these goals.	Website: http://www.centeach.uiowa.edu/tools Also available in book (Angelo and Cross, 1993)
Staffordshire Evaluation of Teaching Styles	Mohanna, Chambers and Wall	Characterizes an instructor's teaching style as all around flexible and adaptive, sensitive and student-centered, official formal curriculum, straight facts no nonsense, big conference, or one-off teacher.	http://longleaf.net/teachingstyle.html Also available in book (Grasha, 1996)
Grasha-Riechmann Teaching Style Inventory	Grasha-Riechmann	Characterizes the instructor's teaching style as expert, formal authority, personal model, facilitator or delegator. Useful for reflection on teacher-student relationships and also peer review of teaching.	No website. Available in book (Mohanna, Chambers and Wall, 2008)
Cord Teaching Styles Inventory	Center for Occupational Research and Development	Categorizes instructors' teaching goals in terms of where on the rote vs. understanding and abstract vs. applied continua they lay. Also characterizes the instructors' teaching methods based on where on the enactive vs. symbolic and individual vs. cooperative groups continua they lay.	Website: http://www.cord.org/teaching-styles-inventory

improving their teaching effectiveness. Instructors are encouraged to incorporate these instruments into their reflections on teaching and teaching portfolios. These instruments may also be useful for peer reviews of teaching. The various distinguishing characteristics within any one of the inventories reported in this manuscript may be acceptable and effective, depending on the instructor in consideration and the context of what they are teaching. The instruments in this manuscript provide a framework for guiding discussions about the characteristics of individual instructors, as well as the differences and similarities amongst instructors, within a particular program or department.

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