

Major Topics in Process Education: A Directory of Scholarship and Tools

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Abstract

This article offers a directory of 30 major topics of Process Education, sharing a definition and overview for each, as well as the most up-to-date and pertinent scholarship from both the Faculty Guidebook and the International Journal of Process Education. Additionally, any key tools associated with the topic are also noted (and shown in the online and interactive version of the article). Readers may also use this article as a pathfinder for the topics in Process Education as presented in the International Journal of Process Education article, 25 Years of Process Education. While that article traces the development of these topics, the goal of this article is to offer a selection of resources to help meet just-in-time needs of all Process Education practitioners, from the interested novice to the seasoned expert.

Determining Topics to Include

The article, 25 Years of Process Education (Apple, Ellis, & Hintze, 2016), defined 28 items as the major topics of Process Education and provided both a definition as well as a fairly comprehensive historical development of each topic (see Figure 1). Four additional topics appear in the pictorial representation of Process Education (Figure 1 of that article), but are not discussed in the article itself. These are listed in Figure 2 and shown in black in Figure 3.

For the purposes of this article, we have decided to weight every topic shown in Figures 1 and 2 equally, as there are as many resources available for the topics in Figure 2 as there are for the 28 in Figure 1. The only exceptions are Professional Learning Community: The Academy and Research-Based Best Practices, neither of which we have included as topics in this article. The Professional Learn-

ing Community: the Academy was treated as a case study of a Learning Community in the 25-Year article and covers much of the same ground as many of the other topics. Similarly, Research-Based Best Practices is an aegis under which a variety of Process Education topics fall, each potentially a case study for implementation of a different aspect of Process Education in its own right. This leaves us with a list of 30 topics that are addressed in this article:

- 28 topics** The original list [Figure 1]
- **2 topics** [Professional Learning Community: The Academy and Best Practices]
- + **4 topics** Activity Assessment, Course Assessment, Program Assessment, Program Design [Figure 2]

30 topics

Figure 1 Original Topics Identified in 25 Years of Process Education (28)

Accelerator Model	Learning Skills	Quality Learning Environment
Activity Books	Learning to Learn	Reflection / Meta-Cognition
Activity Design	Learning to Learn Camp Mentoring	Research-Based Best Practices
Assessment & Self-Assessment	Methodologies	Role of Technology
Assessment vs. Evaluation	Performance Criteria	
Learning Communities	Performance Measures	
Course Design	Performance Model	
Culture of Success	Problem Solving	
Facilitation	Process Education	
Foundations of Learning	Professional Development	
Growth Mindset / Self-Growers	Professional Learning Community: The Academy	
Learning Process Methodology		

Figure 2 Additional Topics Without Sub-Sections in 25 Years of Process Education (4)

Activity Assessment
Course Assessment
Program Assessment
Program Design

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Navigating the Topics

For ease of use in print format, we have decided to present these topics alphabetically in the tables that comprise the bulk of this article. That way, a reader can easily locate a topic, knowing only the topic's name.

We have elected to also use a pictorial representation of the topics addressed in our article, first because it is potentially more informative than a mere listing but also to serve as a navigator in the online interactive version of the article (available at: www.processeducation.org/ijpe/2016/pathfinder). Our graphic is nearly identical to the one used in the 25-Year article, a fact which should help the readers of both articles to easily and usefully navigate the other article. The pictorial navigator available is shown in Figure 3. Within the Learning Activity box, the left-hand side represents thinking and learning processes. The center of the inner box captures elements of the learning experience from the viewpoint of the learner. The right-hand side of the inner box represents underlying teaching techniques as well as assessment practices.

The information offered for each topic (see Table 1) is the result of scholarship of integration, applied across seminal

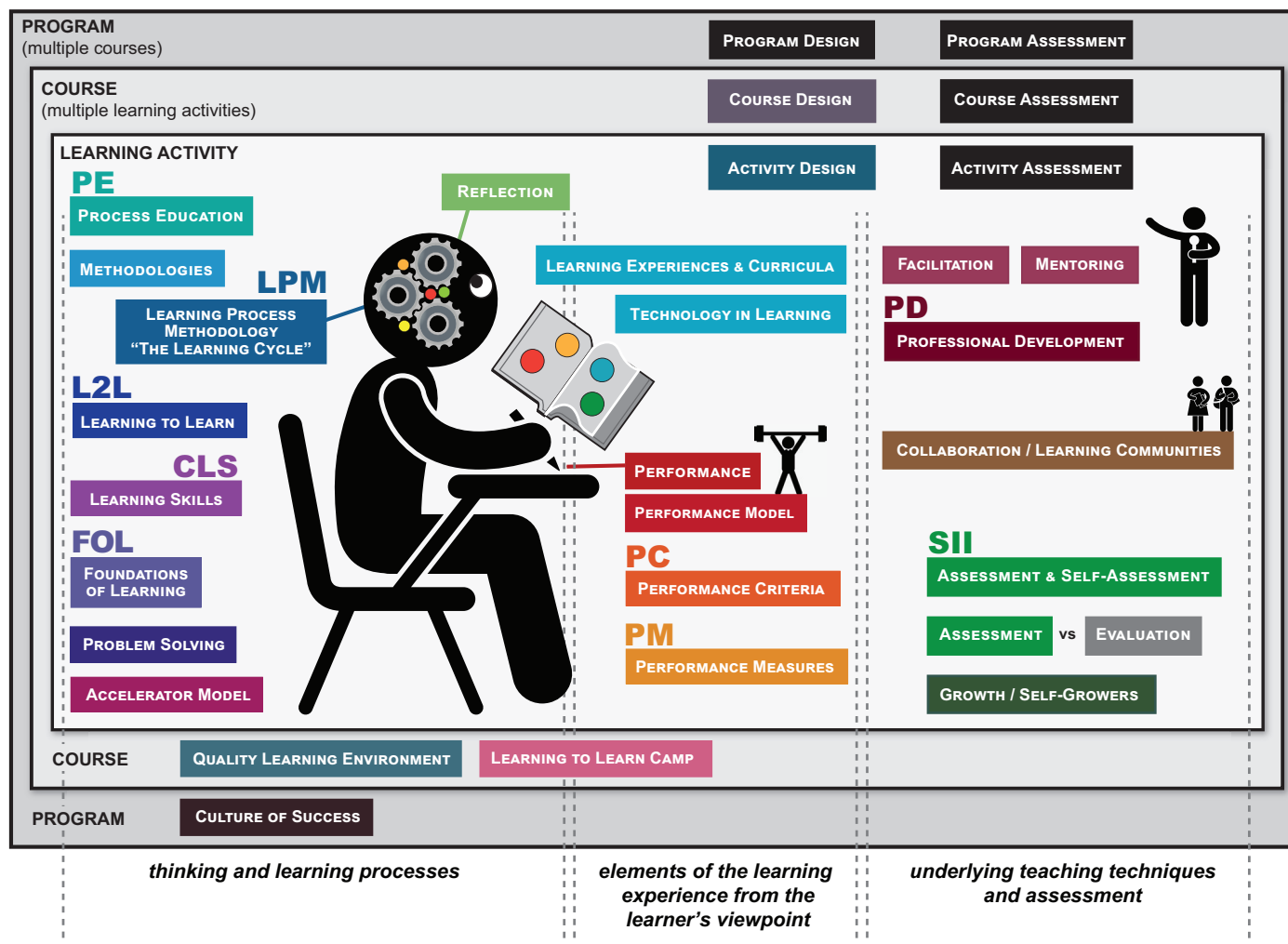
Process Education publications (*Faculty Guidebook* and *International Journal of Process Education*), institute handbooks, student curricula, and multimedia resources.

Table 1

	Topic name
Definition	Formal definition of the topic
Overview	Brief introduction of the topic; most of these are from the 25-Year article
FGB	Pertinent scholarship from the <i>Faculty Guidebook</i>
IJPE	Pertinent scholarship from the <i>International Journal of Process Education</i>
Tools	Categories: Case Study, Checklist, Form, Instructions, Learning Object, Methodology, Profile, Rubric, Template, Website, Worksheet

The online interactive version of this article contains an additional field, "History," which links directly to the history of the topic, as it appears in 25 Years of Process Education (Apple, Ellis, & Hintze, 2016).

Figure 3



Because of the nature of the *Faculty Guidebook* (and Process Education), it is possible to correlate multiple *Guidebook* modules with any of the topics. We have therefore decided to be parsimonious in our approach, listing only the most pertinent and relevant modules for any topic. These are the modules that are most widely used, most familiar, and most essential.

With respect to references, we are not providing individual citations for content listed from *Foundations of Learning* (Redfield & Hurley Lawrence, 2009), *Learning to Learn: Becoming a Self-Grower* (Apple, Morgan, & Hintze, 2013), the *Student Success Toolbox* (Pacific Crest, 2011), *Book of Measures* (Pacific Crest, 2013), *Teaching Institute Handbook* (Pacific Crest, 2014), or *25 Years of Process Education* (Apple, Ellis, & Hintze, 2016), though the abbreviations in Table 2 are used to designate that content. For the online version of this article, all content from the *International Journal of Process Education* is hyperlinked and freely available. All tools are made available in an e-flip version, though they cannot be printed or downloaded.

Conclusion

Process Education can seem overwhelmingly complex to a novice, largely because it has the potential to inform or impact nearly all aspects of education. This means that the scholarship of Process Education takes its cues from

practitioners and theorists, all of whom have their own areas of interest and expertise.

While the *Faculty Guidebook* does an admirable job of gathering and presenting the wide-ranging scholarship, it contains in categories organized according to the major role of faculty with respect to four major categories: development of the institution, intellectual development, learner development, and self development. This schema has its own limitations and cannot be easily reconciled with the major topics of Process Education as presented in *25 Years of Process Education* (Apple, Ellis, & Hintze, 2016). In addition, the *Faculty Guidebook* is not a comprehensive collection of Process Education scholarship; not only has the *International Journal of Process Education* published 48 individual articles since 2009 (see Table 3), but various related tools (forms, worksheets, rubrics, etc.) have been published in a variety of student curricula.

This article represents our best effort to assemble, allocate, and integrate this scholarship from these different sources, so that interested individuals can quickly and easily find the most pertinent and essential resources. An additional benefit to the presentation in this work is that needs for additional scholarship are made relatively clear, helping potential contributors to Process Education scholarship determine precisely where their energy, time, and expertise are most needed (see Table 4).

Table 2 Abbreviations Used

25	25 Years of Process Education (Apple, Ellis, & Hintze, 2016)
BOM	<i>Book of Measures</i> (Pacific Crest, 2013)
FGB	<i>Faculty Guidebook</i> (Beyerlein, Holmes, & Apple, 2007)
FOL	<i>Foundations of Learning</i> (Redfield & Hurley Lawrence, 2009)
IJPE	<i>International Journal of Process Education</i>
L2LSG	<i>Learning to Learn: Becoming a Self-Grower</i> (Apple, Morgan, & Hintze, 2013)
SST	<i>Student Success Toolbox</i> (Pacific Crest, 2011)
TI	<i>Teaching Institute Handbook</i> (Pacific Crest, 2014)

Table 3

<i>International Journal of Process Education</i>
48 articles
700 pages
<i>Faculty Guidebook</i>
146 modules
583 pages

Table 4

IJPE Scholarship Needed (i.e., no closely-related articles exist for these topics)		
Activity Assessment Activity Books Activity Design	Assessment vs. Evaluation Learning Process Methodology Mentoring	Methodologies Performance Criteria Role of Technology
Tools Needed (i.e., no closely related tools exist for these topics)		
Accelerator Model Activity Books	Program Design Quality Learning Environment	Role of Technology Foundations of Learning Course

List of Resources by Topic

The Accelerator Model

Definition	<i>A model for teaching/facilitation based on the idea that learners perform optimally when learning challenges create an appropriate level of stress; that is, enough challenge to engage students, yet not overwhelm them</i> ^{TI}
Overview	Concepts such as “raising the bar,” “raising expectations,” and “getting students outside their comfort zone” are all part of the research behind the Accelerator Model; also included are the importance of taking risks and accepting failure as a frequent and productive means to growth and success ²⁵ .
FGB	The Accelerator Model (Morgan & Apple, 2007)
IJPE	Implementing POGIL in Allied Health Chemistry Courses: Insights from Process Education (Geiger, 2010) www.processeducation.org/ijpe/2010/pogilh.pdf

Activity Assessment

Definition	<i>Collecting feedback about the design or efficacy of a learning activity with the express purpose of improving that activity</i>
Overview	Assessing learning activities can elevate skills in instructional design and classroom facilitation ²⁵ .
FGB	Assessing Learning Activities (Loertscher & Minderhout, 2007)
Tools	Form Activity Design Assessment FGB (Loertscher & Minderhout, 2007) Activity Impact Assessment FGB (Loertscher & Minderhout, 2007)

Activity Books

Definition	<i>Disciplinary curricula that incorporate principles of active learning, putting learners in situations where they are asked to take responsibility for their own learning, thus becoming highly engaged in the construction of knowledge</i>
Overview	Activity books contain disciplinary-focused learning activities that are useful inside and outside the classroom, helping students become more active in the process of constructing knowledge and improving their level of learning and learning performance ²⁵ .
FGB	Annotated Bibliography—Instructional Design (Davis, 2007d)

Activity Design

Definition	<i>The process by which learning experiences are planned to systematically take into account how learners make sense of new information, how they acquire new skills, or how they develop a new way of being, and design activities so that the learning leads to the achievement of the course and program outcomes</i> FGB (Hanson, 2007a)
Overview	The activity design methodology provides the critical steps for systematically constructing a learning experience that supports the learning cycle (Learning Process Methodology) so that learners can effectively meet the intended learning objectives and performance criteria in an efficient manner ²⁵ .
FGB	Annotated Bibliography—Instructional Design (Davis, 2007d) Designing Process-Oriented Guided-Inquiry Activities (Hanson, 2007a) Instructional Systems Design Model, History, and Application (Bassoppo-Moyo, 2007) Overview of Learning Activities (Wasserman, Davis, & Astrab, 2007) Writing Critical Thinking Questions (Hanson, 2007b)
Tools	Checklist Activity Design Criteria (<i>Activity Design Handbook</i> : Pacific Crest, 2008) Activity Design Template For Faculty (<i>Activity Design Handbook</i> : Pacific Crest, 2008) ----- Template Activity Table (<i>Course Design Handbook</i> : Pacific Crest, 2012)

Assessment and Self-Assessment

Definition	<p><i>Assessment: a process of determining the quality of a performance, work product, or skill and giving feedback that documents progress (strengths) and suggests ways to improve future performance (areas for improvement) in ways that will help the performer improve his or her future performance</i> ^{TI}</p> <p><i>Self-Assessment: Assessing one's own progress and performance by thinking critically about it for the purpose of growth</i> ^{TI}. Self-assessment is related to metacognition and insight, and has to do with looking objectively at one's own performance.</p>								
Overview	Assessment is a process distinct from evaluation. Where evaluation judges current or past performance, assessment aims only to improve future performance. Self-assessment, like assessment, depends upon criteria that describe what constitutes quality in a performance, and strives to identify strengths (and how to replicate them) and areas for improvement (and how to make those improvements) ²⁵ .								
FGB	<p>Assessment Methodology (Apple & Baehr, 2007)</p> <p>Mid-Term Assessment (Armstrong, 2007)</p> <p>Mindset for Assessment (Jensen, 2007a)</p> <p>Overview of Assessment (Baehr & Beyerlein, 2007)</p> <p>Performance Levels for Assessors (Jensen, 2007b)</p> <p>SII Method for Assessment Reporting (Wasserman & Beyerlein, 2007)</p>								
IJPE	<p>Keys to Improving Academic Assessment (Utschig & Apple, 2009) www.processeducation.org/ijpe/2009/keys_assessmenth.pdf</p> <p>Process Education and Constructive Alignment: The Challenge of Student Assessment Online (Lawrence & Snyder, 2009) www.processeducation.org/ijpe/2009/online_assessmenth.pdf</p>								
Tools	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px dashed black; padding: 5px;">Form</td> <td style="padding: 5px;">Mid-Term Assessment SST, SII Self-Assessment SST</td> </tr> <tr> <td style="border-right: 1px dashed black; padding: 5px;">Learning Object</td> <td style="padding: 5px;">Assessment www.pcrest2.com/LO/assessment/index.htm SII Method for Assessment Reporting www.pcrest.com/LO/SII/1.htm</td> </tr> <tr> <td style="border-right: 1px dashed black; padding: 5px;">Methodology</td> <td style="padding: 5px;">Assessment SST</td> </tr> <tr> <td style="border-right: 1px dashed black; padding: 5px;">Rubric</td> <td style="padding: 5px;">Assessors SST, Elevating SII Assessment SST, Self-Assessment BOM</td> </tr> </table>	Form	Mid-Term Assessment SST , SII Self-Assessment SST	Learning Object	Assessment www.pcrest2.com/LO/assessment/index.htm SII Method for Assessment Reporting www.pcrest.com/LO/SII/1.htm	Methodology	Assessment SST	Rubric	Assessors SST , Elevating SII Assessment SST , Self-Assessment BOM
Form	Mid-Term Assessment SST , SII Self-Assessment SST								
Learning Object	Assessment www.pcrest2.com/LO/assessment/index.htm SII Method for Assessment Reporting www.pcrest.com/LO/SII/1.htm								
Methodology	Assessment SST								
Rubric	Assessors SST , Elevating SII Assessment SST , Self-Assessment BOM								

Assessment vs. Evaluation

Definition	<p><i>Assessment: a process of determining the quality of a performance, work product, or skill and giving feedback that documents progress (strengths) and suggests ways to improve future performance (areas for improvement) in ways that will help the performer improve his or her future performance</i> ^{TI}</p> <p><i>Evaluation: a process for determining the quality of a performance that takes a retrospective look at a given process, program, or individual, and based upon pre-established standards, decides its utility, its value, or its applicability</i> ^{TI}</p>				
Overview	Assessment is a process used for improving quality; evaluation is a process used for judging quality. An assessment is an analysis of current performance aimed at improving future performances by clarifying the reasons behind current performance strengths, determining potential improvements and implementing action plans for making them, and gaining insights and learning from each performance ²⁵ .				
FGB	Distinctions Between Assessment and Evaluation (Baehr, 2007a)				
Tools	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px dashed black; padding: 5px;">Form</td> <td style="padding: 5px;">Evaluation to Assessment L2LSG</td> </tr> <tr> <td style="border-right: 1px dashed black; padding: 5px;">Learning Object</td> <td style="padding: 5px;">Assessment and Evaluation www.pcrest.com/LO/AE/index.htm</td> </tr> </table>	Form	Evaluation to Assessment L2LSG	Learning Object	Assessment and Evaluation www.pcrest.com/LO/AE/index.htm
Form	Evaluation to Assessment L2LSG				
Learning Object	Assessment and Evaluation www.pcrest.com/LO/AE/index.htm				

Collaboration / Learning Communities

Definition	<p><i>Collaborate: to work jointly with others or together especially in an intellectual endeavor</i> ^{TI}</p> <p><i>Collaborative Learning: an active learning method in which students learn in small groups. Group members are allowed to organize as they please, with little imposition of structure or team roles by the instructor.</i></p> <p><i>Learning Communities: formal and informal groups who share common values and beliefs and who voluntarily invest time to work together, and actively engage in learning together</i></p>
Overview	Learners working in communities or teams expand their knowledge and grow their learning skills through collaborating, cooperating, communicating, peer-assessing, and peer-mentoring ²⁵
FGB	<p>Cooperative Learning (Van Der Karr & Burke, 2007)</p> <p>Designing Teams and Assigning Roles (Smith, 2007e)</p> <p>Introduction to Learning Communities (Ashe & Romero, 2007)</p> <p>Process-Oriented Guided-Inquiry Learning (Hanson & Moog, 2007)</p> <p>Teamwork Methodology (Smith, Baehr, & Krumsieg, 2007)</p>
IJPE	<p>A Methodology for Team Teaching with Field Experts (Dong, El-Sayed, J., & El-Sayed, M., 2011) www.processeducation.org/ijpe/2011/teamh.pdf</p> <p>Learning Communities as a Strategy for Success (Hanson & Heller, 2009) www.processeducation.org/ijpe/2009/learning_communitiesh.pdf</p>
Tools	<p>Learning Object Performance Criteria for Team Roles www.pcrest.com/LO/teamroles/index.htm</p> <hr/> <p>Form (all SST)</p> <ul style="list-style-type: none"> Planner's Report Recorder's Report Reflector's Report SII Team Assessment Spokesperson's Report Weekly Recorder's Report Weekly Reflector's Report <hr/> <p>Methodology Teamwork SST</p> <hr/> <p>Profile</p> <ul style="list-style-type: none"> Team Roles SST A Strong Team Player SST <hr/> <p>Rubric Teamwork SST</p>

Course Assessment

Definition	<i>Collecting feedback about the design or efficacy of a course with the express purpose of improving the course</i>
Overview	Ensures that targeted course outcomes are successfully met and improved.
FGB	<p>Creating Meaningful Assessment and Documentation Systems (Wicks, 2007)</p> <p>Mid-Term Assessment (Armstrong, 2007)</p>
IJPE	Lean Program and Course Assessments for Quality Improvement (El-Sayed, M., El-Sayed, J., Morgan, & Cameron, 2011) www.processeducation.org/ijpe/2011/leanh.pdf
Tools	Form Course Assessment SST

Course Design

Definition	<i>The planning process and the product resulting from determining course learning outcomes, content, methodologies, and activities that will be included in the course as well as plans for assessment and evaluation</i> ^{TI}	
Overview	The Course Design Methodology (CDM) is a set of steps used to produce a course, including the target/goals, means of achieving them, and a system for measuring performance so that the course's intended learning and growth outcomes are achieved ²⁵ .	
FGB	Instructional Systems Design Model, History, & Application (Bassoppo-Moyo, 2007) Methodology for Course Design (Davis, 2007c) Overview of Instructional Design (Davis, 2007a) Writing Performance Criteria for a Course (Hinton, 2007)	
IJPE	Knowledge, Abilities, Responsibilities: The Design of a Three-Dimensional Curriculum Framework for Modern Pharmacy Education (Duncan & Gleason, 2015) www.processeducation.org/ijpe/2015/pharmacy.pdf	
Tools	Form	Course Time Analysis: Faculty (<i>Course Design Handbook</i> : Pacific Crest, 2012) Course Time Analysis: Students (<i>Course Design Handbook</i> : Pacific Crest, 2012)
	Methodology	Course Design (LO) www.pcrest.com/LO/CD/index.htm
	Template	Activity Table (<i>Course Design Handbook</i> : Pacific Crest, 2012)

Culture of Success

Definition	<i>Policies and an environment that encourage success</i> (“culture of success,” n.d.)	
Overview	An educational institution's culture has a dramatic impact on the quality of the educational experiences it provides students and the potential it creates for transformative learning experiences for its students, faculty, and staff ²⁵ .	
FGB	The Language and Culture of Success (Hadley, 2007b)	
IJPE	Concept Maps for Linking Aspects in the Transformation of Education (Beyerlein, Burke, & Hintze, 2012) www.processeducation.org/ijpe/2012/mapsh.pdf Putting It to Practice: Hands-On Learning Activities for Transforming Education (Hintze, Burke, & Beyerlein, 2013) www.processeducation.org/ijpe/2013/transformation.pdf The Transformation of Education: 14 Aspects (Hintze-Yates, Beyerlein, Apple, & Holmes, 2011) www.processeducation.org/ijpe/2011/transformationh.pdf	
Tools	Learning Object	Transformation of Education www.transformation-of-education.com/

Facilitation

Definition	<i>Actions taken to help others learn or perform. In a learner-centered paradigm, facilitation takes the place of teaching, stressing the centrality of the learner's work in the learning process</i> ^{TI} .	
Overview	Facilitation transforms the traditional roles and responsibilities of student and educator such that educators become facilitators of learning experiences where students are learners who take ownership of and responsibility for their learning ²⁵ .	
FGB	Annotated Bibliography—Facilitation (Smith, 20073) Constructive Intervention (Leise & Smith, 2007) Constructive Intervention Techniques (Smith & Leise, 2007)	

Facilitation

FGB	<p>Creating a Facilitation Plan (Minderhout, 2007a)</p> <p>Facilitation Methodology (Smith & Apple, 2007b)</p> <p>Facilitation Tools (Minderhout, 2007c)</p> <p>Identifying Learner Needs (Minderhout, 2007b)</p> <p>Overview of Facilitation (Smith, 2007b)</p> <p>Profile of a Quality Facilitator (Smith, 2007c)</p>				
IJPE	<p>Helping Teaching Assistants Foster Student-Centered Learning (Utschig, Carnasciali, & Subiño Sullivan, 2014) www.processeducation.org/ijpe/2014/TAs.pdf</p>				
Tools	<table border="0"> <tr> <td>Form</td> <td>Facilitation Plan: Prior to Class, During/After Class FGB (Minderhout, 2007a)</td> </tr> <tr> <td>Rubric</td> <td>Facilitation FGB (Smith, 2007c)</td> </tr> </table>	Form	Facilitation Plan: Prior to Class, During/After Class FGB (Minderhout, 2007a)	Rubric	Facilitation FGB (Smith, 2007c)
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Rubric	Facilitation FGB (Smith, 2007c)				

Foundations of Learning Course/Curricula

Definition	<p><i>A class or plan of study with learning outcomes which include skills and perspectives that are fundamental to successful participation in higher education</i></p>
Overview	<p>A Foundations of Learning course teaches first-year students how to learn and become self-growers, instilling in them the characteristics of a collegiate learner who will succeed in any undergraduate program ²⁵.</p>
FGB	<p>Designing a Foundations Course (Newgren, 2007)</p>
IJPE	<p>Enhancing a First-Year Success Course through Process Education (Jones & Kilgore, 2012) www.processeducation.org/ijpe/2012/1yearh.pdf</p>

Growth/Self-Growers

Definition	<p><i>Growth: Positive developmental change resulting from identifying, developing, and internalizing skills and strategies that allow learners to reach higher levels of performance in one or more domains ^{TI}</i></p> <p><i>Growth mindset: The belief that talents and abilities can be developed through effort, good teaching and persistence (Dweck, 2012)</i></p> <p><i>Self-grower: The highest level of learner performance, having developed strong performance/learning skills; learners who are continually growing by using strong self-assessment skills to improve future performance ^{TI}</i></p>										
Overview	<p>Learners with a growth mindset believe that they have the ability to increase their knowledge (learn) as well as 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 for performance.</p>										
FGB	<p>Becoming a Self-Grower (Leise, 2007f)</p> <p>Differentiating Growth from Acquiescence (Hadley & Leise, 2007)</p> <p>Differentiating Knowledge from Growth (Leise, 2007b)</p> <p>Performance Levels for Learners and Self-Growers (Myrvagnes, 2007)</p>										
IJPE	<p>What is Self-Growth? (Jain, Apple, & Ellis, Jr., 2015) www.processeducation.org/ijpe/2015/selfgrowth.pdf</p>										
Tools	<table border="0"> <tr> <td>Form</td> <td>Personal Development Assessment L2LSG</td> </tr> <tr> <td>Instructions</td> <td>Self-Growth Paper L2LSG</td> </tr> <tr> <td>Methodology</td> <td>Personal Development Methodology L2LSG</td> </tr> <tr> <td>Rubric</td> <td>Performance Levels for Self-Growers FGB (Myrvagnes, 2007)</td> </tr> <tr> <td>Worksheet</td> <td>Personal Development L2LSG, Self-Growth Goals L2LSG</td> </tr> </table>	Form	Personal Development Assessment L2LSG	Instructions	Self-Growth Paper L2LSG	Methodology	Personal Development Methodology L2LSG	Rubric	Performance Levels for Self-Growers FGB (Myrvagnes, 2007)	Worksheet	Personal Development L2LSG , Self-Growth Goals L2LSG
Form	Personal Development Assessment L2LSG										
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Rubric	Performance Levels for Self-Growers FGB (Myrvagnes, 2007)										
Worksheet	Personal Development L2LSG , Self-Growth Goals L2LSG										

Learning Process Methodology

Definition	<i>A sequence of steps for learners that makes explicit the working habits of expert learners</i> ^{T1}
Overview	The Learning Process Methodology is a 14-step model of the learning process that is the cornerstone for both learning to learn and Process Education. As such, it is nearly omnipresent, with particularly obvious utility in activity design, facilitation, assessment of learning performance, measurement of levels of learning, and implementation of learning skills within the learning process ²⁵ .
FGB	Learning Process Methodology (Leise, Beyerlein, & Apple, 2007b).
Tools	Form Applying the Learning Process Methodology FOL, L2LSG Assess Use of the Learning Process Methodology FOL, L2LSG
	Learning Object The Learning Process Methodology www.pcrest.com/LO/LPM/index.htm

Learning Skills

Definition	<i>Skills employed in the process of learning, embedded in a learner's behavioral repertoire, and transferable across disciplines and contexts, which enable him or her to improve mastery of subject matter. They are essential for constructing knowledge because they "modulate" or influence what learners can achieve at any level. These skills, once identified, can be consciously improved and refined, increasing the rate and effectiveness of learning</i> ^{T1} .
Overview	The Classification of Learning Skills contains more than 250 transferable skills organized into cognitive, social, affective, and psychomotor domains. They are called learning skills because as these skills improve, so does learning performance ²⁵ .
FGB	Affective Domain (Duncan-Hewitt, Leise, & Hall, 2007) Classification of Learning Skills (Apple, Beyerlein, Leise, & Baehr, 2007) Cognitive Domain (Davis, Beyerlein, Leise, & Apple, 2007) Social Domain (Leise, Beyerlein, & Apple, 2007a)
Tools	Learning Object Classification of Learning Skills www.pcrest.com/LO/CLS/1.htm
	Rubric Stages of Learning Skill Development: Competency Levels SST

Learning to Learn

Definition	<i>Improvement of the learning process</i>
Overview	Learning to learn focuses on improving the performance of learning through increasing the ownership, capacity, and efficiency learners demonstrate when constructing, using, and validating knowledge ²⁵
FGB	Classification of Learning Skills (Apple, Beyerlein, Leise, & Baehr, 2007) Overview of Learning Theory (Leise, 2007a)
IJPE	Learning how to learn: improving the performance of learning (Apple & Ellis, Jr., 2015) www.processeducation.org/ijpe/2015/learning.pdf
Tools	Worksheet Learning Journal L2LSG

Learning to Learn Camp

Definition	<i>An intensive 5-day introductory learning experience designed to equip students with the learning skills they will need to succeed in a higher-education setting. Students "learn how to learn" by developing cognitive, social, affective, and academic skills. Through both success and failure in a mentored community setting they gain confidence in their ability to perform in college as well as accept responsibility for their own learning</i> ^{T1} .
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Learning to Learn Camp

Overview	Learning to Learn Camps are five-day intensive experiences that model how every student can become a successful collegiate learner by learning how to learn and developing a growth mindset ²⁵ .
FGB	Learning to Learn Camps (Armstrong, Anderson, & Nancarrow, 2007)
IJPE	Learning to Learn Camps: Their History and Development (Apple, Ellis, & Hintze, 2015) www.processeducation.org/ijpe/2015/camps.pdf
Tools	Website Learning to Learn Camp (www.learningtolearncamp.com)

Mentoring

Definition	<i>Guiding another person in efforts to improve</i> ^{T1}
Overview	Mentors facilitate learner growth and development by challenging performance through a variety of constructive intervention techniques. Equally as important, a mentor assesses not only performance, but a learner's own self-assessments. This helps the learner become increasingly able to self-mentor, facilitating his or her own growth ²⁵ .
FGB	Annotated Bibliography—Mentoring (Harms, 2007b) Life Coaching: The Heart of Advising (Harms, 2007a) Overview of Mentoring (Leise, 2007e) Personal Development Methodology (Leise, 2007g) Profile of a Quality Faculty Member (Collins & Apple, 2007a) Self-Growth Plans for Faculty Members (Hurd, 2007b) Understanding Motivation and Self-Regulation Theories (Leise, 2007c)
Tools	Form Mentoring Agreement ^{SST} , Form: Mentoring Planning ^{SST} ----- Worksheet Mentoring Scoring ^{L2LSG}

Methodologies

Definition	<i>An explicitly defined set of multi-step instructions for performing a complex process, designed to enable those who are novices in a skill area to work smarter without having to learn the steps through trial and error</i> ^{T1}
Overview	A methodology is a model of the abstract generalization of a specific process created by an expert to assist novices on their way to becoming experts in the practice of that process ²⁵ .
FGB	Learning Processes through the Use of Methodologies (Leise & Beyerlein, 2007)
Tools	Worksheet Capturing a Methodology (blank) ^{L2LSG}

Performance Criteria

Definition	<i>Clear and explicit description of a performance which allows all involved (performer, assessor, evaluator, etc.) to have a mutually understood set of expectations by which performance may be measured, assessed, and/or evaluated</i> ^{T1}
Overview	Performance criteria are the expectations given before a performance that define the characteristics that make up a high quality performance so that performers know their target and can meet or exceed expectations ²⁵ .
FGB	Issues in Choosing Performance Criteria (Baehr, 2007a) Writing Performance Criteria for a Course (Hinton, 2007) Writing Performance Criteria for Individuals and Teams (Utschig, 2007) Writing Performance Criteria for a Program (Nibert, 2007a)

Performance Criteria

Tools	Form	Writing and Analyzing Performance Criteria (<i>Course Design Handbook</i> : Pacific Crest, 2012)
	Learning Object	Performance, Criteria, and Measurement www.pcrest.com/LO/criteria/index.htm

Performance Measures

Definition	<i>Indicators, derived from performance criteria, which allow for comparison of actual performance against the standards set in the performance criteria (measurement of actual versus stated criteria).</i>	
Overview	A performance measure is a rubric, either holistic or analytic, that is designed to measure the level of performance in a well-defined performance area by identifying and integrating the factors that contribute most significantly to the performance ²⁵ .	
FGB	Constructing a Table of Measures (Racine, 2007b) Identifying Performance Measures for a Program (Parmley & Apple, 2007a) Methodology for Designing a Program Assessment System (Collins & Apple, 2007b) Overview of Measurement (Burke & Bargainnier, 2007)	
IJPE	Assessing Service Quality for Continuous Improvement in Higher Education (El-Sayed, M., Burke, Leise, & El-Sayed, J., 2010) www.processeducation.org/ijpe/2010/assessingh.pdf Building a Stakeholder-Based Rubric to Enhance Student Communication Skills (Norback & Utschig, 2010) www.processeducation.org/ijpe/2010/rubrich.pdf Using Rubrics for Course Assignments (Leise & El-Sayed, 2009) www.processeducation.org/ijpe/2009/rubrics_assignments.pdf	
Tools	Learning Object	Performance, Criteria, and Measurement www.pcrest.com/LO/criteria/index.htm
	Methodology	Creating Performance Measures (<i>Course Design Handbook</i> : Pacific Crest, 2012)

Performance Model

Definition	<i>A theory which relates six foundational concepts in a framework that explains both performance and performance improvements.</i>	
Overview	The Theory of Performance defines the core components of a performance as identity, learning skills, knowledge, context, personal factors, and fixed factors. This theory provides the basis for analyzing performance, defining performance criteria, and developing meaningful performance measures ²⁵ .	
FGB	Letting Students Fail So They Can Succeed (Hadley, 2007a) Setting High Expectations (Smith, 2007a) Theory of Performance (Elger, 2007)	
IJPE	Improving Quality of Reflecting on Performance (Leise, 2010) www.processeducation.org/ijpe/2010/reflectingh.pdf	
Tools	Form	SII Performance Assessment SST
	Learning Object	The Performance Model www.pcrest2.com/LO/performance/index.htm
	Rubric	Performance Levels SST
	Worksheet	Performance Analysis SST

Problem Solving

Definition	<i>A process whereby a “best” outcome is determined for some situation, subject to certain constraints, by finding, creating, or developing solutions to a question, matter, situation, issue, person, or organization that is perplexing or that is difficult to navigate</i>
Overview	Problem Solving is a content-independent process of identifying and defining a gap between expectations and perceptions in a given situation, and then developing the means to minimize this gap to satisfy that situation’s key stakeholders ²⁵ .
FGB	Developing Working Expertise (Level 4 Knowledge) (Nygren, 2007) Distinguishing Between Problem Solving, Design, and Research (Cordon & Williams, 2007) Overview of Problem Solving (Morgan & Williams, 2007) Problem-Based Learning (Duncan-Hewitt & Butler, 2007)
IJPE	Development and Usability of a Generic Quantitative Problem-Solving Rubric for Student Learning (McCormack, Williams, Noren, Beyerlein, Cordon, & Morgan, 2012) www.processeducation.org/ijpe/2012/psrubrich.pdf Process Education Best Practices for Teaching Open-Ended Problem Solving in a Project Context (Morgan & Williams, 2010) www.processeducation.org/ijpe/2010/psh.pdf
Tools	Case Study Problem Solving SST ----- Methodology Problem Solving SST ----- Rubric Problem Solving SST ----- Worksheet Applying the Problem Solving Methodology SST

Process Education

Definition	<i>A performance-based philosophy of education which integrates many different educational theories, processes, and tools in emphasizing the continuous development of learning skills through the use of assessment principles in order to produce learner self-development ^{T1}</i>
Overview	Process Education uses best practices informed by research and assessment to create learning environments that produce holistic transformational experiences. In these environments people feel safe, engaged, and challenged. These environments produce strong communities of diverse individuals which respect the perspectives, values, and beliefs of others while fostering important relationships.
FGB	Framework for Implementing Process Education (Duncan-Hewitt, 2007) Introduction to Process Education (Beyerlein, Schlesinger, & Apple, 2007) Knowledge Table for Process Education (Schlesinger & Apple, 2007) Process Education as a Motivation & Self-Regulation System (Leise, 2007d)
IJPE	25 Years of Process Education (Apple, Ellis & Hintze, 2016) www.processeducation.org/ijpe/2016/25sm.pdf Enhancing a First-Year Success Course through Process Education (Jones & Kilgore, 2012) www.processeducation.org/ijpe/2012/1yearh.pdf Process Education™ — Past, Present, and Future (Burke, Lawrence, El-Sayed, & Apple, 2009) www.processeducation.org/ijpe/2009/pe_hxh.pdf What Is Special about Process Education? (Desjarlais & Morgan, 2013) www.processeducation.org/ijpe/2013/special.pdf
Tools	Learning Object Overview of Process Education www.pcrest.com/LO/PE/1.htm Process Education Definition www.pcrest.com/resources/pedef.html

Professional Development

Definition	<i>Growing and systematically acquiring knowledge and skills in a given discipline. The goal is usually to demonstrate mastery and expertise in fields of knowledge and areas of expertise expected by others within that profession</i> ^{T1} .
Overview	Professional development offers faculty the opportunity to experience transformational learning by discovering and experiencing, first-hand, the techniques, tools, processes, philosophy, and culture of Process Education. This helps them to elevate their practice, increasing learner success and growth in their own students ²⁵ .
FGB	<p>Annotated Bibliography—Educational Philosophy (Beyerlein & Schlesinger, 2007)</p> <p>Annual Professional Growth Plan (Hurd, 2007a)</p> <p>Boyer’s Model of Scholarship (Nibert, 2007b)</p> <p>Faculty Roles for Institutional Effectiveness (Watson, 2007)</p> <p>Overview of Effective Teaching Practices (Burke, 2007)</p> <p>Peer Coaching (Cordon, 2007)</p> <p>Profile of a Quality Facilitator (Smith, 2007c)</p> <p>Profile of a Quality Faculty Member (Collins & Apple, 2007a)</p> <p>Recruiting and Maintaining Adjunct Faculty (Strycker, 2007)</p> <p>Self-Growth Plans for Faculty Members (Hurd, 2007b)</p>
IJPE	<p>Impact of Faculty Development on Classroom Accessibility as Measured Using a Classroom Observation Instrument (Utschig, Moon, Bozzorg, & Todd, 2012) www.processeducation.org/ijpe/2012/facdevh.pdf</p> <p>Online Professional Development for Process Educators (Beyerlein, Burke, Mutisya, & Cordon, 2014) www.processeducation.org/ijpe/2014/pd.pdf</p> <p>Towards Comprehensive Professional Development of Teachers: The Case of Kenya (Gathumbi, Mungai, & Hintze, 2013) www.processeducation.org/ijpe/2013/kenya.pdf</p>
Tools	Template Professional Growth Plan FGB (Hurd, 2007a)

Program Assessment

Definition	<i>Collecting feedback about the design or efficacy of a program with the express purpose of improving the course</i>
Overview	Ensures that program quality exceeds standards; includes systematic feedback for the improvement of quality.
FGB	<p>Annotated Bibliography—Program Assessment (Parmley, 2007)</p> <p>Assessing Program Assessment Systems (Parmley & Apple, 2007c)</p> <p>Constructing a Table of Measures (Racine, 2007b)</p> <p>Defining a Program (Apple, Beyerlein, & Parmley, 2007)</p> <p>Identifying Performance Measures for a Program (Parmley & Apple, 2007a)</p> <p>Methodology for Designing a Program Assessment System (Collins & Apple, 2007b)</p> <p>Writing a Self-Study Report (Racine, 2007a)</p> <p>Writing an Annual Assessment Report (Parmley & Apple, 2007b)</p> <p>Writing Performance Criteria for a Program (Nibert, 2007a)</p>
IJPE	Lean Program and Course Assessments for Quality Improvement (El-Sayed, M., El-Sayed, J., Morgan, & Cameron, 2011) www.processeducation.org/ijpe/2011/leanh.pdf

Program Assessment

Tools	Form	Tool for Assessing an Assessment System FGB (Parmley & Apple, 2007c)
	Learning Object	Program Assessment www.pcrest.com/LO/PA/0.htm
	Template	Annual Assessment Report FGB (Parmley & Apple, 2007b)

Program Design

Definition	<i>Facilitating the fulfillment of program goals by laying out curricular and co-curricular learning experiences</i>
Overview	Programs are design to meet the knowledge, skills, and ways of being for a profile of a professional graduating from the program.
FGB	Defining a Program (Apple, Beyerlein, & Parmley, 2007) Development and Use of an Expert Profile (Davis & Beyerlein, 2007) Methodology for Program Design (Davis, 2007b)
IJPE	Validation of Hybrid Program Design through Stakeholder Surveys (El-Sayed, J., El-Sayed, M., & Beyerlein, 2010) www.processeducation.org/ijpe/2010/validationh.pdf

Quality Learning Environment

Definition	<i>An environment that motivates, sustains, and enriches the learning process</i> FGB
Overview	A quality learning environment is characterized by respect, trust, openness, high expectations, support for risk-taking, a willingness to challenge performance, continuous assessment, and a growth-oriented mindset for everyone ²⁵ .
FGB	Methodology for Creating a Quality Learning Environment (Apple & Smith, 2007) Overview of Quality Learning Environments (Smith & Apple, 2007a)
IJPE	Faculty Efficacy in Creating Productive Learning Environments: Universal Design and the Lens of Students with Disabilities (Utschig, Moon, Todd, & Bozzorg, 2011) www.processeducation.org/ijpe/2011/efficacyh.pdf

Reflection / Meta-Cognition

Definition	<i>Reflection: a process that involves playing back a period of time related to previous valued experiences in search of significant discoveries or insights about oneself, one's behaviors, one's values, or knowledge gained</i> (Desjarlais & Smith, 2011). <i>Metacognition: awareness or analysis of one's own learning or thinking processes</i> ("metacognition," n.d.)
Overview	Reflective practitioners want to know the why, how, and motivation behind their behaviors, decisions, and performances and will take the time needed in order to step back and process these questions to increase their meta-cognition ²⁵ .
FGB	Team Reflection (Hare, 2007)
IJPE	A Comparative Analysis of Reflection and Self-Assessment (Desjarlais & Smith, 2011) www.processeducation.org/ijpe/2011/reflectionh.pdf Improving Quality of Reflecting on Performance (Leise, 2010) www.processeducation.org/ijpe/2010/reflectingh.pdf
Tools	Worksheet Metacognitive Exploration L2LSG

Role of Technology

Definition	<i>The appropriate use and positioning of machinery, devices, or applied science</i>
Overview	Technology can improve learning through the use of: software tools, the Internet (as a resource or laboratory), learning objects (systematically designed learning resources to enhance the learning process), and learning systems (systematically designed systems that facilitate the holistic development of learners with expanded dimensions of learning experiences) ²⁵ .
FGB	Overview of Effective Learning Tools (Nancarrow, 2007)

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