

100 Best Practices for Teaching Learning to Learn and Self-Growth

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Abstract

Process Education has always focused on empowering learners through teaching students how to learn and how to facilitate their own growth in learning and other performance areas. Learning to learn is most effective in a growth-oriented culture where students steadily develop more and more of the behaviors needed to succeed in college. This paper identifies 100 learning to learn and self-growth “best practices” of teaching and learning that transform and empower learners to become self-growers. These 100 practices are divided into 11 Process Education areas to help faculty improve their performance as learning to learn facilitators.

Introduction

The set of practices presented in this paper support the implementation of learning to learn and self-growth based upon Process Education (PE). These practices have been advanced and refined through the integration of researched best practices and practitioner-based action research. The idea for this paper came during the 2015 Academy of Process Educators' meeting where the question, “What makes a Process Educator?” was answered by differentiating ten areas of Process Education practices. This research was expanded with 25 years of Process Education scholarship (Apple, Ellis, & Hintze, 2016a). From 20 years of designing Learning to Learn courses (Apple, Morgan & Hintze, 2013) and facilitating Learning to Learn Camps (Apple, Ellis & Hintze, 2015), which transform students with “risk factors” (Horton, 2015) into Quality Collegiate Learners (Apple, Duncan & Ellis, 2016), 100 best practices were selected and prioritized.

Context and Methodology

A best practice is a tool, technique, strategy, principle, mindset, process, or idea that has been demonstrated, if used effectively, to improve students' learning and growth. For each practice, we have listed it under a specific Process Education area, provided a label, and provided a description with rationale or value for its use. Each best practice includes a resource to explore more theory and implementation ideas. This article serves both as a companion tool to guide practitioners new to the PE community, and as a tool for current PE practitioners to use in mentoring developing educators.

The *Faculty Guidebook* (Beyerlein, Holmes & Apple, 2007) and the Interactive Pathfinder (Hintze & Beyerlein,

2016) are rich tools for developing a robust Process Education practice, particularly for educators already familiar with the key principles and terminology. Just as recent new media publications have made available new methods for discovery, new tools have been developed to move learners from a print/textually based, linear approach to a more guided, personally contextual and curated approach. The interactive pathfinder (Hintze & Beyerlein, 2016, Figure 1) is an example of this type of tool, which aligns and arranges the practices distilled from previous decades of Process Education experience in a clickable, visual presentation designed for easy navigation and to highlight areas of connection between practices.

A second type of tool is presented here as the list of 100 best practices, which are structured, summarized and simplified into 11 areas as outlined in Table 1: Organization of Process Education Best Practices for Learning to Learn and Self-Growth. The table delineates the vast range of PE concepts and practices into 11 categories that define each category's role in learning to learn and self-growth, and aligns each category with the relevant and corresponding areas in the Interactive Pathfinder. The table and its categories form the roadmap for the organization of this paper.

The remainder of this paper is presented as a third type of new tool for discovery, a **listicle**, that is, an article arranged thematically but presented as a list. The list is meant to spur further explorations of the practices, rather than stand as an exhaustive description of each technique. As some of the key terminology of PE can at times seem exclusive, references, where possible, were chosen from outside the *Faculty Guidebook* to demonstrate alignment with other contemporary educational movements.

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Figure 1 Interactive Pathfinder of Process Education Topics

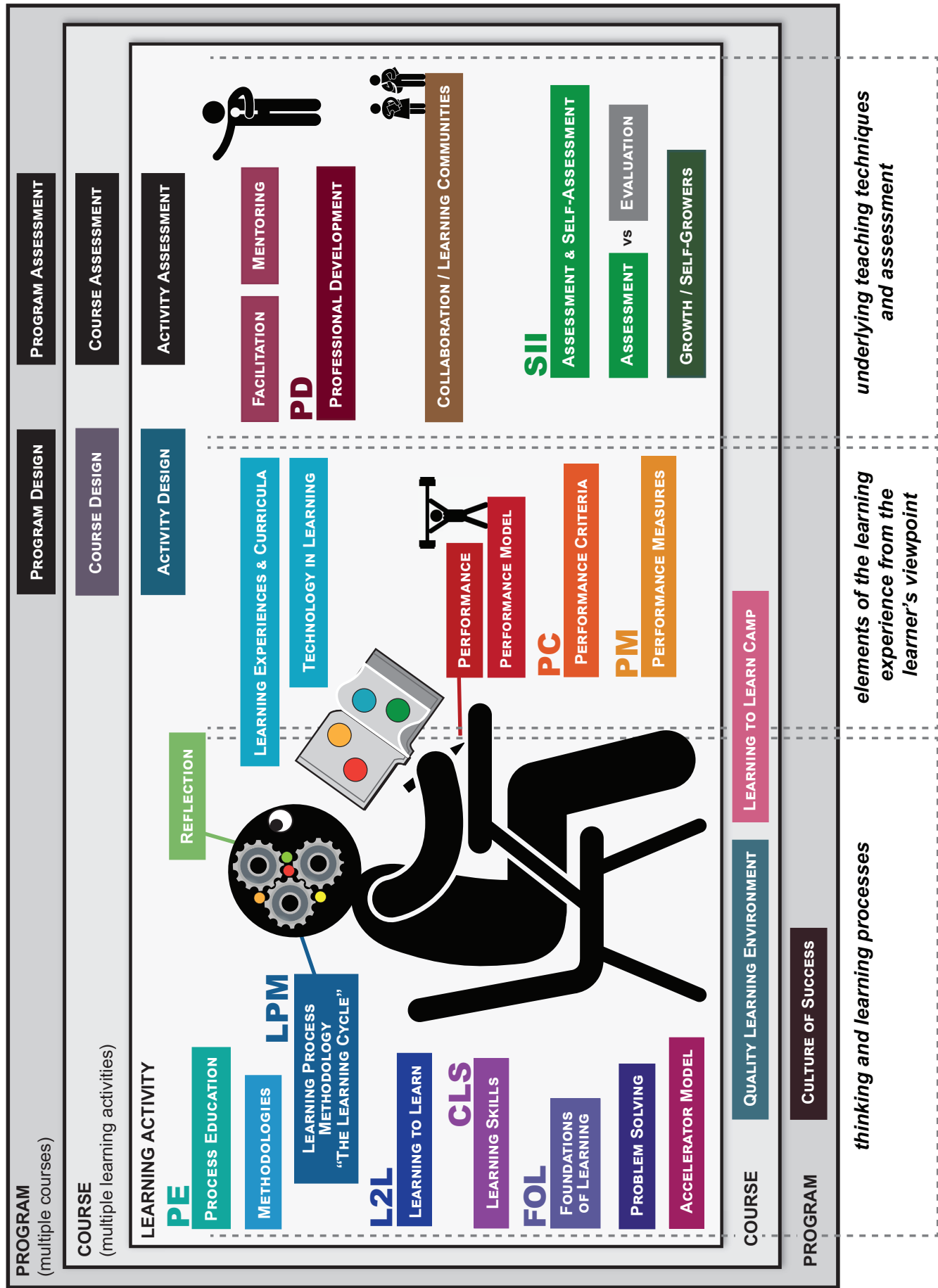


Table 1 Organization of Process Education (PE) Best Practices for Learning to Learn and Self-Growth

Area of PE	Pathfinder Elements	Description
Process Education Principles	<ul style="list-style-type: none"> • Process Education • Learning Skills 	The mindset and operating principles of Process Education, learning to learn, and self-growth, (idea of unlimited capacity, i.e., intelligence is malleable) are described with the 10 principles of Process Education (Pacific Crest, 2016)
Community Learning	<ul style="list-style-type: none"> • Collaboration • Learning Communities 	Practices associated with collaborative and cooperative learning and learning communities (cohort learning, paired courses, living and learning communities)
Creating a Quality Learning Environment	<ul style="list-style-type: none"> • Quality Learning Environment • Culture of Success • Learning to Learn Camp • Learning to Learn 	Strategies and techniques to create a learning environment that is transformative and produces a focus on learning to learn, self-growth, and higher levels of learning, supporting a culture of success for everyone
Systematic Design	<ul style="list-style-type: none"> • Program Design • Course Design • Activity Design • Foundations of Learning • Technology in Learning • Problem Solving 	Systematic design practices at the program, course and activity levels, including teaching students how to learn and self-grow with a Foundations of Learning course
Facilitation	<ul style="list-style-type: none"> • Facilitation 	The set of practices, tools, techniques, principles, and strategies that an educator uses in assisting students in their learning performance to increase their current and future learning performances
Methodologies	<ul style="list-style-type: none"> • Learning Process Methodology • Methodologies 	The abstract models of the generalization of process knowledge which provide the means for an expert to make available for others the pathway to gain this specialized expertise
Active Learning	<ul style="list-style-type: none"> • Learning Experiences & Curricula • Performance Model • Performance Criteria 	Guided learning experiences that put a learner into a learning performance before, during and after class, individually or within teams, designed to strengthen their learning performance with specific planned learning and growth outcomes
Reflection	<ul style="list-style-type: none"> • Reflection 	The set of practices and techniques used to increase metacognition and self-awareness and increase the level of learning, leading to stronger learning performance and self-growth
Assessment	<ul style="list-style-type: none"> • Assessment vs. Evaluation • SII Assessment & Self-Assessment • Program Assessment • Course Assessment • Activity Assessment 	The set of practices and values that replace evaluation with assessment to focus on improving future performance and enhancing self-growth capacity
Mentoring	<ul style="list-style-type: none"> • Mentoring • Performance Measures 	Includes all the practices and techniques for the facilitation of growth of others, such as role modeling, challenging, advocating, developing growth plans, assessing and constructive interventions
Growth and Self-Growth	<ul style="list-style-type: none"> • Growth/Self-Growers • Professional Development • Accelerator Model 	Cultural values and practices that include updated life visions and growth goals; a learning to learn approach leading to strengthening self-growth capacity by improving learning skills and building grit

Process Education Principles and Mindset

Underlying the facilitation of learning to learn and self-growth experiences is the use of the principles of Process Education and the mindset of a Process Educator (Apple, Ellis, & Hintze, 2016k). The profile of a Process Educator can be used as a guide for professional development. These principles should be internalized and are part of being a learner, facilitator, assessor, mentor, self-grower, community member and reflector, of creating a quality learning environment, and for constructing instructional design (Desjarlais & Morgan, 2013).

Focus on growth mindset: In any learning situation, the facilitator can provide the profiles of a self-grower and a professional in the desired discipline. This will help motivate and mentor the learner to work towards, and measure growth towards, the internal goal of being a self-grower and self-developing professional (Apple, Ellis, & Hintze, 2016f).

Learning as a performance: Learning to Learn is about improving the performance of learning. When this principle is understood by the learner, facilitator and mentor, more direct efforts can be made to constantly use every practice as the means to increase this performance (Apple & Ellis, 2015).

Learning skills: The Classification of Learning Skills is a tool that helps learners, facilitators, and mentors to focus on a specific set of transferable learning skills when designing, assessing, facilitating, mentoring, and promoting self-growth (Apple, Beyerlein, Leise, & Baehr, 2007).

Belief in learners' unlimited potential: The facilitator establishes rapport and respect with the learner at the outset of a learning experience without letting previous observations prejudice their viewpoint. He or she describes the environment (e.g., in the syllabus) where a learner will want to perform at a high level to avoid disappointing the facilitator (Apple & Smith, 2007).

Explicit performance criteria: For every learning challenge, at the course level and activity level, the learner knows exactly what is expected out of them, allowing the learner to take ownership and responsibility for meeting these expectations (Hinton, 2007).

SII-Assessment: The most universal and common tool for reporting assessment feedback (SII-Assessment) is structured as Strengths, along with why they are important and how they were produced; Improvements, and the short-term and long-term action plans that produce the improvements; and the Insights gained from learning that produce meaning and value by answering the question "so what" (Wasserman & Beyerlein, 2007).

Don't do for students what they can learn to do for themselves: Interventions for struggling students should allow students to struggle reasonably. Struggling builds coping skills, holds students accountable for their performance, and develops the growth-oriented moment — a desire to increase capacity (Smith & Apple, 2007a).

Intervene on process, not content: In letting students learn to do for themselves, intervention on process gives the facilitator, assessor or mentor the opportunity to enhance students' learning skills or performance (capacity) rather than give them guidance or be their consultant on the content (Smith, 2007d).

Community Learning

Social Learning is one of the 14 aspects of the Transformation of Education (Hintze-Yates, Beyerlein, Holmes, & Apple, 2011) in which the shift is from individual learning to community learning. The research in cooperative learning (Johnson, Johnson, & Smith, 2013) and Learning Communities (Evergreen State University, 2016) is extensive. Within Learning to Learn Camps, both the learning community structure and cooperative learning teams have been in place for 15 years (Apple, Ellis, & Hintze, 2015). Thus the set of practices that result from these different areas are well developed.

Internalize cooperative learning principles: The five key principles of cooperative learning should be constantly in the mind of the facilitator in order to strengthen its implementation: positive interdependence, individual and team accountability, promotive interaction, development of interpersonal and teamwork skills, and team reflection (Johnson, Johnson, & Smith, 2013).

Design teams for diversity: Each team that will be a base group—consistently used throughout a course, extensive learning experience, or an extracurricular activity—should be designed with the following keys to diversity: past performance, gender, ethnic background, age and interests (e.g., major) (Smith, 2007a).

Team roles with rotation: A learning team should consist of between 4 and 6 individuals, based upon its context, where the common roles of team leader, recorder, reflector, and spokesperson are used in just about every learning activity (other roles could include critical thinker, spy, technologist, or consultant) and these roles should be rotated after each different learning activity (Smith, 2007a).

Team challenge exceeds every individual's capacity: While it is common to believe that a learning challenge should be accessible to each and every individual, during cooperative learning the specific learning experience

challenge should be set considerably higher than the best learners can accomplish by themselves (Smith & Spoelman, 2009).

Facilitating horizontal communication: If students are going to be effective at teaching each other, whether using cooperative learning or not, they must look to each other, rather than the instructor, for the validation of their learning by: 1) asking challenging questions of each other, 2) providing arguments that refute a premise or the logical reasoning, 3) rephrasing to improve articulation, and 4) summarizing at the end of class (Adams & Hamm, 1994).

Friendly team competition: Student teams love to perform well, and they want to know how their performance ranks in comparison to other teams in the course or community. Once these performances are made public, there will be an opportunity for both implicit and explicit competition that adds energy, engagement, and focus during the learning experience (Schindler, 2009).

Inventory of learning practices: Student teams constitute a community of practice where team members will share and develop an inventory of learning practices and strategies beyond the experience of any one team member, in order to meet the challenge presented by a sufficiently complex problem (Lave & Wenger, 1998).

Design learning communities: The purposeful use of structured grouping of a large number of students centered on shared experience, residency, or theme facilitates growth of individual students through an emphasis on informal conversations, active learning, assessment, and mentoring (Ashe & Romero, 2007).

Creating a Quality Learning Environment

The methodology for creating a productive learning environment provides 10 key steps for creating the learning to learn and self-growth environment with a set of common characteristics: shared commitment, risk-taking, high expectations, assessment, and a desire for continuous challenge and growth (Apple & Smith, 2007). The Transformation of Education shares 14 aspects of cultural change in which this environment for growth and development aligns with many of areas presented here (Hintze-Yates, Beyerlein, Apple, & Holmes, 2011). The most important aspects in this environment include the shift from evaluation to assessment, which encourages more risk-taking, and as a consequence, failures without punitive evaluation; the shift from self-consciousness to self-growth, where everyone has unlimited potential; and the shift to cognitive complexity from simple memorization for problem solving.

Analyze a course syllabus: The design and implementation of an activity which has students cooperatively read the syllabus critically to understand the class environment, establish shared performance criteria for learning, reveal the communication style, and explore the culture of the class will increase student clarification of expectations and involvement (Yueh & Copeland, 2015).

Getting student buy-in: Since the culture, practices, and mindsets of a learning to learn and self-growth focus is so foreign to most students, a set of benefits and working assumptions must be shared publicly in an open and questioning way so that they are very transparent (Burke, 2007).

Learner contract for success: The course setup includes establishing a shared public commitment through the use of a document consisting of mutually developed performance criteria for learners and facilitator(s), a mechanism for assessment, and the means to hold all parties accountable (Smith & Beyerlein, 2007).

Let students fail: Leveraging short term failure in a challenging environment with feedback, open discussion of the role of failure in learning, and assessment and coaching of process and strategy develops self-efficacy and contributes to growth and risk-taking (Hadley & Leise, 2007).

Set high expectations: When the facilitator establishes high expectations in a non-threatening environment, and shares their confidence for learners meeting these expectations for performance, the learner's motivation increases and their risk-avoidance decreases significantly, especially if linked to their future goals or visions (Smith, 2007f).

Hold students accountable: When people are conditioned into a set of common reactive behaviors, change is very difficult—even if the change is growth-oriented and self-desired. In these cases the desire to be monitored and held accountable is an implicit contract with the mentor (Hadley & Leise, 2007).

Let students take ownership of their learning: Since the students are very conditioned to let faculty/teachers drive the learning and faculty have a reluctance to let students take control, the facilitator must learn to risk providing the vacuum to let students do the learning and let them take the ownership and responsibility for constructing knowledge, an essential principle for learning to learn (Smith, 2007e).

Systematic Design

The quality of learning to learn approaches within a course needs to be effectively integrated into its complete design.

The 21-step methodology for course design (Davis, 2007) illustrates where and how a designer integrates growth goals, learning skills, assessment, and performance criteria and tasks into the structure of the course. The Classification of Learning Skills (Apple, Beyerlein, Leise & Baehr, 2007) is integrated into step 8, where 15 skills are chosen for a course. Long-term behaviors (Ellis, 2007) are targeted for transformational learning (growth goals) designed for the course, and performance criteria (Hinton, 2007) target these developments. The performance measures (rubrics) for the course are the means to measure the growth of the learners (Bargainnier, 2007). The course assessment system is designed to produce the environment, tools, and mindset for self-growth (Apple, Ellis, and Hintze, 2016c).

Pre-activities: The performance of students during classroom activities can be increased significantly when students come into class with the first 7 to 10 steps of the Learning Process Methodology performed to best of their abilities, as described as a key component of "Activity Books" (Apple, Ellis & Hintze, 2016b).

Learning outcomes: A course should provide an explicit set of learning outcomes for defining its competencies, targeted growth areas, experiences, professional accomplishments, and integrated performances expected of the course so the learner can be an active agent in their own learning and growth (Beyerlein, Davis, & Apple, 2007).

Align learning skills with course content: Identify the most important fifteen specific learning skills (Davis, 2007) for a course, and then for each activity choose three specific learning skills to focus on their development (Apple, Krumsieg, & Beyerlein, 2006).

Problems from different disciplines: The building of the problem-solving process with interdisciplinary expertise is dependent upon providing an array of problems outside the discipline of study, built upon working expertise related to the course's learning outcomes (Apple, Nygren, Williams, & Litynski, 2002).

Positive evaluation system: The evaluation system is designed to honor both effort and performance, where the students keep track of earned points for each thing they accomplish or do. This effort is combined at the end of the process with their work products, which are evaluated with scoring forms and published criteria, to reward strong performances (Black & Wiliam, 1998).

Open syllabus: The students are given the chance to decide the weighting of some of the key projects, which components of the projects they want to do, and which activities they would prefer to do. This practice provides more shared ownership of the process and

outcomes for the learning experience (Apple, Krumsieg & Beyerlein, 2006).

Show relevance and why for learning: At the start of each learning experience, provide students valuable contexts for the use of the knowledge and rationale for relevance in their own life (Hanson, 2007).

Behavioral themes: Key long-term behaviors have a set of themes aligned with activities to support development in these themes (Davis, 2007). When considering themes for adding learning to learn into a course, you may consider growth mindset, assessment (self-assessment), teaming, grit, performance improvement, and professionalism.

Facilitation

Facilitation is a process that is critical for learning to learn and supporting a growth culture (Smith, 2007d), and is governed by a set of principles (Bressen, 2016). At the heart of facilitation is a methodology that describes the key steps to keep in mind during any given facilitation challenge (Smith & Apple, 2007a). The set of behaviors that identify a quality facilitator are described in the Profile of a Quality Facilitator (Smith, 2007e). Finally, the most significant tool for pre-thinking a facilitation is the facilitation plan (Minderhout, 2007a). A significant overview of facilitation can be found in *25 Years of Process Education* (Apple, Ellis & Hintze, 2016e).

Profile each student: The collection of data about learner needs, expectations and interests prior to the outset of the learning experience allows for customization of the experience and establishes learner excitement and buy-in (Minderhout, 2007b).

Use student names: The use of name cards and the intentional use of student names demonstrates the facilitator's commitment to the individual learner and helps establish a community where peer-to-peer learning is valued (Smith, 2007d).

Answer questions with a question: This technique is a cornerstone of active learning which shifts responsibility to the learner, helps to organize guided inquiry, and models effective questioning techniques to establish metacognition and critical thinking (McKeachie, Wilbert, et al., 2005).

Reach out to students who miss class: The reasons for students missing classes are numerous; non-judgmental, explicit interventions based on attendance can redirect students towards more productive behaviors, better attitudes and stronger commitment (Rosenkranz, Todd et al., 2014).

Use of exemplars: Having students assess excellent work products from past courses or highlighting current stellar student performances increases students' motivation by having them analyze the exemplar's quality. The facilitator can find a positive aspect to the struggle of a particular student or the team as a whole and point it out with supporting evidence (Minderhout & Smith, 2007).

Milestone performance checks: Pre-described check points help to “chunk” an ill-structured, multi-day activity (projects) into smaller steps that increase learner time-management, help hold students accountable, provide for assessment opportunities and highlight areas that need additional facilitator attention/intervention (Boss & Krauss, 2014).

Analyze test results: Exam wrappers and other test autopsy techniques provide evidence for learning strategy and teaching effectiveness, provide guidelines for future facilitator performance, and help guide students transforming test results into a self-assessment (Du Bois & Staley, 1997).

Give students choices: Each time an opportunity is found to give students choices about something, it increases their ownership, autonomy, buy-in, and commitment, especially in large classes or required courses where there is often greater resistance (Burke, 2007).

Ask students what they want from you: Allowing students, through a collaborative effort of creating a learner contract, to voice expectations for faculty performance and engagement leads students to shared commitment and accountability in establishing an effective learning and growth environment (Smith & Beyerlein, 2007).

Allow short tangents: In addition to increasing a sense of relevance and student ownership of learning, student-directed 5 to 10 minute tangents can increase critical understanding of the content (Sparapani, 2013).

Free to move: An inclusive learning environment that lets students move freely within the classroom accommodates different learning styles and strategies, creates a sense of shared ownership of the learning space, and increases metacognition by identifying and addressing conditions that must be met for learning to occur productively for different learners (Metropolitan Center for Urban Education, 2008).

Respond to learner needs: The facilitator is well aware that a one-size-fits-most approach will not help every learner reach their potential. Identifying unique student needs with your course assessment system helps to cre-

ate a more inclusive learning environment (Minderhout, 2007).

Closure of activity: content and process: Summation of understandings, growth opportunities, accomplishments and future needs built on the principles of horizontal communication provides practice with self-assessment and re-establishes the relevance of the learning activity to the community (Smith & Apple, 2007a).

Understand before contextualization: The self-explanation of concepts ties new learning to prior knowledge and increases understanding, and thus will strengthen performance in subsequent transfer situations (contextualization), thus increasing learning efficiency (Dunlosky et al., 2013).

"What If" exploration: Have students minimize the number of problems/exercises by adding a “what if” exploration as part of each exercise where divergent thinking exercises require active construction of learning. This practice develops deeper understanding of content than recitative methods (Bransford, Brown, & Cocking, 2000).

Time pressure learning: Structuring the learning challenge by using timed learning segments with fixed deadlines within an instructional period can increase attention to task, provide quicker closure, and facilitate an easier shift to the next task (Paas & Van Merriënboer, 1994).

Extend time: When students are in timed learning and request an extension for time, determine how meaningful the last 5 minutes have been and whether their need for more time was because of the challenge or lack of performance, then measure the effectiveness of the time extension. This practice follows the models of gamification systems that illustrate a responsive quantification system where previously earned experience points can be used for extension requests (O'Donovan, Gain, & Marais, 2013).

Emotional timeout: Letting students decide they need an emotional break can be an effective, non-punitive use of time-out strategies that will help to develop self-regulation strategies in learners, increasing self-growth and metacognitive awareness (Mercier, 2014).

Simultaneous reporting: The public performance of multiple teams/individuals demonstrating their learning at the whiteboard increases motivation, likelihood of participation and completion, and can inspire students to do their best work (Bergin, Bergin, Van Dover, & Murphy, 2013).

Methodologies

A critical principle of Process Education is the idea of a methodology, which is an abstract model of the generalization of process knowledge (Apple, Ellis, & Hintze, 2016i). The methodologies are tools to analyze a process, self-facilitate the use of the process, assess the process in use, and constantly increase metacognition by building one's own generalization through repeated experiences of its use (i.e., internalization). The set of methodologies are separated into those for learners (Apple, Morgan, & Hintze, 2013) and those for educators (Beyerlein, Holmes, & Apple, 2007). The most fundamental of all the methodologies is the Learning Process Methodology (Apple, Ellis, & Hintze, 2016g) that supports the design, facilitation, and assessment of self-directed learning during activities and improving learning performance.

Learning Process Methodology (LPM): The LPM is the cornerstone of learning to learn since the 14 steps are used to design active learning experiences, to facilitate the learning experiences, to assess the learning performance, and to provide students with the metacognition of the learning experience and the means to self-assess a learning performance (Apple, Ellis, & Hintze, 2016g).

Student Methodologies

Reading for Learning Methodology: Since the reading process is so fundamental for learning and academic success, the reader, while reading, should be going through the learning process, especially the development of inquiry questions during the quick read (Apple, Morgan, & Hintze, 2013).

Personal Development Methodology: The ability to facilitate self-growth is essential to increasing the capacity of self-growth and is systematically laid out as a series of critical steps for generating personal development (Leise, 2007c).

Teamwork Methodology: The learning to learn culture is centered around team learning and having students support each other in learning and growth by being effective in building teams and making them stronger (Smith, Baehr, & Krumsieg, 2007).

Planning/Preparation Methodology: Process Education includes a lot of public performance which brings with it anxiety about evaluation; this can be addressed effectively with the use of the preparation methodology (Apple, Morgan, & Hintze, 2013).

Faculty Methodologies

Mentoring Methodology: The process of facilitating student growth, laid out in the mentoring methodology,

is essential to building students' ability to learn how to facilitate their own self-growth (Apple, Ellis, & Hintze, 2016h).

Facilitation Methodology: The process of facilitating student learning is at the heart of teaching learning to learn, and becoming skilled at this process will be fundamental to success in teaching learning to learn (Smith & Apple, 2007a).

Course Design Methodology: The 21-step methodology for course design (Davis, 2007) illustrates where and how a designer integrates growth goals, learning skills, assessment, and performance criteria and tasks into the structure of the course; thus, how you build learning to learn and self-growth into a content course.

Activity Design Methodology: The heart of the process of teaching learning to learn and developing self-growers is the design of activities to support the LPM and incorporate learning skills for growth development (Hanson, 2007).

Methodology for Creating a Quality Learning Environment: The start of creating a learning to learn and growth environment starts with this core methodology which sets the stage for unlimited potential, commitment to success, high expectations, assessment culture, and continuous challenge (Apple & Smith, 2007).

Assessment Methodology: A critical component of creating self-growers is the teaching of self-assessment by using, and developing the use of, the assessment methodology by both the students and the faculty members (Apple & Baehr, 2007).

Active Learning

The structure of a learning to learn and self-growth experience puts students in a learning performance through active learning. The background in understanding learning to learn and improving learning performance helps both learners and faculty to focus on and improve this performance (Apple & Ellis, 2015). The target for use of active learning is creating a quality collegiate learner (Apple, Duncan, & Ellis, 2016).

Classroom activities using LPM: The building of the metacognition of the learning process is enhanced by using learning activities based upon the LPM, thus increasing transferability of learning to new contexts for the learner, while the facilitator can make use of the scaffolding to increase the level of challenge of activities (Leise, Beyerlein, & Apple, 2007).

Having teams plan: During active learning, having the student(s) review the activity and construct a plan will make best use of their learning time, integrate available resources, and increase productivity of their learning whether as a team (getting everyone on the same page) or an individual (avoiding spinning their wheels) (Smith, Baehr, & Krumsieg, 2007).

Critical thinking questions: a guided design: The development of relevant, growth-oriented, and logically sequenced questions that stimulate a restructuring of information moves the learner through several taxonomic levels of learning (Hanson, 2007).

Connect to prior knowledge: A key component of POGIL (Process-Oriented Guided-Inquiry Learning) activities, taking inventory of what is already known about a problem, initializes the restructuring of knowledge that enhances transferability of that learning to new learning and problem solving contexts (Hanson & Moog, 2007).

Hardest problem: Asking learners to generate the most difficult problem that falls into the category of a just-completed problem works to build generalization, transferability, and with the internalization of the problem-solving methodology, leads to an increase in working expertise (Nygren, 2007).

Consulting across teams: When expertise is within a single team, cross-team consultations, a technique for increasing horizontal communication (Adams & Hamm, 1994), leads to a consideration of process, the building of a diversified skills arsenal (Lave & Wenger, 1998), and offers the opportunity to observe and assess a range of collaborative practices (Minderhout & Smith, 2007).

Students spy on other teams: When all teams are struggling, but each team has portions of the whole, sending out spies leads to borrowing the best of the ideas and adds the extra element of team competition to create a more pressured and energetic learning environment (Schindler, 2009).

Validation of learning: The students are required to show that they know they know by verifying, via multiple means, that they have produced the prescribed learning. These means include writing an effective learning journal, solving the hardest problem, teaching others, or identifying boundary issues (Armstrong, 2007b).

Writing to learn: This is an approach that provides many different but structured "writing across the curriculum" activities to help learners use language and its writing processes to construct knowledge, increase engagement, enhance relevance of material, and increase capacity for

self-assessment and reflection on self-growth (Parker & Goodkin, 1987).

Parallel processing: Encourage students to optimize their time in class by engaging learners with multiple opportunities simultaneously, such as activities that stimulate both the body and the brain, require focus on a part and the whole, require cognitive, social and emotional processing, require simultaneous writing to learn, or require the student to use both focused and peripheral attention (Caine & Caine, 2009).

Reflective Practices

Reflective practitioners want to know the why, how, and motivation behind their behaviors, decisions, and performances and will take the time needed to step back and process these questions to increase their metacognition (Apple, Ellis, & Hintze, 2016l). There are many tools that increase the use and performance of process knowledge, like reading logs, learning journals, and problem solving logs (Pacific Crest, 2013). Other tools are designed to increase metacognition and provide ways to elevate understanding and awareness. The last group focuses on mechanisms to explore what makes up a performance, to capture performance data, and to provide mechanisms to improve future performance.

Reading log: Reading for Learning is a very important process for advancing preparation and life-long learning and can be documented and assessed with the reading log (Apple, Morgan, & Hintze, 2013).

Learning journal: The result of learning can be documented with a learning journal entry that answers what has been learned, what triggered it, why it is true, why it is valuable and how it can be applied (Apple, Morgan, & Hintze, 2013).

Reflector's report: In a cooperative learning model, the role to foster team improvement is the reflector. This role's performance can be documented by a reflector's report which provides assessments of individuals within their role, and of the team itself so the team's learning performance continues to improve (Hare, 2007).

Team reflection: Once team members bring closure to their work or learning experience they take time out to focus on ways to increase future learning and performance and determine what they have really learned (Hare, 2007).

Metacognitive exploration: A metacognitive exploration worksheet has the learner record their level of learning, explain how they determined their level of learning, list the learning skills they use when demonstrating or applying their learning, reflect on use of the Learning

Process Methodology, create an outline of how to teach what was learned to someone else, and create inquiry questions that will help a new learner explore more deeply or transfer their learning (Apple, Ellis, & Hintze, 2016l).

Recorder's report: A very important component of team learning is the documentation of the learning during the learning activity by the recorder. This action is one of the most valuable writing to learn exercises, which elevates the collective learning (Carroll, Beyerlein, Ford, & Apple, 1997).

Reflection time: In life, there is the need to stop doing and step back to figure out what has just happened: what was learned, how you did what you just did, why you decided something, why you reacted the way you did or why someone else reacted as they did. Reflection time can be triggered by a facilitator, mentor, or the learner themselves (Apple, Ellis, & Hintze, 2016l).

Planning reflection: A critical component in improving learner performance is to identify all the learning and performance tasks, prioritize these efforts, schedule the time to complete them, optimize performance during each unit of time, and keep a time log journal of learning productivity to improve future planning and performance with time (Apple, Morgan, & Hintze, 2013).

Produce practice tests: A significantly valuable technique for students to review and assess readiness and their level of learning is for students to produce their own practice test to best emulate how faculty will measure their learning (Dunlosky et al., 2013).

Assessment

At the core of a growth culture is assessment, where students, faculty and staff will be willing to take risks to get outside of their comfort zone, experiment and explore, and work towards becoming a more effective self-grower. They are motivated to assess because instead of being evaluated and judged on their performances, they get feedback on how to improve their capacity to perform (Baehr & Beyerlein, 2007). The difference between an evaluation and assessment culture is very critical in implementing learning to learn and self-growth (Baehr, 2007). The role of self-assessment is fundamental to self-growth and needs to replace self-evaluation for learning to learn and self-growth development to flourish (Apple, Morgan, & Hintze, 2013).

Self-Assessment: The shift from self-evaluation to self-assessment, where the assessment mindset takes over with a desire for self-improvement, self-growth and increased personal capacity, is at the heart of a growth

mindset and critical for learning to learn (Apple, Ellis, & Hintze, 2016m).

Assess self-assessment: Assessment practice and skill of many individuals coming from an evaluation culture with an evaluation mindset will need improvement. The best tool to help them to improve their assessments—and especially self-assessments—is assessing them (Anderson & Watson, 2007).

Mid-term assessment: One of the most important tools used to improve teaching practices and implementation of learning to learn and self-growth is asking for student SII feedback two to three times during a course, along with having them provide specific feedback on new innovations (Armstrong, 2007a).

Real-time assessment of learner performance: The ability to do effective constructive intervention, strengthen the quality learning environment and facilitate learner performance and cooperative learning all depend on continuous real-time assessment (Minderhout & Smith, 2007).

Assess work products before evaluation: The greatest opportunity to increase capacity of the performer comes at a key point when motivation is high. Since most people want to improve their evaluation, they are very open to assessment that would improve their work product before it is evaluated (Minderhout & Smith, 2007).

Peer assessment: A strong learning opportunity is having students assess, individually or in teams, either the performance or work products of other individuals or teams to help them and themselves improve their learning (Minderhout & Smith, 2007).

Mentoring

The facilitation of growth is enhanced through a mentoring culture and effective mentoring process (Leise, 2007b). The basic tool for effective mentoring is the mentoring methodology (Apple, Ellis, & Hintze, 2016h). The major outcome for each person in this mentoring culture is to become a self-grower (Leise, 2007a).

Mentoring system: A personal, reciprocal relationship focused on growth and accomplishment, professional or career development, and/or psychological support should be established between students and more experienced learners and can increase productivity and self-efficacy (Dwyer, Green & Bauer, 2006; Santos & Reigadas, 2004).

Elevate the level of challenge: Create a design (like the Learning to Learn Camps) which leads students to meet the course outcomes and performance criteria, but forces

students to prioritize the growth areas, activities and work products that best align to their needs or interests when time constraints make it impossible for any student to do everything (Apple, Ellis, & Hintze, 2015).

Challenge students to leave their comfort zone: Facilitators should challenge students to risk failure by being outside their comfort zone by showing support and encouragement, providing assessment feedback and emphasizing self-assessment and self-validation. This leads to students doing more self-challenging once they realize that more growth occurs when you're outside the comfort zone (Apple & Smith, 2007).

Do you feel productive?: This intervention technique increases self-monitoring of performance or productivity, and is more effective than those based on students being more observably engaged. Observable "engagement" behaviors may or may not be linked to performance (Maag, Reid, & DiGangi, 1993).

Self-challenge: A very important tool for all those who want to become self-growers is to get comfortable being outside one's own comfort zone. Since no one is going to be constantly challenging you, the ability to self-challenge (i.e., to take on challenges beyond current capacity allowing for possibility of failure and substantial growth) should be supported and encouraged by the mentors and facilitators in a learning to learn experience (Apple, Morgan, & Hintze, 2013).

Challenging students when they give up: Successful mentoring requires holding the mentee to their own standards and commitment to their growth goals; part of this accountability includes challenging the mentee to provide clarification and elucidation for decisions, actions, and avoidant behavior (Cohen, 1995).

Recognize the growth moment: Analogous to a teachable moment where the learner develops the need to know, the moment of growth appears when a mentee is dissatisfied with current performance capacity and desires a constructive intervention to help grow a specific learning skill or process to enhance current and future performance (Johnson & Worden, 2014).

Empower students with personal factors: An informal, non-hierarchical relationship that encourages interactive dialog, shared power and collaborative decision making about a specific factor leads to increasing self-understanding, confidence, and self-efficacy (Gayle, 2011).

Growth/Self-Growth

Learners with a growth mindset believe that they have the ability to increase their ability to acquire their knowledge

(learn to learn), as well as increase their capacity to perform on the basis of that knowledge (grow). Self-Growers are people who consciously and continuously strive to mentor their own self-development, challenging and assessing themselves to increase their capacity in any performance area (Apple, Ellis, & Hintze, 2016f). These practices connect with just about every other area of practice because the ultimate goal is to become a self-grower.

Learners set learning and growth goals: Within every learning experience it is important to give as much self-determination as possible with regard to what the learner wants to learn, but even more important is letting them define their own growth goals (Jain, Apple, & Ellis, 2015).

Profile of Collegiate Learner: This collection of 50 key learner characteristics that align with most general education outcomes provides the target of learning to learn, and for a self-grower, of what to work on, and provides opportunities for growth in every learning experience (Apple, Duncan, & Ellis, 2016).

Performance measures: A major tool to enhance growth is a scale of different levels of performance provided to the learner so that they can measure where they are currently and develop strategies for improvement with their mentor and facilitator, and during self-assessment (Apple, Ellis, & Hintze, 2016j).

Repeated reflections: A critical component of establishing growth is to repeat the use of a reflection tool over time to measure the growth in the performance, e.g., self-assessments, reading logs, or learning journals; this will provide everyone—the learner, facilitator, assessor, mentor, and evaluator—a measure of the amount of growth in self-assessing, reading and learning (Apple, Ellis, & Hintze, 2016l).

Life vision: The more that a person has developed self-knowledge by analyzing who they are, where they have come from, what they want to become, and what they would like to accomplish in their life—determining what one wishes to be or achieve in life—the greater their motivation, ownership, and success become (Mettauer, 2002).

Self-Growth paper: At the end of every learning to learn and self-growth experience is a great opportunity for the learners and the facilitator to measure the degree in which growth and self-growth has been produced by each student by having them identify and analyze the key areas of growth and determine its causes (Apple, Morgan, & Hintze, 2013).

Conclusion

As a Process Educator, you probably found that many of these practices are part of your tool kit already. Our purpose in this paper is to challenge you, the reader, to increase the size of your learning to learn facilitator tool kit, the frequency of use of these practices, and build

stronger proficiency with each of them. The authors encourage you to use read this listicle annually to measure your progress as a learning to learn facilitator, and then identify 10 practices to advance during the next year in quality and frequency of use.

References

- Adams, D. M., and Hamm, M. (1994). *New designs for teaching and learning*. San Francisco, CA: Jossey-Bass Inc.
- Anderson, K. & Watson, Y. (2007). Assessing assessments. In S. W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Apple, D. K. & Baehr, M. (2007). Assessment methodology. In S. W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Apple, D. K. & Smith, P. (2007). Methodology for creating a quality learning environment. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Apple, D. K., & Ellis, W. (2015). Learning how to learn: Improving the performance of learning. *International Journal of Process Education*, 7(1). Retrieved from www.processeducation.org/ijpe/2015/learning.pdf
- Apple, D. K., Beyerlein, S. W., Leise, C., & Baehr, M. (2007). Classification of learning skills. In S. W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Apple, D. K., Krumsieg, K., & Beyerlein, S. W. (2006). *Course design handbook*. Lisle, IL: Pacific Crest.
- Apple, D. K., Morgan, J., & Hintze, D. (2013). *Learning to learn: Becoming a self-grower*. Hampton, NH: Pacific Crest.
- Apple, D. K., Nygren, K. P., Williams, M. W., & Litynski, D. M. (2002). An evaluation system that distinguishes among levels of learning in engineering and technology. Paper presented at the ASEE/IEEE Frontiers in Education Conference, Boston, MA.
- Apple, D., Duncan, W. & Ellis, W. (2016). Key learner characteristics for academic success. *International Journal of Process Education*, 8(2). Retrieved from http://ijpe.online/2016_2/2016_success2.pdf
- Apple, D., Ellis, W., & Hintze, D. (2015). Learning to Learn Camps: Their history and development. *International Journal of Process Education*, 7(1). Retrieved from <http://ijpe.online/2015/camps.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016a). 25 years of Process Education. *International Journal of Process Education*, 8(1), 3-6. Retrieved from <http://ijpe.online/25/image/sections/intro.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016b). Activity books. *International Journal of Process Education*, 8(1), 125-128. Retrieved from http://ijpe.online/25/image/sections/activity_books.pdf
- Apple, D., Ellis, W., & Hintze, D. (2016c). Assessment vs. evaluation. *International Journal of Process Education*, 8(1), 53-57. Retrieved from <http://ijpe.online/25/image/sections/AE.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016d). Assessment/Self-Assessment. *International Journal of Process Education*, 8(1), 56. Retrieved from http://ijpe.online/25/image/sections/self_assessment.pdf
- Apple, D., Ellis, W., & Hintze, D. (2016e). Facilitation. *International Journal of Process Education*, 8(1), 87-92. Retrieved from <http://ijpe.online/25/image/sections/facilitation.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016f). Growth/Self-Growth. *International Journal of Process Education*, 8(1), 11-16. Retrieved from <http://ijpe.online/25/image/sections/selfgrowth.pdf>

- Apple, D., Ellis, W., & Hintze, D. (2016g). Learning Process Methodology. *International Journal of Process Education*, 8(1), 111-114. Retrieved from <http://ijpe.online/25/image/sections/LPM.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016h). Mentoring. *International Journal of Process Education*, 8(1), 93-98. Retrieved from <http://ijpe.online/25/image/sections/mentoring.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016i). Methodologies. *International Journal of Process Education*, 8(1), 115-119. Retrieved from <http://ijpe.online/25/image/sections/methodologies.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016j). Performance measures. *International Journal of Process Education*, 8(1), 75-78. Retrieved from <http://ijpe.online/25/image/sections/PM.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016k). Process Education. *International Journal of Process Education*, 8(1), 39-44. Retrieved from <http://ijpe.online/25/image/sections/PE.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016l). Reflection/Meta-cognition. *International Journal of Process Education*, 8(1), 67-70. Retrieved from <http://ijpe.online/25/image/sections/reflection.pdf>
- Apple, D., Ellis, W., & Hintze, D. (2016m). Self-Assessment. *International Journal of Process Education*, 8(1), 59-66. Retrieved from http://ijpe.online/25/image/sections/self_assessment.pdf
- Armstrong, R. (2007a). Mid-term assessment. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Armstrong, R. (2007b). Self-validation of one's learning. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Ashe, S. & Romero, V. (2007). Introduction to learning communities. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Baehr, M. & Beyerlein, S. (2007). Overview of assessment. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Baehr, M. (2007). Distinctions between assessment and evaluation. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Bargainnier, S. (2007). Fundamentals of rubrics. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Bergin, D., Bergin, C.C., Van Dover, T. & Murphy, B. (2013). Learn more show what you know. *Phi Delta Kappan*, 95(1), 54-60.
- Beyerlein, S. W., Holmes, C. & Apple, D. K. (Eds.). (2007). *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Beyerlein, S.W., Davis, D. & Apple, D.K. (2007). Learning outcomes. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Black, P. & Wiliam, D. (1998) Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice*, 5(1), 7-74.
- Boss, S. & Krauss, J. (2014). *Reinventing project-based learning: Your field guide to real-world projects in the digital age* (2nd edition). Eugene, OR: International Society for Technology in Education (ISTE).
- Bransford, J., Brown, A., & Cocking, R. (Eds.). (2000). *How people learn: Brain, mind, experience and school*. Washington, DC: National Academy Press.
- Bressen, T. (2016). 5 principles of facilitation. Retrieved from <http://www.treegroup.info/topics/handout-facilitation.pdf>

- Burke, K. (2007). Getting student buy-in. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Caine, R. & Caine, G. (2009). *12 brain/mind natural learning principles expanded*. Thousand Oaks, CA: Corwin Press.
- Carroll, S., Beyerlein, S. W., Ford, M., & Apple, D. K. (1997). *The learning assessment journal as a tool for structured reflection in Process Education*. Corvallis, OR: Pacific Crest.
- Cohen, N. H. (1995). The principles of adult mentoring scale. *New Directions for Adult and Continuing Education*, 66, 15–32.
- Davis, C. (2007). Course design methodology. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Desjarlais, M., & Morgan, J. (2013). What is special about Process Education? *International Journal of Process Education*, 5(1). Retrieved from <http://ijpe.online/2013/special.pdf>
- Du Bois, N. F. & Staley, R. K. (1997). A self-regulated learning approach to teaching educational psychology. *Educational Psychology Review*, 9(2), 171-197.
- Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, 14(1), 4-58.
- Dwyer, L. P., Green, S. G & Bauer, T. N. (2006). Does advisor mentoring add value? A longitudinal study of mentoring and doctoral student outcome. *Research in Higher Education*, 47(4), 451-476.
- Ellis, W. (2007). Long-term behaviors. In S. W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Evergreen State University. (2016). Learning communities research and practice. Retrieved from <http://washington-center.evergreen.edu/lcrjournal/>
- Gayle, Robin G. (2011). The mentoring relationship: Co-creating personal and professional growth. In R. H. Klein, H. S. Bernard, & V. L. Schermer (Eds.), *On becoming a psychotherapist: The personal and professional journey*. Oxford: Oxford UP.
- Hadley, J. & Leise, C. (2007). Differentiating between growth and acquiescence. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Hanson, D. (2007). Designing process-oriented guided-inquiry activities. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Hanson, D. & Moog, R. (2007). Process-oriented guided-inquiry learning. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Hare, P. (2007). Team reflection. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Hinton, C. (2007). Writing performance criteria for a course. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Hintze, D. & Beyerlein, S. (2016). Major topics in process education: A directory of scholarship and tools. *International Journal of Process Education*, 8(2). Retrieved from <http://www.processeducation.org/ijpe/2016/pathfinder/>
- Hintze-Yates, D., Beyerlein, S., Apple, D., & Holmes, C. (2011). The transformation of education: 14 aspects. *International Journal of Process Education*, 3(1). Retrieved from <http://ijpe.online/2011/transformationh.pdf>

- Horton, J. (2015) Identifying at-risk factors that affect college student success. *International Journal of Process Education*, 7(1). Retrieved from <http://www.processeducation.org/ijpe/2015/risk.pdf>
- Jain, C., Apple, D. K., & Ellis, W. (2015). What is self-growth? *International Journal of Process Education*, 7(1). Retrieved from <http://ijpe.online/2015/selfgrowth.pdf>
- Johnson, D.W., Johnson, R.T. & Smith, K. (2013). Cooperative learning: Improving university instruction by basing practice on validated theory. *Journal on Excellence in University Teaching*. Retrieved from http://personal.cege.umn.edu/~smith/docs/Johnson-Johnson-Smith-Cooperative_Learning-JECT-Small_Group_Learning-draft.pdf
- Johnson, K. E. & Worden, D. (2014). Cognitive/emotional dissonance as growth points in learning to teach. *Language and Sociocultural Theory*, 1(2), 125-150.
- Lave, J., & Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge: Cambridge University Press.
- Leise, C. (2007a). Becoming a self-grower. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Leise, C. (2007b). Overview of mentoring. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Leise, C. (2007c). Personal development methodology. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Leise, C., Beyerlein, S. & Apple, D. (2007). Learning process methodology. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Maag, J. W., Reid, R., & DiGangi, S. A. (1993). Differential effects of self-monitoring attention, accuracy, and productivity. *Journal of Applied Behavior Analysis*, 26, 329-344.
- McKeachie, Wilbert, et al. (2005). *McKeachie's teaching tips: Strategies, research, and theory for college and university teachers* (12th ed.). Boston: Houghton Mifflin.
- Mercier, T. (2014). Time-out & teaching self-regulation. *Responsive classroom*. Retrieved on 12/16/16 from <http://www.responsiveclassroom.org/time-out-teaching-self-regulation/>.
- Metropolitan Center for Urban Education (2008). *Report: Culturally responsive differentiated instructional strategies*. New York: NYU Steinhardt School of Culture, Education and Human Development.
- Mettauer, J. (2002). *Life vision portfolio*. Lisle, IL: Pacific Crest.
- Minderhout, V. & Smith, P. (2007). Facilitation tools. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Minderhout, V. (2007a). Creating a facilitation plan. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Minderhout, V. (2007b). Identifying learner needs. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Nygren, K. (2007). Developing working expertise (Level 4 knowledge). In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- O'Donovan, S., Gain, J. & Marais, P. (2013). A case-study in the gamification of a university-level games development course. *Proceedings of the South African Institute for Computer Scientists and Information Technologists Conference*, 242-251.
- Paas, F. G., & Van Merriënboer, J. J. (1994). Instructional control of cognitive load in the training of complex cognitive tasks. *Educational Psychology Review*, 6(4), 351-371.

- Pacific Crest. (2013). *Student success toolbox* (1st ed.). Lisle, IL: Pacific Crest.
- Pacific Crest. (2016). Principles of process education. Retrieved from <http://www.pcrest.com/resources/pedef.html>.
- Parker, R. P., & Goodkin, V. (1987). *The consequences of writing: Enhancing learning in the disciplines*. Upper Montclair, NJ: Boynton/Cook.
- Rosenkranz, T., et al. (2014). Free to fail or on-track to college: Why grades drop when students enter high school and what adults can do about it. University of Chicago Consortium on Chicago School Research.
- Santos, S. J. & Reigadas, E.T. (2004). Understanding the student-faculty mentoring process: Its effects on at-risk university students. *Journal of College Student Retention Research Theory and Practice*, 6(3):337-357.
- Schindler, J. (2009). Examining the use of competition in the classroom. *Transformative Classroom Management*. Retrieved from <http://web.calstatela.edu/faculty/jshindl/cm/competition.htm>.
- Smith, P. & Apple, D. K. (2007a). Facilitation methodology. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Smith, P. & Apple, D. K. (2007b). Overview of quality learning environments. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Smith, P. & Beyerlein, S.W. (2007). Obtaining shared commitment. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Smith, P. & Spoelman, L. . (2009). Conditions for challenging learner performance. *International Journal of Process Education*, 1(1). http://ijpe.online/2009/conditions_challengingh.pdf
- Smith, P. (2007a). Designing teams and assigning roles. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Smith, P. (2007b). Establishing initial respect without prejudging. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Smith, P. (2007c). Letting students fail so they can succeed. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Smith, P. (2007d). Overview of facilitation. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Smith, P. (2007e). Profile of a quality facilitator. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Smith, P. (2007f). Setting high expectations. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Smith, P., Baehr, M. & Krumsieg, K. (2007). Teamwork methodology. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Sparapani, E. (2013). Differentiated instruction: Content-area applications and other considerations for teaching in grades 5-12 in the 21st century, 9-12.
- Wasserman, J. & Beyerlein, S.W. (2007). SII method for assessment reporting. In S. W. Beyerlein, C. Holmes, & D. K. Apple, (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Yueh, H. & Copeland, K. (2015). The embodiment of intercultural communication through course syllabi. *Intercultural Communication Studies*, XXIV(2).