Barriers to Implementing a Successful Learning to Learn Experience

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Abstract

Learning to learn has been the foundational approach to Process Education (PE) from its beginning. The idea that students can improve their ability to learn, even as they are engaged in the learning process, is an axiomatic and relatively straightforward concept in PE. Nonetheless, there are barriers that hinder the improvement of learning. Numerous of these barriers have been encountered and identified during the last 25 years of implementing learning to learn experiences. This article highlights the most challenging of these barriers for facilitators, explains why these barriers exist, and provides information that can help break down each barrier. It is the authors' hope that, with this information and these strategies, faculty and facilitators can more easily implement a learning to learn experience at their institution.

Introduction

In order to facilitate learning that is transformational (producing specific growth outcomes), the learning must be experiential. Experience is active and occurs in active learning situations where the learner is engaged in thinking, learning, and performing. To produce growth outcomes, the learner must be more than merely engaged in these enterprises; they must do so while aware of themselves as learners. This is supported by the pedagogy of adult learning where experiential learning is understood to not only address the individual learner's sense of personal urgency, but to also help develop self-efficacy which increases the learner's awareness of a self-concept (Bandura, 1997; Cuseo 2018; Lynch et al., 1981).

Moving beyond the purely experiential, education cultures can be usefully explored according to the characteristics common to those cultures. Hintze-Yates et al. (2011) identify 14 of these characteristics: (Academic) Challenge, Cognitive Complexity, Control, Delivery, Instructional Design, (Self) Efficacy, Feedback, Measurement, Ownership, Relationship, Scope of Learning, Self-Awareness, Social Orientation, and Transparency. The authors further describe what these characteristics look like, in practice, in traditional ("red") cultures as well as in transformational ("green") cultures. The characteristic "challenge" is defined as, "the degree to which increasing the level of difficulty is used in order to grow capacity for learning and performing" (Hintze-Yates et al. 2011). The *traditional* culture is one of enabling, where both faculty and students value comfort and desire to protect themselves (or students, on the part of faculty) from failure, favoring risk-averse paths. Students often prefer to continue with a perceived model for success rather than risk their time, effort, and grades on something new (even though it offers the potential of greater success). This characteristic of an educational culture may be supported by the administration because the higher education classroom is part of a high-stakes experience with cost and debt concerns (Looney & Yannelis, 2018). In this perspective, risk may lead to loss of revenue so faculty may be actively discouraged from taking risks so as not to jeopardize funding. Conversely, in a *transformational* culture, faculty and students are encouraged and supported (empowered) in risking failure. This characteristic can also be supported by an administration which understands that willingness to risk failure is what allows for increased level of performance (taking a risk that can end in failure can also end in success). In order to make the shift from enabling to empowering, members of the educational community must maintain high expectations and a significant level of challenge such that growth (personal or professional) is emphasized over immediate results; growth is what strengthens future results.

The learning to learn curriculum (Apple et al., 2013) is designed expressly to move students from a traditional culture of learning to a transformational one. In the transformational culture described by Hintze-Yates et al., faculty, students, and administrators are self-directed problem-solvers and self-reliant life-long learners (2011).

This curriculum has been implemented at several institutions in different guises:

- As an academic recovery course, allowing students who have failed a course to earn the opportunity to try again (Colorado State University)
- As a recovery program, allowing students who have failed to re-qualify for admission (Hinds Community College, University of Indianapolis, Western Governor's State University)

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- As a first-year experience for incoming students (Grand Valley State University, STEM-UP at Hinds Community College)
- As a learning to learn camp for students which also functions as a faculty development opportunity (Madison College)

These implementations of transformational educational culture, though modest, exposed barriers to successfully implementing a learning to learn curricula, each of which is associated with institutional culture and policy. These barriers were identified and enumerated after thoroughly analyzing Process Education scholarship and the personal experiences of educators who served as mentors in various Process Education contexts including professional development institutes, Learning to Learn Camps, and Academic Recovery Courses (Wenner et al., 2019).

All nine of the barriers which were identified find their roots in the traditional culture of higher education, in which students, faculty, and institutions have been culturally steeped. If this culture were working, there would be little need to transform beyond it. Indeed, the traditional academic culture is a regular topic of discussion in the popular press, academic circles, and among administrators; the theme generally centers on student success, most often in the guise of retention rates, graduation rates, and student preparation. While there are various efforts that successfully address and reform aspects of this culture — initiatives for student success (Cuseo, 2018), active learning (Hanson, 2007), standards-based grading (Nilsson, 2015), learning communities (Mangan, 2019; Otto et al., 2015) — the overarching culture remains largely unchanged. What **is** working is the exception rather than the rule.

It is the goal of this article to identify the key barriers that must be addressed in order to achieve a transformational learning environment. In addition to identifying each barrier, we discuss potential reasons for its existence and note the issues that must be addressed in order to remove the barrier.

Methods

Efforts to implement academic recovery courses over the last five years has led to a great deal of unexpected resistance, with a variety of reasons given for the resistance. Analysis of these reasons led to identification of barriers that have impeded or stalled implementation of the academic recovery courses at additional institutions. These barriers are summarized in Table 2. In order to ascertain the validity of these barriers, the authors reviewed the Process Education literature and conducted a survey of experienced Process Educators (the survey is available in Appendix A). The educators surveyed each have decades of experience facilitating, coaching, and participating in a wide variety of Process Education contexts. Survey responses used a Likert scale. In the survey, faculty were presented with each barrier and asked to rank it as Highly Significant, Significant, Neutral (moderate barrier), Not Very Significant (minimal barrier), or Not at all Significant (no barrier). Likert rankings were converted to a 5-point scale with "highly significant" a 5 and "not at all significant" a 1. Scores were summed and averaged over the 29 respondents to determine an overall score for the perceived significance of the barrier.

0 — 0.9	Not at all significant (no barrier)
1 — 1.9	Not very significant (minimal barrier)
2 — 2.9	Neutral (moderate barrier)
3 — 3.9	Significant
4 — 5	Highly significant

Discussion

Sequential Barriers to Implementing a Learning to Learn Pilot

Transformational learning, learning that produces change, holds the potential for improving and enhancing learning (Clark, 1993). Mitigating the barriers that prevent transformational learning experiences is essential to producing a culture of student success. The effectiveness of the learning to learn program has been repeatedly demonstrated (Apple & Leasure, 2018; Watts & Perkins, 2019; Wenner et al., 2019) leading to the question of why more schools don't adopt a learning to learn approach.

Change agents (individuals attempting to move a traditional culture towards transformation) will face nine largely sequential barriers when working to implement PE philosophy and principles (see Table 1).

- Barrier 1: Colleges not accepting responsibility for student failure
- Barrier 2: Assumption about lack of college readiness
- Barrier 3: Fixed mindset
- Barrier 4: Aversion to change
- Barrier 5: Having a non-transformational learning culture
- Barrier 6: Valuing knowledge over learner development
- Barrier 7: Disdain for using methodologies
- Barrier 8: Self-evaluation
- Barrier 9: Faculty learning to learn expertise

Change agents find that leadership at their institution believes it has done all that can be done to help students succeed. Thus, when a student fails, it is the student's fault; there is nothing the institution can do beyond what it has already done. (**Barrier 1: Colleges not accepting responsibility for student failure**)

If a college refuses to accept that there are promising and research-based learning to learn strategies it may not have tried, any change agent will encounter faculty and administrators who believe students who fail do so because they don't have the foundational capability to succeed in college and therefore don't belong there. (**Barrier 2: Assumptions about college readiness**)

When change agents share research showing that it is possible to develop high-quality collegiate learners, they often encounter a fundamental disbelief on the part of some faculty members. This disbelief tends to be based on their personal experience and tells them that students' behaviors and the risk factors to which students are susceptible can't be changed. Likewise, the personal experience of some students has convinced them that their capability is fixed. (**Barrier 3: Fixed mindset**)

Once faculty and administrators at an institution have had their concerns satisfactorily addressed with data, evidence, scholarship, and referrals, change agents tend to encounter the institution's natural tendency to accept the status quo as optimal, as projected efforts of offering even a pilot or proof-of-concept learning to learn experience seems greater than the possible returns from such efforts. (**Barrier 4: Aversion to change**)

Assuming all four of these barriers are removed and the change agent has created the opportunity for a learning to learn proof of concept experience, they still face the challenge of implementing a transformational culture within the traditional culture of the institution. Most faculty and staff at an institution with a traditional educational culture push back against the mindsets and practices that are part of the learning to learn environment created in the pilot, because of how foreign these practices feel and how initially discomfiting they are to both use and experience. Students then exhibit a similar angst by challenging and questioning these practices. These students often seek and find the support of faculty members also resisting these practices. It usually takes a few days to begin to shift the culture during a pilot or proof-of-concept experience. (**Barrier 5: Having a non-transformational learning culture**)

Even though the learning to learn experience is focused on developing learning performance, faculty involved often continue to focus on the knowledge they feel that students need instead of the learner characteristics that the event is helping students to develop. The entrenched belief that knowing is the most important component in growing learning performance dominates faculty (and student) focus, rather than the characteristics of a high-performing collegiate learner (Apple, Duncan, & Ellis, 2016). (Barrier 6: valuing knowledge over learner development)

The development of learning performance depends upon underlying processes such as reading or problem solving. Methodologies are the best tools for learning these processes, making methodologies essential to learning to learn. Faculty who haven't used methodologies often find that formal methodologies are too complex (or too simple) to be used effectively as generalized models. (**Barrier 7: Disdain for using methodologies**).

Beyond each of the seven previous barriers, we find one of the most impenetrable: shifting from self-evaluation and self-judgment to self-assessment (**Barrier 8: Self-evaluation**). At the heart of learning to learn and increase in the capacity to learn is the ability to assess performance in order to improve it. This can't happen without a shift in mindset from self-evaluation to self-assessment.

When all of these barriers have been removed, there remains only the not-inconsiderable challenge of getting faculty buy-in and training faculty in how to facilitate learning to learn experiences in the classroom (**Barrier 9: Faculty learning to learn expertise**).

While the barriers in Table 2 are presented in sequential order (the order in which a change agent usually encounters them), faculty responses to the survey showed that the most significant barriers are Fixed mindset (#3) and Faculty learning to learn expertise (#9); these two barriers scored slightly over 4 on the Likert scale. The next cluster all ranked between 3.93 (significant) and 3.69 (moderately significant): Aversion to change (#4), Valuing knowledge over learner development (#6), Colleges not accepting responsibility for student failure (#1), Self-evaluation (#8), and Having a non-transformational learning culture (#5). The remaining two, Assumptions about college readiness (#2) and Disdain for methodologies (#7) were ranked as moderately significant. None of the barriers scored below the level of moderately significant. The barrier with the lowest perceived significance (Disdain for using methodologies #7) has an average of 3.31, representing a moderate barrier (i.e., one that is tough but manageable); the barrier with the highest average (Fixed mindset #3) is perceived to be a very challenging barrier. The average perceived significance of barriers

was 3.8 ± 0.3 (moderately significant). Table 1 lists the barriers from most to least significant.

Strategies for Removing Barriers and Mitigating their Effects

The survey also asked respondents to consider the effectiveness of barrier mitigation strategies that were presented, again, using a Likert scale. In these questions, mitigation strategies were ranked as very effective (5), effective, neutral (neither effective nor ineffective), not very effective, or not at all effective (1). Scores were generated in the same manner as for the barriers: scores for the effectiveness of mitigation strategies are available in Tables 1 and 4. The average score for the perceived effectiveness of the mitigation strategies is 4.2 ± 0.3. The perceived effectiveness of the mitigation strategies ranges from 3.55 (moderately effective) to 4.52 (effective).

Comparing the ratings of mitigation strategies and the degree of challenge of the barriers they address shows that the mitigation strategies are generally ranked at the same level or higher than the strength of the related barrier. This suggests that the barriers can be effectively addressed by these strategies, clearing the way for a learning to learn experience. (A paired t-test was conducted in which the scores for the perceived difficulty of the barrier was compared to the scores for the perceived effectiveness of the mitigation strategy: at a 95% confidence level, the scores differed significantly. The results of the t-test are available in Appendix B.)

Because a classroom context is not the only one in which faculty or institutional leadership operate, we also offer the contexts of "Team" and "Institutional" in addition to "Individual" for addressing and mitigating barriers. Table 3 provides a breakdown of modified strategies and attitudes so that 1) an individual faculty member can have a local impact with learning to learn in their own courses, 2) a collaborative team can implement a change project or gran for using learning to learn with a group of students, or 3) an institution can incorporate learning to learn to positively impact all students.

Table 4 presents three key pieces of Process Education scholarship or literature that supports the significance of each barrier. Table 5 also provides research-based Process Education sources, but in this case, for helping the reader to extend their working expertise in Process Education, learning to learn, and self-growth so they can more effectively address these barriers whether in the role of individual, team, or institution.

Table 5 offers research-based Strategies for Barrier Mitigation. Note that all but 3 mitigation strategies earned a score of at least 4 (effective to very effective strategy) in the survey.

Table 1 Barriers in Sequence and Rank

In Sequence (ordered according to when they're typically encountered)				Ranked (most to least significant)		
Barrier 1:	Colleges not accepting responsibility for student failure	3.75		Barrier 3	Fixed mindset	4.17
Barrier 2:	Assumption about lack of college readiness	3.45		Barrier 9	Faculty learning to learn expertise	4.07
Barrier 3:	Fixed mindset	4.17		Barrier 4	Aversion to change	3.93
Barrier 4:	Aversion to change	3.93		Barrier 6	Valuing knowledge over learner development	3.86
Barrier 5:	Having a non-transformational learning culture	3.69		Barrier 1	Colleges not accepting responsibility for student failure	3.75
Barrier 6:	Valuing knowledge over learner development	3.86		Barrier 8	Self-evaluation	3.72
Barrier 7:	Disdain for using methodologies	3.31		Barrier 5	Having a non-transformational learning culture	3.69
Barrier 8:	Self-Evaluation	3.72		Barrier 2	Assumption about lack of college readiness	3.45
Barrier 9:	Faculty learning to learn expertise	4.07		Barrier 7	Disdain for using methodologies	3.31

Table 2 Critical Barriers to Implementing a Learning to Learn Experience with Recommended Mitigation Strategies

Barrier Description	Mitigation Strategies	Survey Score
1 Colleges not accepting responsibility for student failure Faculty and staff are unwilling to fully accept the responsibility for facilitating success for all students.	1. Faculty strengthen their mentoring skills 2. Faculty creating and implementing active learning activities 3. Creating classrooms that are high-quality, growth-oriented learning environments	3.75
2 Assumptions about college readiness Students are not adequately prepared for college-level work.	4. Understand incoming college students'[a] risk factors 5. Frame challenges and opportunities using the Transformation of Education[b]	3.45
3 Fixed mindset Most incoming students have a fixed mindset (as opposed to a growth mindset). This is also true of faculty.	6. Learn about and begin practicing self-growth (e.g., attend a Self-Growth Institute) 7. Read anonymized self-growth papers written by students during various learning to learn experiences	4.17
4 Aversion to change Humans and organizations are risk averse; change is always risky and difficult.	8. Reduce potential negative ramifications by making the first learning to learn experience a "turnkey" event (it is ready to be fully owned by the hosting institution) 9. Read the 25 years' worth of collected evidence for learning to learn success[c]	3.93
5 Having a non-transformational learning culture Institutions' educational cultures are traditional, making transformation difficult to implement.	10. Faculty attending a Student Success Institute as preparation for coaching at a learning to learn experience 11. Leaders-in-training experience a learning to learn experience at a different institution	3.69
6 Valuing knowledge over learner development Faculty members focus on teaching knowledge but not on improving the performance of the learner ("teaching to the test" or "subject focus").	12. Faculty participating in a Teaching Institute 13. Faculty using the Profile of a High-Quality Collegiate Learner[d]	3.86
7 Disdain for using methodologies Faculty members do not believe that methodologies (explicit generalizations of process knowledge) actually work.	14. Experiencing the value of methodologies[c] 15. Faculty coaching at a learning to learn experience	3.31
8 Self-Evaluation Both faculty and students are unaware of the power of self-assessment and how it differs from evaluation.	16. Faculty attending an Assessment Institute 17. Assessing instead of evaluating 18. Assessing self-assessments in order to remove judgement from them	3.72
9 Faculty learning to learn expertise Facilitating learning to learn requires a strong set of skills in facilitation, assessment, and mentoring (constructive interventions).	19. Faculty participate in a Teaching Learning to Learn Institute 20. Faculty facilitating learning to learn experience	4.07

Notes a) Horton, 2015; b) Apple, Jain et al., 2018 c) Apple, Ellis, & Hintze, 2016a-2016f d) Apple, Duncan, & Ellis, 2016.

Table 3 Approaches to Barriers from the Individual, Interpersonal (Team) and Institutional Perspectives

Barrier		
1 Colleges not accepting responsibility for student failure		
ROLE	**Individual**	Willingness to facilitate the success of your own students
	Interpersonal	Commit to each other to support a student success initiative as a Professional Learning Community (PLC)
	Institutional	Create an onboarding system, mentoring program, and academic recovery program
2 Assumptions about college readiness		
ROLE	**Individual**	Meet students where they are
	Interpersonal	Put in place a learning to learn program
	Institutional	Require a learning to learn course for every student
3 Fixed mindset		
ROLE	**Individual**	Develop a growth mindset of your own
	Interpersonal	Create a self-growth community
	Institutional	Hold a Self-Growth Institute for every faculty member over a three-year period
4 Aversion to change		
ROLE	**Individual**	Become a change agent
	Interpersonal	Propose a change project or obtain a grant
	Institutional	Create a three-year change project for creating a culture of self-growth
5 Having a non-transformational learning culture		
ROLE	**Individual**	Embrace the mindset and practices of transformational learning and use them in your own courses
	Interpersonal	Create a series of courses that model transformational learning
	Institutional	Hold a series of professional development events (e.g., Teaching Institute, Assessment Institute, Curriculum Design Institute, Student Success Institute, and Mentoring Institute)
6 Valuing knowledge over learner development		
ROLE	**Individual**	Use the philosophy of Process Education to help learners develop while they are learning
	Interpersonal	Build sequential courses that instill learning to learn within disciplines
	Institutional	Create institutional measures for learner development as part of institutional-level learning outcomes
7 Disdain for using methodologies		
ROLE	**Individual**	Use methodologies both personally and in the classroom
	Interpersonal	Assess each other's use of methodologies to improve performance in using them
	Institutional	Provide faculty with a set of methodologies for their practices as part of an Institutional Faculty Resource Manual

Barrier		
8 Self-Evaluation		
ROLE	**Individual**	Become an expert self-assessor
	Interpersonal	Assess each other's self-assessments to improve performance in self-assessment
	Institutional	Turn annual faculty performance appraisal into an annual assessment system
9 Faculty learning to learn expertise		
ROLE	**Individual**	Deliberately work to become a high-quality learning to learn facilitator
	Interpersonal	Develop a learning to learn facilitator program within the community
	Institutional	Provide a program of learning to learn certification for faculty

Table 4 Key Process Education Literature to Support Barrier Significance

Barrier		
1 Colleges not accepting responsibility for student failure		
Research	**Area 1**	Learning to Learn Camps: Their History and Development (Apple, Ellis, & Hintze, 2015)
	Area 2	Impact of Higher Education Culture on Student Mindset and Success (Apple, Jain, Beyerlein, & Ellis, 2018)
	Area 3	Building Institutional Support for a Recovery Course for Academically Dismissed Students (Wenner et al, 2019)
2 Assumptions about college readiness		
Research	**Area 1**	Enhancing a First-Year Success Course through Process Education (Jones and Kilgore, 2012)
	Area 2	Key Learner Characteristics for Academic Success (Apple, Duncan, & Ellis, 2016)
	Area 3	Identifying At-Risk Factors that Affect College Student Success (Horton, 2015)
3 Fixed mindset		
Research	**Area 1**	What is Self-Growth? (Jain et al., 2015)
	Area 2	Self-Growth/Growth Mindset (Apple, Ellis, & Hintze, 2016e)
	Area 3	Becoming a Self-Grower (Leise, 2007)
4 Aversion to change		
Research	**Area 1**	Introduction to Expectations and Change Movements in Higher Education (Lindborg, 2007)
	Area 2	Changing Expectations for Higher Education (Holmes, 2007)
	Area 3	Role of Process Education in Fulfilling the Changing Mission of Higher Education (Duncan-Hewitt, 2007)

Barrier
5 **Having a non-transformational learning culture**

Research	**Area 1**	The Transformation of Education: 14 Aspects (Hintze-Yates et al., 2011)
	Area 2	Impact of Higher Education Culture on Student Mindset and Success (Apple, Jain, Beyerlein, & Ellis, 2018)
	Area 3	Concept Maps for Linking Aspects in the Transformation of Education (Beyerlein et al., 2012)

6 **Valuing knowledge over learner development**

Research	**Area 1**	Impact of Higher Education Culture on Student Mindset and Success (Apple, Jain, Beyerlein, & Ellis, 2018)
	Area 2	100 Best Practices for Teaching Learning to Learn and Self-Growth (Sweeny et al., 2018)
	Area 3	Constructive Intervention (Leise & Smith, 2007)

7 **Disdain for using methodologies**

Research	**Area 1**	Methodology for Creating Methodologies (Smith & Apple, 2007a)
	Area 2	Learning Processes through the Use of Methodologies (Leise & Beyerlein, 2007).
	Area 3	Methodologies (Apple, Ellis, & Hintze, 2016d)

8 **Self-Evaluation**

Research	**Area 1**	Keys to Improving Academic Assessment (Utschig & Apple, 2009)
	Area 2	Impact of Higher Education Culture on Student Mindset and Success (Apple, Jain, Beyerlein, & Ellis, 2018)
	Area 3	Mindset for Assessment (Jensen, 2007).

9 **Faculty learning to learn expertise**

Research	**Area 1**	100 Best Practices for Teaching Learning to Learn and Self-Growth (Sweeny et al., 2018)
	Area 2	Impact of Higher Education and Culture on Student Mindset and Success (Apple, Jain, Beyerlein, & Ellis, 2018)
	Area 3	Learner Development, Self-Development (Beyerlein, Holmes, & Apple, 2007, Ch. 3.3 and 3.4)

Table 5 Research-Based Strategies for Barrier Mitigation [note that all but three mitigation strategies earned a score of at least 4 (*effective* to *very effective strategy*) in the survey]

Mitigation Strategy			Score
1 **Faculty strengthen their mentoring skills**			**4.24**

Research	**Focus 1**	Choosing and Using Mentors Effectively (Apple et al., 2013)
	Focus 2	Mentoring is Critical for At-Risk Students (McGlynn, 2014)
	Focus 3	Mentoring Handbook (Pacific Crest, 2009)

Mitigation Strategy	Score
2 Faculty creating and implementing active learning activities	**4.52**
Research — Focus 1 Assessing Learning Activities (Loertscher & Minderhout, 2007)	
Focus 2 Designing Process-Oriented Guided Inquiry Activities (Hanson, 2007)	
Focus 3 Learning to Learn: Becoming a Self-Grower (Apple et al., 2013)	
3 Creating classrooms that are high-quality, growth-oriented learning environments	**4.41**
Research — Focus 1 Conditions for Challenging Learner Performance (Smith & Spoelman, 2009)	
Focus 2 Methodology for Creating A Quality Learning Environment (Apple & Smith, 2007)	
Focus 3 Impact of Higher Education Culture on Student Mindset and Success (Apple, Jain et al., 2018)	
4 Understand incoming college students' risk factors	**4.17**
Research — Focus 1 Identifying At-Risk Factors that Affect College Student Success (Horton, 2015)	
Focus 2 Key Learner Characteristics that Produce Academic Success (Apple, Duncan, & Ellis, 2016)	
Focus 3 Impact of Higher Education Culture on Student Mindset and Success (Apple, Jain et al., 2018)	
5 Frame challenges and opportunities using the Transformation of Education	**3.93**
Research — Focus 1 The Transformation of Education: 14 Aspects (Hintze-Yates et al., 2011)	
Focus 2 Impact of Higher Education Culture on Student Mindset and Success (Apple, Jain et al., 2018)	
Focus 3 Concept Maps for Linking Aspects in the Transformation of Education (Beyerlein et al., 2012)	
6 Learn about and begin practicing self-growth (e.g., Attend a Self-Growth Institute)	**4.17**
Research — Focus 1 Self-Growth Institute Report (Apple, Ellis, & Ulbrich, 2019)	
Focus 2 *A Professional's Guide to Self-Growth* (Apple, Ellis & Leasure, 2018)	
Focus 3 Self-Growth Paper: An Assessment and Research Tool to Analyze Growth Outcomes (Ellis et al., 2019)	
7 Read anonymized self-growth papers written by students during various learning to learn experiences	**3.66**
Research — Focus 1 Self-Growth Paper: An Assessment and Research Tool to Analyze Growth Outcomes (Ellis et al., 2019)	
Focus 2 *A Professional's Guide to Self-Growth* (Apple, Ellis & Leasure, 2018)	
Focus 3 Building Institutional Support for a Recovery Course for Academically Dismissed Students (Wenner et al., 2019)	
8 Reduce potential negative ramifications by making the first learning to learn experience a "turnkey" event (it is ready to be fully owned by the hosting institution)	**4.10**
Research — Focus 1 How Raising the Bar Helps Entry-Level Students Succeed (Apple & Leasure, 2018)	
Focus 2 Building Institutional Support for a Recovery Course for Academically Dismissed Students (Wenner et al., 2019)	
Focus 3 Learning to Learn Camps: Their History and Development (Apple, Ellis, & Hintze, 2015)	

Mitigation Strategy	Score

9 Read the 25 years' worth of collected evidence for learning to learn success   **3.55**

Research	Focus 1	25 Years of Process Education (Apple, Ellis, & Hintze, 2016a-f)
	Focus 2	What is Special about Process Education? (Desjarlais & Morgan, 2013)
	Focus 3	Impact of Higher Education Culture on Student Mindset and Success (Apple, Jain et al., 2018)

10 Faculty attending a Student Success Institute as preparation for coaching at a learning to learn experience   **4.21**

Research	Focus 1	Building Institutional Support for a Recovery Course for Academically Dismissed Students (Wenner et al., 2019)
	Focus 2	Reflections on Student Success (Pacific Crest, 2006)
	Focus 3	25 Years of Process Education (Apple, Ellis, Hintze, 2016b)

11 Leaders-in-training experience a learning to learn experience at a different institution   **4.48**

Research	Focus 1	Building Institutional Support for a Recovery Course for Academically Dismissed Students (Wenner et al., 2019)
	Focus 2	Impact of Higher Education Culture on Student Mindset and Success (Apple, Jain et al., 2018)
	Focus 3	The Psychology of Learning & Success Project Report: An Academic Recovery Course Implementation Project. (Pacific Crest, 2017)

12 Faculty participating in a Teaching Institute   **4.31**

Research	Focus 1	25 Years of Process Education (Apple, Ellis, Hintze, 2016b)
	Focus 2	How Raising the Bar Helps Entry-Level Students Succeed (Apple & Leasure, 2018)
	Focus 3	Building Institutional Support for a Recovery Course for Academically Dismissed Students (Wenner et al., 2019)

13 Faculty using the Profile of a High-Quality Collegiate Learner   **3.97**

Research	Focus 1	Key Learner Characteristics that Produce Academic Success (Apple, Duncan & Ellis, 2016)
	Focus 2	Profile of a Quality Learner (Nancarrow, 2007)
	Focus 3	Learning to Learn: Improving the Performance of Learning (Apple & Ellis, 2015)

14 Experiencing the value of methodologies   **4.10**

Research	Focus 1	25 Years of Process Education (Apple, Ellis, Hintze, 2016d)
	Focus 2	Learning Processes through Methodologies (Leise & Beyerlein, 2007)
	Focus 3	Faculty Guidebook (Beyerlein, Holmes, & Apple, 2007)

15 Faculty coaching at a learning to learn experience   **4.41**

Research	Focus 1	Building Institutional Support for a Recovery Course for Academically Dismissed Students (Wenner et al., 2019)
	Focus 2	Learning to Learn Camps: Their History and Development (Apple, Ellis, & Hintze, 2015)

Mitigation Strategy	Score
16 **Faculty attending an Assessment Institute**	**4.14**

<table>
<tr><td rowspan="3">Research</td><td>**Focus 1**</td><td>Assessment Institute Handbook (Pacific Crest, 2011)</td></tr>
<tr><td>**Focus 2**</td><td>25 Years of Process Education (Apple, Ellis, Hintze, 2016b)</td></tr>
<tr><td>**Focus 3**</td><td>25 Years of Process Education (Apple, Ellis, Hintze, 2016f)</td></tr>
</table>

17 **Assessing instead of evaluating**	**4.31**

<table>
<tr><td rowspan="3">Research</td><td>**Focus 1**</td><td>25 Years of Process Education (Apple, Ellis, & Hintze, 2016f)</td></tr>
<tr><td>**Focus 2**</td><td>Assessment Institute Handbook (Pacific Crest, 2011)</td></tr>
<tr><td>**Focus 3**</td><td>Differentiating Assessment from Evaluation as Continuous Improvement Tools (Parker et al., 2001)</td></tr>
</table>

18 **Assessing self-assessments in order to remove judgement from them**	**4.17**

<table>
<tr><td rowspan="3">Research</td><td>**Focus 1**</td><td>Assessing Assessments (Anderson & Watson, 2007)</td></tr>
<tr><td>**Focus 2**</td><td>A Comparative Analysis of Reflection and Self-Assessment (Desjarlais & Smith, 2011)</td></tr>
<tr><td>**Focus 3**</td><td>25 Years of Process Education (Apple, Ellis, Hintze, 2016f)</td></tr>
</table>

19 **Faculty participate in a Teaching Learning to Learn Institute**	**4.34**

<table>
<tr><td rowspan="2">Research</td><td>**Focus 1**</td><td>Building Institutional Support for a Recovery Course for Academically Dismissed Students (Wenner et al., 2019)</td></tr>
<tr><td>**Focus 2**</td><td>How Raising the Bar Helps Entry-Level Students Succeed (Apple & Leasure, 2018)</td></tr>
</table>

20 **Faculty facilitating learning to learn experience**	**4.69**

<table>
<tr><td rowspan="2">Research</td><td>**Focus 1**</td><td>Learning to Learn Camps: Their History and Development (Apple, Ellis, & Hintze, 2015)</td></tr>
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Barrier 1:   Colleges not accepting responsibility for student failure

The members of a collegiate community enjoy being successful and accept the credit for success as long as the college's students are successful. It is, after all, through the college's efforts that students ultimately succeed (graduate). However, when students are not successful, from the college's perspective, the lack of success tends to be ascribed to the student: they didn't do what the college required or wasn't committed enough. Failure is rarely laid at the feet of faculty and staff. This bias was noticed and noted in 2015, with faculty referring to "these students" who did not belong at "our college." (Apple, Ellis, & Hintze, 2015).

The literature in this area is extensive and provides two compelling reasons for this barrier: First, colleges don't want to accept accountability for student failure, as doing so means they admit to being inadequate. Second, accepting accountability for student success means also accepting responsibility for improving institutional performance in order to foster student success. Faculty have more power than they realize when it comes to changing student failure to student success. At the level of the classroom, implementing and facilitating active learning helps faculty appreciate what active learning has to offer; faculty learn that they have the ability to enhance the learning of their students.

Active learning activities have their greatest impact in a quality learning environment (Smith & Apple, 2007b). In this context, learning is collaborative and enhanced by the trust and respect established between the learners and facilitators. A quality learning environment establishes a cooperative commitment to the success of

the learner. Learners buy into the process early and are thus more open to accepting challenge and taking risks. Learners find they are willing to, and excited about, meeting the clear, high expectations of the facilitator — learners take ownership of these expectations and strive to meet them. Facilitators use frequent assessment to improve the process as well as measuring and documenting the improvement and growth of the learners. Students succeed when faculty are committed to these principles; that is, when faculty accept responsibility for facilitating student success (Burke et al., 2009).

Mentoring skills are invaluable for helping students — especially students who struggle academically — gain greater success (Hennissen et al., 2011). Through effective mentoring, both with the classroom setting and especially one-on-one, faculty can shift from enabling students (helping them jump through the proverbial hoops) to empowering them in taking control of their own lives, not only academically, but personally. When mentoring skills are learned and practiced, faculty and advisors begin to understand the impact they have on student success, and that it is their responsibility to offer mentoring to every student. This makes the success of students the shared responsibility of every member of a collegiate community (Apple, Leasure et al., 2019).

Barrier 2:   Assumptions about College Readiness

Faculty are reluctant to embark on learning to learn programs because they do not believe that their students are ready for college-level work. Students who have significant risk factors (Horton, 2015) are not only **not** college ready, they are generally not emotionally equipped for a learning to learn experience and will shrink from the challenges it presents. "Readiness for college" entails a variety of behaviors and characteristics. Students procrastinate, try to memorize instead of thinking critically, are unused to being challenged, don't prepare for class, and don't know how to work effectively in teams. These are a set of factors that put students at risk in a collegiate context (Horton, 2015) and which have been developed through traditional educational practices (Hintze-Yates et al., 2011). Consequently, when considering a learning to learn experience, faculty and administrators worry about students' ability to succeed in the experience because the change in expectations and culture (from where many at-risk students are when beginning college to where a learning to learn experience promises to move them) is greater than the degree of change faculty and administrators are accustomed to seeing.

While Horton (2015) details typical risk factors of incoming college students, Apple, Jain, Beyerlein and Ellis (2018) describe the educational conditioning that produces these risk factors in students; it is that conditioning — the culture, including faculty mindset — that influences student behaviors, setting them up for failure or success. Faculty can expand their perspective by becoming familiar with these risk factors and appreciating how pervasive they are and the degree to which they inhibit academic success.

In determining which characteristics high-performing collegiate learners possess, Apple, Duncan, and Ellis (2016) gathered a great deal of information about the deficiencies that represent the opposite characteristics — those of low-performing collegiate learners. Apple, Duncan, and Ellis focused on the degree of difference between academic failure and academic success and what tipped the balance one way or the other. They found that students who are not college-ready may lack appropriate learning strategies (routines that lead to academic success) and the critical skills that underpin improvement in this area include setting academic goals, using metacognition, taking ownership of their learning, planning, using resources effectively, validating knowledge, and being productive (2016). Apple, Duncan, and Ellis (2016) outlined a set of resources that faculty can use in order to actively influence and help their students develop and improve the characteristics of a high-performing collegiate learner. This moves students from where they are (not college-ready) to where faculty know they need to be, in order to succeed in college.

It is important to acknowledge that lack of college readiness does exist, and while it is a perceived barrier to implementing a learning to learn experience, the learning to learn experience is a *solution* to the lack of college readiness. Learning to learn experiences have been documented to turn failing students into successful ones (Apple & Leasure, 2018) as well as improving the performance of already high-achieving students (Jones & Kilgore, 2012).

Barrier 3:   Fixed Mindset

For learning to learn to be effective, facilitators must help individuals with a fixed mindset develop a growth mindset. In the authors' experience, most individuals and educators tend to hold a fixed mindset (Dweck 2006). A fixed mindset — "I can't do that" — is the result of repeated failures and negative evaluations by external sources. In addition to evaluations from individuals, such as teachers or coaches, culture also projects the notion of "can't do" onto people, such as with the trope, "girls aren't good at math." Beliefs in innate ability, gender, racial, and social stereotypes reinforce a fixed mindset.

In contrast, growth is the development of capability so that performance and results improve over time. This means that a growth mindset comes from experiences where growth has occurred in a "can't do" area; the "can't do" becomes something like, "I can be good at things I am not currently good at because I have the ability to improve." Not many students or faculty have experienced this kind of growth. Significantly, it is affective skills (Leise et al., 2019) that drive the transition from a fixed to a growth mindset. The cognitive knowledge of can't, based on previous experience or relayed information must be ignored or set aside in favor of an emotional belief that growth is possible.

The barrier of a fixed mindset was ranked as the most significant by the faculty who responded to the survey, which supports the notion that a fixed mindset is, ironically, fixed in our culture and therefore difficult to overcome. In order to foster a growth mindset in those they mentor, coaches and facilitators must understand, experience, and document their own self-growth (Jain et al., 2015; Jain, 2019). Self-growth is predicated on having or developing a growth mindset (Jain et al., 2015). A Self-Growth Institute provides an opportunity for faculty to experience not only the impact of their own self-growth, but to also see the impact self-growth has on each participant. In the words of one participant:

When I arrived at the institute on Sunday, I was stuck. Stuck professionally and stuck personally. I was so stuck that I didn't even know I was stuck. I could see that I hadn't been performing where I wanted to — skipping activities, procrastinating — but thought I would "just motivate myself out of it", though I didn't have a plan for that. Since I wasn't living up to my expectations, I was self-evaluating big time…. Over this week, the Self-Growth Institute has helped me to grow in four major areas. I am unstuck! …. A self-grower puts a high priority on continuing self-growth and incorporates that practice in everything they do. Most people want self-growth — that's why there are self-help books, shows, videos, and workshops. But few people or organizations know what it is and how to deliver it. Self-growth is supported in a community environment — because it's hard! And when we're in it together we get support (empathy, at least a little) and tips and strategies for persisting and growing it … Getting to my current point has at least doubled my desire to be a life coach — strengthening that identity, wanting to develop that process into my broad criteria of both leadership and service, and to multiplicatively increase my impact on people and organizations for their own growth. (Apple, Ellis, & Ulbrich, 2019)

Participation in the Self-Growth Institute nudges a fixed mindset into a growth mindset through the use of the ten key components of self-growth (Jain et al., 2015). One important aspect of this is the ongoing use of self-assessment (Desjarlais & Smith, 2011) to continually make progress towards becoming a self-grower (Leise, 2007).

Another way to challenge a fixed mindset is by reading (anonymized) self-growth papers (Apple, Ellis, & Leasure, 2018; Ellis et al., 2019) written by students near the end of a learning to learn experience. In these papers, students describe the transformation they have undergone during the learning to learn experience. The feedback from administrators, faculty and academic staff who read these papers is universally positive. For experiences that take the form of academic recovery camps in particular, readers are often very surprised that a one-week experience could so deeply transform students — especially students facing academic dismissal. The self-growth papers tell the story of students who learned to believe they are capable of succeeding (Ellis et al., 2019).

Barrier 4:   Aversion to Change

Those who feel threatened by change often find ways of disrupting or even sabotaging change initiatives. Effective and lasting change requires unfreezing the current state, working through a transition state, and re-freezing into a new, more desirable state (Mecca, 2004). The transition state is universally uncomfortable because processes and performance targets are new and all participants are outside their comfort zones. Participants are often concerned that their previous level of performance will regress during the transition; they do not understand that this is a common and temporary part of the change process. During this initial regression, the change process is at significant risk from challengers with an aversion to change who can precipitate the learning to learn project's demise. This is a risk that the change agent must bear in order to achieve change. At base, change is hard, uncomfortable, and leads to uncertainty, fear and doubt (Mecca, 2004). Power bases often are threatened in times of change and those who fear change will fight to retain their power base (Cardus, 2014). Given these circumstances, a pilot program must be local and low-profile so that positive impacts can be demonstrated. The positive proof-of-concept makes wider change less amenable to disruption and therefore more likely.

Education is no stranger to change. Change is indicated whenever an aspect of education is unsuccessful. As expressed by Brownell and Tanner (2012) a key challenge is the difficulty associated with convincing faculty of the

need for change or to actually produce change. Faculty are particularly resistant to change that is perceived to be an industrialization of their occupation (Lindborg, 2007).

Nevertheless, change has increasingly come to higher education over the last several decades. Holmes (2007) explains how and why expectations are changing, pointing out that there has been a movement from an agrarian to an industrial and now to a knowledge-based society. In the knowledge-based society of the present, virtually all knowledge is available, on demand, and free. We believe that positions us perfectly to progress into a learning-based society.

Process Education in general and learning to learn in particular have roles to play in the ongoing (positive) change in learning within higher education. The learning to learn program uses a systems-based approach to move participants from simple content learning to self-mentored and ever-expanding improvement of learning. This makes possible improvement from any base performance level (Duncan-Hewitt, 2007). Most colleges would like an illustration that learning to learn works with their students before they invest significant, and possibly scarce, institutional resources for a long-term adoption of a learning to learn curriculum. A pilot implementation where faculty and staff have limited involvement in coordination (turnkey implementation) may prevent negative ramifications, as a practiced team delivering the experience reduces the number of unexpected issues that can arise during a pilot program. This allows the change agents associated with the institution to collect and disseminate evidence of a successful program. Most institutions, after piloting a learning to learn experience and seeing the outcomes is produces, are then ready and willing to commit institutional resources to adopting and running the program themselves. There is a wealth of information and several case studies focused on learning to learn experiences. These include an overview of Learning to Learn Camps (Armstrong et al., 2007), the history of Learning to Learn Camps (Apple, Ellis, & Hintze, 2016c), a report on the learning to learn program created at Grand Valley State University (Wenner et al., 2019), how first-year success courses can be enhanced using Process Education (Jones & Kilgore, 2012), and student perceptions of skills gained in learning to learn settings (Murray, 2019).

Barrier 5:   Having a Non-Transformational Learning Culture (Red Instead of Green)

Although research supports the set of practices aligned with the 14 aspects of the Transformation of Education (Hintze-Yates et al., 2011), an observer of current college practices would likely observe that current practices are more traditional than transformational (Apple, Jain et al., 2018). A learning to learn experience creates, exists in, and empowers a transformational culture. A transformational learning culture differs from a traditional learning culture in that the latter supports assimilative learning, with students fitting new knowledge within the context of pre-existing knowledge, whereas in the former, educators and learners alike engage in critical reflection and self-assessment (Apple, Jain et al., 2018). When students first experience a transformational culture, they feel a kind of culture shock. Since a single learning to learn experience cannot be isolated from the larger culture of the institution, there are additional ramifications to embedding a transformative subculture within a traditional culture. Change and growth are not characteristics of many traditional cultures but are fundamental to learning to learn. Each of the 14 aspects of the Transformation of Education (Hintze-Yates et al., 2011) come into play in a learning to learn experience and must be practiced at their most transformational (greenest) for learning to learn to be as effective as possible. In learning to learn, students are significantly challenged to build working expertise, become self-directed, take ownership, become active learners, shift to an assessment mindset, work publicly in teams and communities, focus on self-growth, use objective measurement, become more interdisciplinary in their focus, commit themselves emotionally, and build self-efficacy. Students rarely have any previous experience with these processes and performances, as students' mindsets and practices are largely formed by the educational culture of in their current and previous institutions, and these are most often not transformational.

In general, faculty and administrators agree that a transformational (green) culture is desirable. But because it is a novel experience, faculty may doubt its efficacy or be unable to appreciate how positively their institution could change. The Student Success Institute (Pacific Crest, n.d.) gives its participants the opportunity to experience a transformational culture for themselves. The Institute also provides models showing how transformation occurs and how it can strengthen existing student success initiatives and programs.

It is important for faculty to participate in a learning to learn experience at an institution other than their home institution. The role of coach in a learning to learn experience embeds faculty in an environment which is strongly transformational. As coaches, faculty can practice facilitation with co-facilitators and coaches who provide assessment feedback on their performance and hold meaningful discussions about how to bring this

kind of environment back to their home institution. Because faculty practice and learn to facilitate learning to learn at another institution, they can learn without feeling the temptation to protect their own students from the challenges and expectations of the experience and without the judgement, perceived or real, from their colleagues and peers.

Barrier 6: Valuing Knowledge over Learner Development

There is a general belief that the mission of Higher Education is to collect and expand knowledge: faculty value their experience and expertise and share disciplinary knowledge with their students and design exams based on what they have presented to their students. While this may be "testing to the teaching," it generally encourages lower-order thinking (memorization and recall) instead of synthesis and critical thinking. Relatively few have an appreciation of modern science vis-à-vis learning and the impact that it can have on learner development. For this reason, theory-based and empirically tested best practices have been adopted (Bransford et al., 2000). This lack of understanding leads to a lack of interest and fear of expanding the educational mission to include the development of learning performances. When faculty (and administrators) doubt that learning can be improved (i.e., that one can learn to learn), they are unwilling to invest time or money in the necessary knowledge, skills, abilities, and tools to implement learning to learn experiences.

Valuing the development of learning requires that faculty be willing to learn and assess dimensions of learning performance such as 1) writing growth outcomes and developing measures of growth to justify that learner development is occurring; 2) the role of facilitating learning (guide on the side versus the sage on the stage); 3) mentoring growth and development; and 4) creating the kind of high-quality learning environment needed for optimal learner development (Davies et al., 2013). This necessitates that faculty invest time in professional development in order to gain new expertise, experience, and skills. The new focus on the learning process may cause some faculty to feel as if they are taking time away from the required content of the course and detracting from rather than adding to students' increasing disciplinary expertise. This rationale explains why so many faculty are reluctant to shift focus from content delivery to learner development. Add to this a fixed mindset and faculty don't believe that an investment in developing their students as learners would make any real impact on their success as learners. These faculty believe that there is no easy way to

grow performance and conclude that without a clear path, neither they nor their students will be successful (Sinclair & Faltin Osborn, 2014).

Interestingly, faculty prefer 'better' students and students who learn how to learn are perceived as 'better' students than those who learn to memorize (Watts & Perkins, 2019). The secret to creating the kind of students that faculty want is the integration of learning development in disciplinary courses (Apple, Ellis, & Hintze, 2016a). This requires a cultural shift, starting with the faculty, toward valuing learning as a discrete process that is transferrable to and applicable within any discipline. A Teaching Institute (Pacific Crest, 2016) shows how this can be done by helping faculty discover that they can be effective facilitators of learning and learning development. The Institute literally demonstrates how dedicating a small amount of time to focusing on learner development exponentially increases learning performance — so much so that there is no sacrifice of course content. Investing in learner development in the classroom yields students who are able to engage in deeper learning, whether the techniques are constructive interventions (Leise & Smith, 2007), cooperative learning (Van Der Karr & Burke, 2007), or any of a number of other Process Education facilitation techniques (Sweeney et al., 2018).

And additional tool that can assist faculty who are willing to work to develop students as learners is the Profile of a High-Performing College Learner (Apple, Duncan, & Ellis, 2016). The profile identifies and describes 50 areas of performance that are widely recognized as critical to strong collegiate performance. The profile is grouped into categories: growth mindset, academic mindset, affective learning skills, productive academic behaviors, learning strategies, learning processes, and social learning skills. A Teaching Institute helps faculty learn how to integrate areas of the profile into activity design, course design, setting objectives and measures, and setting performance criteria.

Barrier 7: Disdain for Using Methodologies

We have encountered faculty who do not believe that process knowledge can be generalized as a useful model (methodology). They tend to feel that offering learners a methodology ignores the expertise of the educator. Skepticism is a common initial reaction to the claim that common processes such as learning, problem solving, communication, and working in teams can be modeled in general. Educators may also feel that the hard-earned development of these processes is trivialized by offering a methodology; "We had to work hard to grow performance and so should our

students" seems to be a common response to general methodologies. Because many faculty see teaching as a direct reflection of their own knowledge, they may see methodologies as a crutch rather than a tool for deep learning. Learning by methodology is perceived as a shortcut of limited benefits that leaves out something important in the process of learning and understanding. It is our contention that faculty could benefit from reviewing methodologies and their uses as presented in the *Faculty Guidebook* (Beyerlein, Holmes, & Apple, 2007). Even experts among faculty can use methodologies to great effect. The *Faculty Guidebook* also offers instruction for creating methodologies so that faculty can generalize their own critical process knowledge. It is our experience that when faculty learn to appreciate the value of methodologies, they become more open to using them when working with students and encouraging students to use them on their own (Apple, Ellis, & Hintze, 2016d).

It is possible that the disdain some feel for methodologies arises from the word itself, and not the actual idea of a methodology. After all, we have *procedures* in laboratories, *policies* in political science, and *programs* and *algorithms* in computer science, all of which are synonymous with the term *methodology* as it is used in Process Education. A methodology is simply a model of the abstract generalization of a process created to assist the learning and performance of that process (Apple, Duncan, & Ellis, 2016).

Barrier 8:   Self-Evaluation

Current social culture (in the United States, at least) builds a self-evaluation mindset and accompanying destructive behaviors (Utschig & Apple, 2009). Because the terms *assessment* and *evaluation* are often used interchangeably, clarification is critical. In an educational context, *evaluation* focuses on judgement of the quality of learning using acknowledged standards as instruments in order to make objective measurements. *Assessment* focuses on growth and improving performance based on measurable criteria that are known by the performer (Pacific Crest, 2013). The major indicators of self-evaluation include worry and anxiety in areas of concern about past or future performance, a lack of focus on current performance with negative self-talk during the performance, and berating oneself after a performance about aspects of the performance that didn't meet personal or external expectations (standards). Self-assessment, on the other hand, though rarely practiced by faculty or students, is an essential part of learning to learn. It is the self-assessment process that lets learners identify and vali-

date their own learning and increase future learning performance, most often using a process, called SII assessment, which focuses on Strengths, Improvements, and Insights (Wasserman & Beyerlein, 2007).

Both evaluation and assessment use criteria (areas of quality with measurement scales) but only evaluation uses standards (levels of quality). Once an observer of a performance adopts standards of quality, even if only in their own mind, they become an evaluator and the feedback they give will be evaluative. Suspension of judgement (i.e., releasing all standards) is critical to creating assessment feedback. Self-assessment, then, focuses on performance as experienced by the learner, based on the way the learning experience meets their expectations, both intrinsic and extrinsic (Utschig & Apple, 2009).

Examples of this barrier include individuals who self-evaluate and individuals who interpret assessment feedback as evaluation. Once a standard is in the mind of the learner, they can't suspend making judgments as they measure their performance against it. They are focused on whether they are above or below the standard and by how much. By doing this, they lose focus, allowing judgment to detract from what is important: how to improve the next performance. Because self-evaluators are unable to be nonjudgmental about their performance, it is often the case that they cannot see their own successes. These individuals commonly suffer from imposter syndrome (Clance & Imes, 1978) and tend to rely on external affirmation of their accomplishments.

When assessment feedback is shared, it may be interpreted as evaluative feedback, especially by individuals not accustomed to receiving assessment-based feedback. Strengths may be dismissed as token compliments and suggestions for improvement can be interpreted as saying that the performance was substandard. When this happens, the assessee acts defensively and cannot put the feedback to use.

Pacific Crest, Stony Brook, and Penn State collaborated on developing an Assessment Institute in 2002 (Apple, Ellis, & Hintze, 2016b), which was designed to shift faculty mindset from evaluation to incorporating assessment at the institutional, program, course, and personal levels. As the faculty designed and implemented additional assessment practices (for example, a course assessment system to supplement a course evaluation system), faculty became more appreciative of the role of assessment in student learning and development (Apple, Ellis, & Hintze, 2016b).

One of the best practices for increasing self-assessment ability is to have another, preferably an experienced mentor, assess one's self-assessments. By setting a criterion of "no self-judgement" for the assessment feedback of a self-assessment, the assessee quickly sees where and how self-judgement can be stripped from self-assessments (Sweeny et al., 2018).

Transforming evaluation into assessment is essential to adopting a learning to learn approach, and/or successfully engaging in a learning to learn experience. Assessment and evaluation do have some commonalities: Both rely on quality measurement, both are evidence driven (Jensen, 2007) and both are tools that can improve performance (Utschig & Apple, 2009). However, the final nature of evaluation, where, after the evaluation, the task/effort being evaluated is over, rules out any opportunity for learning to learn, especially in a classroom environment. Regardless of the task, it is the rare student who continues on after receiving his or her grades. Students who are committed to continual improvement are students who understand, accept, and practice self-assessment.

Barrier 9:   Faculty Learning to Learn Expertise

When faculty and administrators are unsure of their ability to implement a learning to learn experience, it is because they either do not possess the critical skills or they are not confident in their ability to perform these skills at a very high level (i.e., they do not believe that they are able to increase student learning in a classroom environment). This barrier was ranked 4.07 (significant barrier) in the survey and was the second most highly ranked barrier. Facilitating a learning to learn experience requires a strong skills in facilitation, assessment, mentoring (especially with respect to constructive interventions), problem solving, collaborating, leadership, evaluation, self-growth, and modeling professionalism. Most faculty teach the way they were taught, never considering how these skills can create learning environments that foster student success. Furthermore, teaching the way one was taught, even if it is poorly or in the way that hinders student learning rarely has meaningful consequences because implicit privilege is afforded by the popular interpretation of academic freedom (i.e., little to no accountability). Few faculty members willingly accept responsibility for producing their students' success (Keeling & Hersh, 2012). Further, many are unwilling to be accountable for student failures because they don't have the skill set to prevent failure from happening (Galindo, 2019). To mitigate this, faculty must expand their mentoring tool set for

facilitating the growth and development of learning as a performance (Sweeny et al., 2018).

Because faculty teach the way they were taught, they may only rarely use research to inform their teaching practice. The traditional method of teaching focuses on content delivery with an assumption that students have retained the requisite knowledge and skills from prerequisite classes that they need in order to be successful. While there is a wealth of research-based information available in the literature about, for example, writing across the curriculum (Klein & Aller, 1998) and, indeed a wide range of journals focused on best educational practices, many faculty do not read them. While one possible reason is a lack of time, another, more pernicious reason, is that taking risks in the classroom is not widely encouraged — stick to what you know and/or have been trained to teach. This kind of thinking leads faculty into the trap of focusing solely on content at the expense of basic knowledge and skills. Facilitating a learning to learn experience requires a strong set of facilitation, assessment, and mentoring skills (Armstrong et al., 2007) Faculty who coach and facilitate at these experiences will not only improve their skills but they will also observe the effect of developing learning skills while in the learning process. Facilitating a learning to learn experience provides faculty with mentors who assess the faculty so that they keep growing and themselves experience the impact of creating mentoring relationships with students. As noted previously, when these experiences occur other than at one's home institution, the faculty member who is a coach or facilitator has a different relationship with students because the faculty are not responsible for also grading students (this is the job of the facilitator and outside reviewers). Faculty experience becoming more of a coach than a traditional professor.

Participation in a Teaching Learning to Learn Institute is a critical tool for gaining expertise in facilitating learning to learn. Both mindset and technique are equally critical for effective facilitation in learning to learn experiences. The Teaching Learning to Learn Institute allows faculty to focus on both during the 16-week Institute. Two of this article's authors (Ulbrich & Woodbridge) participated in this institute. What follows is an excerpt from their assessments of the Institute, written immediately after completion.

> *(Strength) Focusing my learning on what I want to get out of the learning and setting my own challenges. This is learner ownership, and just like a student, I should take it! This lets me tailor the learning work to get the most growth impact I can and lets*

me manage the time I spend in the course. When the reading is review for me, I focus on filling gaps or elevating my learning. With the first Critical Thinking Question, I was a late poster and chose three aspects that no one else had discussed.

(Insight) Tackling the issue of hiding teammates from the team perspective gives me insight into what my students feel in a similar situation. There's a pull in two directions. On the one hand, I want the team to hang together, to support the learning of all, to welcome everyone when they participate, and to produce and receive the synergistic value of working together. On the other hand, I don't want to chase people down all the time, and I want them to take ownership for their learning by deciding to participate (i.e., we're all adults and can make choices and accept consequences). Unlike in my class, there is no penalty (well, missed points opportunity) if the whole team doesn't participate. But I know there is lost learning for me by missing out on their perspectives. I feel that the piece we put in the team contract — welcome any time, commit and follow through when you say you can be there — strikes a reasonable balance for a professional workshop.

(Improvement) When I read others' posts, I learn things and I appreciate that. But I usually start on the self-evaluation track because everyone else writes posts that are [better, more insightful, more thoughtful, etc.] than mine. I worry about responding to others' posts because my responses are [dumb, will be taken the wrong way, not very helpful, etc.].

(Strength) This semester, the course has been more difficult for me, timewise. I think it's because of the course I take Wednesday nights, but if I had to do it all over again, I don't think I would have chosen not to take one of the courses. I need to work on accepting that sometimes, the best I can do is good enough.

These excerpts illustrate the potential impact of a Teaching Learning to Learn Institute: faculty not only learn the techniques and structure of a learning to learn experience but are also guided in using these techniques and structural elements in order to positively impact learners. Faculty discover how to change the way they facilitate in order to help learners achieve the desired outcomes.

Innovative Solution for Mitigating Barriers from All Perspectives/Roles: A Self-Growth Institute

The experience and expertise gained through 30 years of providing professional development to support faculty, staff, and institutions in embracing Process Education phi-losophy and practices (Apple, Ellis, & Hintze, 2018b) underpins Process Education professional development, but it was the insights into addressing barriers to student success which gave form to the Self-Growth Institute (Apple, Ellis, & Ulbrich, 2019). The Self-Growth Institute shows promise in mitigating these barriers, with the report from the first Self-Growth Institute articulating the individual and team perspectives and serving as a predictive model for the Institutional perspective (see Table 6).

Future Research

This article has outlined a set of largely sequential barriers to implementing learning to learn, along with concomitant strategies to mitigate these barriers. While only the top nine barriers are addressed here, additional barriers were identified, based upon a free response question in the survey. These other barriers include lack of leadership development, participation in the process, and funding priorities. Likewise, additional mitigation strategies were suggested: mentoring for college leaders and employing multiple mitigation strategies simultaneously. The survey responses suggest new avenues to consider both in the learning to learn classrooms as well as in researching the impact of learning to learn experiences.

The authors have each participated in dedicated and formal self-growth community; some have attended a Self-Growth Institute. These experiences have led to the discovery of a new and overarching barrier to implementing a learning to learn experience: individuals, including faculty, not valuing self-growth. Faculty who do not value their own self growth will not be able to instill this value in others, thereby limiting their effectiveness as facilitators of learning to learn and self-growth. The Self-Growth Community 2019/2020, sponsored by the Academy of Process Educators, is producing information and insight that will drive future research efforts especially into the long-range impacts of self-growth. Improving the learning to learn experience requires facilitators who are strong self-growers. These individuals know how to use their mentoring skills not only for their own self-growth, but also to mentor others in successfully learning to learn.

Conclusions

Although there are many barriers to implementing a learning to learn experience, each can be reduced to an addressable issue, 1) once the barrier is recognized, 2) the mitigation strategies described here are crafted to fit the specific situation, 3) the individuals involved are properly trained in the strategies, and 4) the strategies are used to mitigate the barrier. Survey data indicates that while the barriers presented in this article are all at least

moderately significant to significant, the survey responses also indicated that a majority of the mitigation strategies were (very) effective in addressing the barriers with which they were paired. Although implementing a learning to learn experience can be very challenging, the barriers to doing so can all be addressed, allowing for successful implementation of a learning to learn experience and the success is offers to students, faculty, and institutions.

Table 6 Self-Growth Institute Impact on the Three Perspectives: Individual, Interpersonal (Team), and Institutional

Barrier

1 Colleges not accepting responsibility for student failure

ROLE	Individual	Learns that all individuals have unlimited potential
	Interpersonal	Builds a PLC focused on student success
	Institutional	Obtains a consensus commitment to increasing student success

2 Assumptions about college readiness

ROLE	Individual	Discovers that everyone has liabilities
	Interpersonal	Learns how learning to learn drives improvement of learning performance
	Institutional	Sees that everyone can improve learning performance and can become college ready (this belief comes from the growth they experience)

3 Fixed mindset

ROLE	Individual	Develops their own growth mindset
	Interpersonal	Begins to create or work within a self-growth community
	Institutional	Experiences increase in growth and self-growth capability

4 Aversion to change

ROLE	Individual	Becomes a change agent
	Interpersonal	Is motivated to work collectively to make a change in current situations
	Institutional	Experiences what can change in as few as 5-days

5 Having a non-transformational learning culture

ROLE	Individual	Embraces the mindset and practices of transformational learning
	Interpersonal	Experiences a collective impact, showing how powerful a transformational culture can be
	Institutional	Experiences a strong transformational culture

6 Valuing knowledge over learner development

ROLE	Individual	Values the improvement of learning performance across the Institute activities
	Interpersonal	Engages in discussions during the event that focus on learning performance development
	Institutional	From experiencing a growth of their own learning performance, begins to shift values

7	**Disdain for using methodologies**	
ROLE	**Individual**	Uses the methodologies that students will learn
	Interpersonal	Appreciates the opportunities methodologies afford as a result of peer assessment of their use
	Institutional	Learns to use at least 15 methodologies effectively

8	**Self-Evaluation**	
ROLE	**Individual**	Becomes a strong self-assessor
	Interpersonal	Assesses one another's self- assessments, leading to a shift in mindset toward assessment
	Institutional	Builds strong self-assessment performance

9	**Faculty learning to learn expertise**	
ROLE	**Individual**	Experiences learning to learn from the learner's perspective with a high-quality learning to learn facilitator
	Interpersonal	Builds a collective set of skills among the team that can be used in mentoring each other in the future
	Institutional	Sees the 100 practices for teaching learning to learn from experiencing them (Sweeney et al., 2018)

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Appendix A Barriers to Implementing Learning to Learn Survey

1. (Optional) Please provide your name if you are willing to provide us additional feedback.

2. For each of the following barriers, please indicate how significant each barrier is to implementing a Learning to Learn experience.

	Highly Significant (very significant barrier)	Significant (significant barrier)	Neutral (moderate barrier)	Not very significant (small barrier)	Not at all significant (no barrier)
Colleges not owning student failures					
Lack of college readiness					
Fixed mindsets					
Aversion to change					
Non-transformational learning culture					
Valuing knowledge over learner development					
Disdain for using methodologies					
Self-Evaluation					
Faculty L2L expertise					

3. For the barrier "Colleges not owning student failures" please indicate how effective you think the following mitigation strategies will be.

	Very Effective	Somewhat effective	Neither effective nor ineffective	Somewhat ineffective	Very ineffective
Faculty strengthen mentoring skills					
Faulty create and implement active learning activities					
Create classrooms that are quality, growth-oriented learning environments					

4. For the barrier, "Lack of college readiness" please indicate how effective you think the following mitigation strategies will be.

	Very Effective	Somewhat effective	Neither effective nor ineffective	Somewhat ineffective	Very ineffective
Understand risk factors of incoming college students					
Frame challenges and opportunities using the Transformation of Education					

5. For the barrier "Fixed Mindsets" please indicate how effective you think the following mitigation strategies will be.

	Very Effective	Somewhat effective	Neither effective nor ineffective	Somewhat ineffective	Very ineffective
Attend a self-growth institute					
Read anonymized self-growth papers					

6. For the barrier "Aversion to Change" please indicate how effective you think the following mitigation strategies will be.

	Very Effective	Somewhat effective	Neither effective nor ineffective	Somewhat ineffective	Very ineffective
Reduce negative ramifications by making first L2L experience turnkey					
Read the body of evidence for success gathered over 25 years					

7. For the barrier, "Non transformational learning culture" please indicate how effective you think the following mitigation strategies will be.

	Very Effective	Somewhat effective	Neither effective nor ineffective	Somewhat ineffective	Very ineffective
Faculty attend a Student Success Institute as preparation for coaching at an L2L experience					
Leaders-in-training experience an L2L experience at a different institution					

8. For the barrier "valuing Knowledge over Learner Development" please indicate how effective you think the following mitigation strategies will be.

	Very Effective	Somewhat effective	Neither effective nor ineffective	Somewhat ineffective	Very ineffective
Faculty participate in a Teaching Institute					
Key tool — Profile of a High-Quality Collegiate Learner					

9. For the barrier "Disdain for using methodologies" please indicate how effective you think the following mitigation strategies will be.

	Very Effective	Somewhat effective	Neither effective nor ineffective	Somewhat ineffective	Very ineffective
Experience the value of methodologies					
Faculty should coach an L2L experience					

10. For the barrier "Self Evaluation" please indicate how effective you think the following mitigation strategies will be.

	Very Effective	Somewhat effective	Neither effective nor ineffective	Somewhat ineffective	Very ineffective
Faculty attend an Assessment Institute					
Assess instead of evaluating					
Assess self assessments to strip judgement					

11. For the barrier "Faculty L2L Expertise" please indicate how effective you think the following mitigation strategies will be.

	Very Effective	Somewhat effective	Neither effective nor ineffective	Somewhat ineffective	Very ineffective
Faculty participate in a Teaching L2L Institute					
Faculty facilitate an L2L experience					

12. For future research, are there other strategies you would either recommend or would like to try? Please identify the barrier so that we can link the strategy to the barrier.

Appendix B   Paired T-test Calculation

Barrier		Mit 1	Mit2	Mit3	Avg	StDev	di	
3.758621	1.272095	4.241379	4.517241	4.413793	4.390805	0.13936	-2.96928	-3.24515
3.448276	1.120784	4.172414	3.931034		4.051724	0.170681	-3.05163	-2.81025
4.172414	0.80485	4.172414	3.655172		3.913793	0.365745	-3.36756	-2.85032
3.931034	0.997534	4.103448	3.551724		3.827586	0.390128	-3.10591	-2.55419
3.689655	1.05294	4.206897	4.482759		4.344828	0.195064	-3.15396	-3.42982
3.862069	1.125171	4.310345	3.965517		4.137931	0.24383	-3.18517	-2.84035
3.310345	1.168132	4.103448	4.413793		4.258621	0.219447	-2.93532	-3.24566
3.724138	0.996299	4.137931	4.310345		4.224138	0.121915	-3.14163	-3.31405
4.068966	1.066739	4.172414	4.344828	4.689655	4.402299	0.263366	-3.10567	-3.27809

Barrier			|d|	sd	n	texp	t (0.1,3)	t (0.05, 3)
3.758621	-3.1417	-3.11871	3.11871	1.132735	3	4.768781	2.353	3.182
3.448276		-2.93094	2.93094	0.950103	2	4.362659	2.353	3.182
4.172414		-3.10894	3.108943	0.439105	2	10.01289	2.353	3.182
3.931034		-2.83005	2.830052	0.607406	2	6.589163	2.353	3.182
3.689655		-3.29189	3.291888	0.857876	2	5.426695	2.353	3.182
3.862069		-3.01276	3.01276	0.881341	2	4.834321	2.353	3.182
3.310345		-3.09049	3.090489	0.948685	2	4.60702	2.353	3.182
3.724138		-3.22784	3.227839	0.874384	2	5.220651	2.353	3.182
4.068966	-3.62292	-3.33556	3.33556	0.803373	3	7.191382	2.353	3.182