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ASSESSING THE ALIGNMENT OF THE IBPLC WITH EXTERNAL FRAMEWORKS THAT FOCUS ON COLLEGE AND CAREER READINESS AND SOCIAL AND EMOTIONAL LEARNING

Final Report

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Assessing the Alignment of the IBPLC With External Frameworks That Focus on College and Career Readiness and Social and Emotional Learning

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Abstract: UCLA CRESST conducted an alignment study of the International Big Picture Learning Credential (IBPLC) and five widely recognized frameworks related to college and career readiness and social-emotional learning. Results of the study strengthen our understanding of the IBPLC's potential to document holistic student readiness for postsecondary education and workforce entry in ways that include, embrace, integrate, and go beyond current trusted frameworks. The study also demonstrates the potential to recognize broadly applicable learning in the context of students' exploring relevant and individual interests in and out of school.

Background and Objectives

This report presents findings from a crosswalk between the International Big Picture Learning Credential (IBPLC; Big Picture Learning, 2022) and five widely recognized frameworks related to college and career readiness and social-emotional learning. The goal of this analysis was to assess the degree of alignment between the IBPLC and the external frameworks to determine how well the credential reflects established or trusted essential competencies for postsecondary success and whole-person development. In doing so, the study identified areas of strong correspondence as well as potential gaps, offering evidence that can inform future development and broader validation of the IBPLC.

This study focused on one of the five sections of the IBPLC, the progression level assignment of the six Big Picture Learning Goals, each of which includes multiple capabilities and indicators. Ratings of alignment were determined based on the presence of descriptors for the quality criteria that matched external framework indicators. The results are summarized using descriptive statistics, with visualizations that highlight patterns of alignment across frames, capabilities, and external domains.

Study Methodology

In this study, we conducted an external review of the IBPLC frames. Each frame includes a learning goal, two or three capabilities that underlie the goal, seven to 10 indicators that

educators use to guide their assessment, and a set of quality criteria ranging from 0 to 5 that help to guide educators to assign a final progression level (i.e., 1 to 5) for the learning goal. Quality criteria classified as 0 are used for indicators that are *not yet evident*. In addition, each indicator includes descriptors for three or four of the five quality criteria (e.g., *Cultivates conditions for effective group learning* from the Knowing How to Learn frame). These descriptors, along with the indicators, capabilities, and goals, were used to conduct the review. For example, as can be seen in Table 1, when rating Knowing How to Learn, researchers coded for each of the 37 descriptors. If none of the anchors for an indicator were deemed a match, then the researchers used a code of 0.

TABLE 1. Structure of the IBPLC Frames

Frames and learning goals	# Capabilities	# Indicators	# Quality criteria	
			0	1 to 5
Knowing How to Learn: Develops the disposition and strategies to take responsibility for learning.	3	10	10	37
Personal Qualities: Demonstrates an understanding of self and others, and takes social action.	2	10	10	39
Quantitative Reasoning: The disposition, confidence and capability to use mathematics for life, learning and work.	3	7	7	27
Empirical Reasoning: Uses observation, experience and experimentation to explain phenomena and make decisions.	3	7	7	27
Communication: The ability to express ideas to connect with and influence others.	3	8	8	31
Social Reasoning: Contributes to society through understanding of social issues.	3	8	8	32

As requested by Big Picture Learning, we examined the alignment of the IBPLC with existing frameworks used in the United States (see Table 2). To assess college and career readiness, we used the English language arts (ELA) anchor standards and the math practices from the Common Core State Standards (CCSS; National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010a, 2010b) as a proxy for the English and Mathematics requirements for admission to the University of California. We also used the Educational Policy Improvement Center (EPIC) Four Keys to College and Career Readiness,

which Conley (2011) theorized would help students move from novice to expert thinkers. To assess social and emotional learning (SEL), we used the Six Pillars from the American College of Lifestyle Medicine (ACLM, 2023) that focus on ways to live a healthier life. Finally, we examined the SEL instruction and classroom climate competencies specified by the Collaborative for Academic, Social, and Emotional Learning in the CASEL 5 framework. Indicators for the CASEL 5 were drawn from *An Introduction to Social and Emotional Learning* (CASEL, 2022) that specifies ways to promote SEL.

TABLE 2. Structure of the External Frameworks

Framework	Domains	# Indicators
CCSS ELA Anchor Standards	Reading	4
	Writing	4
	Speaking and listening	2
	Language	3
CCSS Math	Standards for Mathematical Practice	8
EPIC Four Keys	Cognitive strategies	5
	Content knowledge	6
	Learning skills and techniques	2
	Transition knowledge and skills	5
ACLM Six Pillars	Whole food, plant-based nutrition	1
	Physical activity	1
	Stress management	1
	Avoidance of risky substances	1
	Restorative sleep	1
	Social connection	1
CASEL 5 Core Competencies	Self-awareness	5
	Self-management	5
	Social awareness	5
	Relationship skills	5
	Decision-making	5

Note. See the appendices for details about each framework.

Review Panel

Six staff members at CRESST participated in the alignment study. These staff members included undergraduate researchers with some expertise in the areas in which they rated, as well as staff researchers. All raters were required to participate in a training about Big Picture

Learning, the structure and uses of the IBPLC Assessment, and the five external frameworks being used for the alignment. Follow up trainings and debriefs were focused on the specific frameworks being aligned by individual researchers and were conducted one-on-one and/or in small groups.

All IBPLC indicators and external indicators were rated. In each instance, the rater noted all of the IBPLC quality criteria with descriptors that showed alignment (e.g., 1, 3, and 4). If there was no alignment with any of the quality criteria for an IBPLC indicator, then the rater listed a 0 in the cell. Raters were also encouraged to provide written evidence from the materials for the external frameworks for any matches that were not self-evident. This information was used for debriefings and to determine final ratings.

Analytical Methods

Descriptive statistics were used to examine alignment between the individual IBPLC frames and the five external frameworks. First, we analyzed the general alignment between each of the IBPLC frames and each of the major domains for the outside frameworks (e.g., Knowing How to Learn and Reading). The percentages calculated represent the proportion of all cells for a frame and domain combination in which there was a quality criteria level of one or greater assigned. We also calculated the percentage of ratings at each quality criteria level of 1 to 5. Because each IBPLC indicator only has descriptors for three or four of the quality criteria (e.g., quality criteria 1, 3, 4, and 5), we excluded any inapplicable quality criteria from the denominator when aggregating the data. Second, we analyzed the general alignment between each of the IBPLC capabilities and each of the major domains for the outside frameworks (e.g., *engages with learning community* and Reading). In this case, we examined the proportion of all cells for an indicator in which there was a quality criteria level of one or greater assigned.

Next, we examine results for the alignment ratings. We begin by examining results for the three external frameworks that have a focus on college and career readiness. We then examine results for the two external frameworks that focus on SEL.

College and Career Readiness Results

The following section summarizes results for the alignment of the IBPLC frames with the three external frameworks, with a focus on college and career readiness. We begin by examining the results for the CCSS ELA anchor standards and the CCSS math practices. After that, we examine the results for the EPIC four keys. Finally, we present a summary of results regarding college and career readiness. Expanded results at the level of the quality criteria can be found in the appendices.

Results for the CCSS ELA Anchor Standards

Frequencies and descriptives were calculated across all of the indicators rated. The following presents the percentage of all of the indicators that were rated as aligned to a quality criteria level of one or greater. Any level that did not have a descriptor for a given indicator in the IBPLC was excluded when aggregating the data.

Domain-Level Results

As expected, quality criteria levels of one or greater were found for a subset of the IBPLC frames and ELA strands (see Figure 1). More specifically, we found that the Empirical Reasoning, Communication, and Social Reasoning frames showed some alignment with the Reading, Writing, and Speaking domains. We also found that the Knowing How to Learn and Personal Qualities frames showed some alignment with the Writing and Speaking domains. Finally, we found a small degree of alignment between the Communication frame and the Language domain. No alignment was found for the Quantitative Reasoning frame.

FIGURE 1. Alignment of the IBPLC Frames and the CCSS ELA Anchor Standards

	Reading	Writing	Speaking	Language
Knowing How to Learn	3%	50%	60%	0%
Personal Qualities	0%	13%	20%	0%
Quantitative Reasoning	0%	0%	0%	0%
Empirical Reasoning	29%	29%	64%	0%
Communication	16%	31%	75%	8%
Social Reasoning	6%	3%	50%	0%

Figure 1 also presents the level of alignment between the frames and the domains. As can be seen, the IBPLC aligns the most strongly with the CCSS anchor standards focused on Speaking, with percentages of 20% to 75% among the five frames that showed some alignment. The Communication frame showed the strongest level of alignment (75%), indicating that the quality criteria have a strong emphasis on productive language. As shown by the dark blue highlights in the heat map, the Knowing How to Learn, Empirical Reasoning, and Social Reasoning frames also show strong support for productive language, and the Knowing How to Learn frame shows strong support for productive written language. Areas of minimal alignment, as indicated by the light grey highlights, include the Knowing How to Learn frame and the Reading domain (3%), the Communication frame and the Language domain (8%), and the Social Reasoning frame and the Reading and Writing domains (6% and 3%, respectively).

FIGURE 2. Alignment of the IBPLC Frames and the CCSS ELA Anchor Standards: Quality Criteria

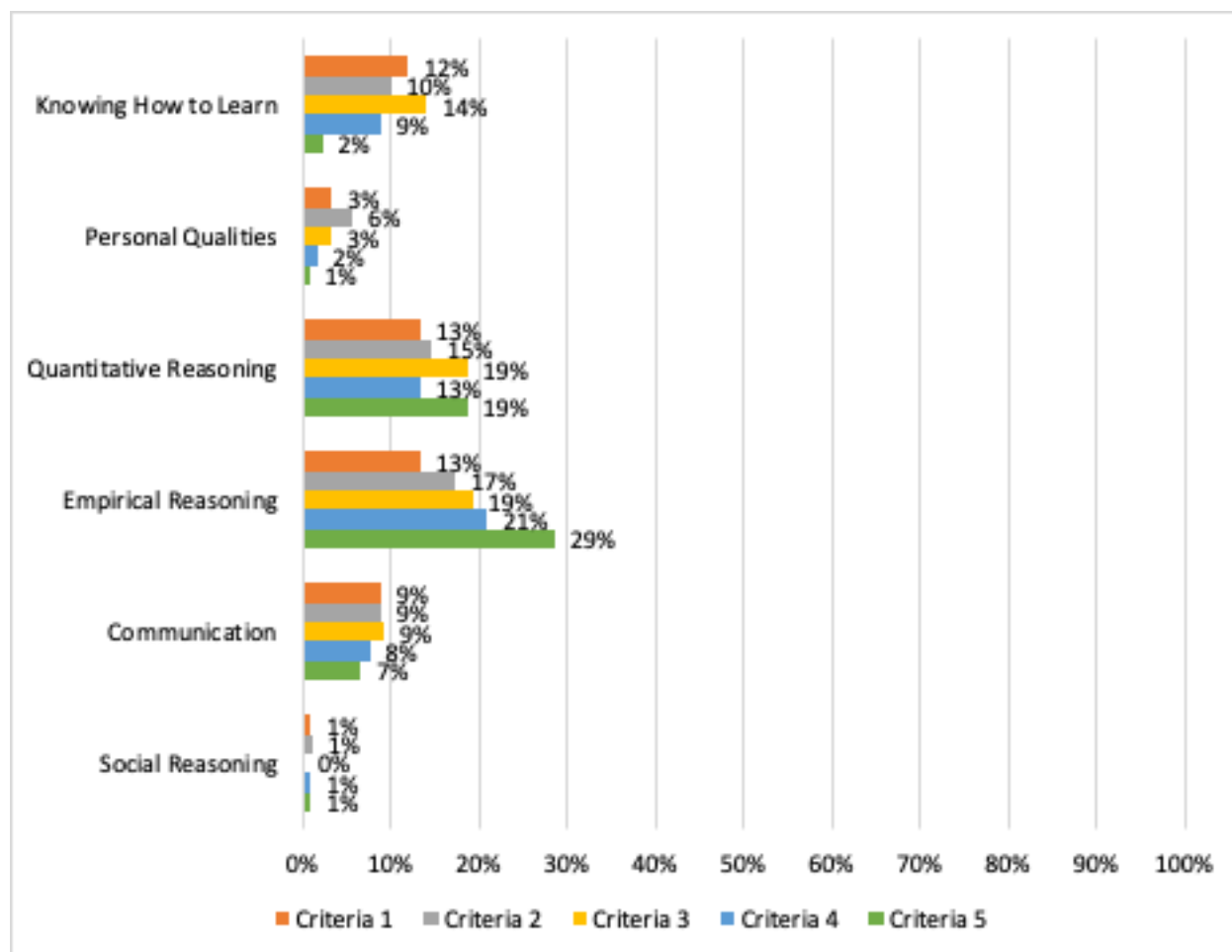


Figure 2 presents the results for each quality criteria level aggregated to the frame. The percentages for these results represent the number of ratings for a level within a frame divided by the number of opportunities for that indicator to have been coded because it had descriptors. As can be seen, each of the five frames that showed some level of alignment with the CCSS anchor standards had ratings at each of the levels. Furthermore, we normally find small differences in the percentage for each level within a frame. Exceptions involve level 3 for the Knowing How to Learn frame (6% to 8%), level 2 for the Empirical Reasoning frame (5% to 8%), and level 3 for the Communication frame (3% to 14%). Finally, when looking just at levels 4 and 5, percentages were highest for the Knowing How to Learn (16% and 17%), Empirical Reasoning (20% and 18%), and Communication (22% and 15%) frames.

Capability-Level Results

As shown in Figure 3, all of the capabilities, except for those from the Quantitative Reasoning frame, show small to strong alignment with the Speaking strand from the ELA anchor

standards. Percentages range from 17% to 100%. The only capabilities that showed less than 50% alignment with the Speaking strand are *develops a disposition for learning* from the Knowing How to Learn frame, and the *insight into self* and *insight into others and the capacity for social action* capabilities from the Personal Qualities frame. The strongest alignment is for the *evaluates* capability from the Empirical Reasoning frame, the *designs communication* and *expresses meaning* capabilities from the Communication frame, and the *learns through inquiry* capability from the Knowing How to Learn frame. Six of the other capabilities showed at least 50% alignment with the Speaking strand. When looking at the other strands, Reading has at least 50% alignment with two of the capabilities, and Writing has at least 50% alignment with five of the capabilities. Finally, the Language strand only showed lower levels of alignment with two of the capabilities: *designs communication* (11%) and *expresses meaning* (17%) from the Communication frame.

FIGURE 3. Alignment of the IBPLC Capabilities and the CCSS ELA Anchor Standards

	Reading	Writing	Speaking	Language
Knowing How to Learn				
Engages with learning community	8%	33%	67%	0%
Learns through inquiry	0%	63%	75%	0%
Develops a disposition for learning	0%	50%	33%	0%
Personal Qualities				
Insight into self	0%	21%	17%	0%
Insight into others and the capacity for social action	0%	0%	25%	0%
Empirical Reasoning				
Explores	13%	50%	50%	0%
Investigates	25%	0%	50%	0%
Evaluates	50%	50%	100%	0%
Communication				
Designs Communication	0%	25%	83%	11%
Expresses Meaning	63%	63%	75%	17%
Connects	0%	17%	67%	0%
Social Reasoning				
Applies social lenses	25%	0%	50%	0%
Understand social issues	0%	8%	50%	0%
Formulates responsible social action	0%	0%	50%	0%

Results for the CCSS Math Practices

Frequencies and descriptives were calculated across all of the indicators rated. The following presents the percentage of all of the indicators that were rated as aligned to a quality criteria level of one or greater. Any level that did not have a descriptor for a given indicator in the IBPLC was excluded when aggregating the data.

Domain-Level Results

Quality criteria levels of one or greater were found for all of the IBPLC frames and the CCSS Math Practices (see Figure 4). As expected, we found moderate to strong alignment for the Quantitative Reasoning frame—which focuses on the valuing, using, and evaluating of math—and each of the eight math practices (43% to 86%). The strongest alignment at 86% was found for the following two practices: (3) *construct viable arguments and critique the reasoning of others*, and (4) *model with mathematics*. We also found that the Empirical Reasoning frame showed small to moderate alignment with seven of the math practices (14% to 57%), with the strongest alignment once again found for practices 3 and 4. Finally, the only two frames that showed lower alignment with the math practices included Personal Qualities (0% to 20%) and Social Reasoning (0% to 25%).

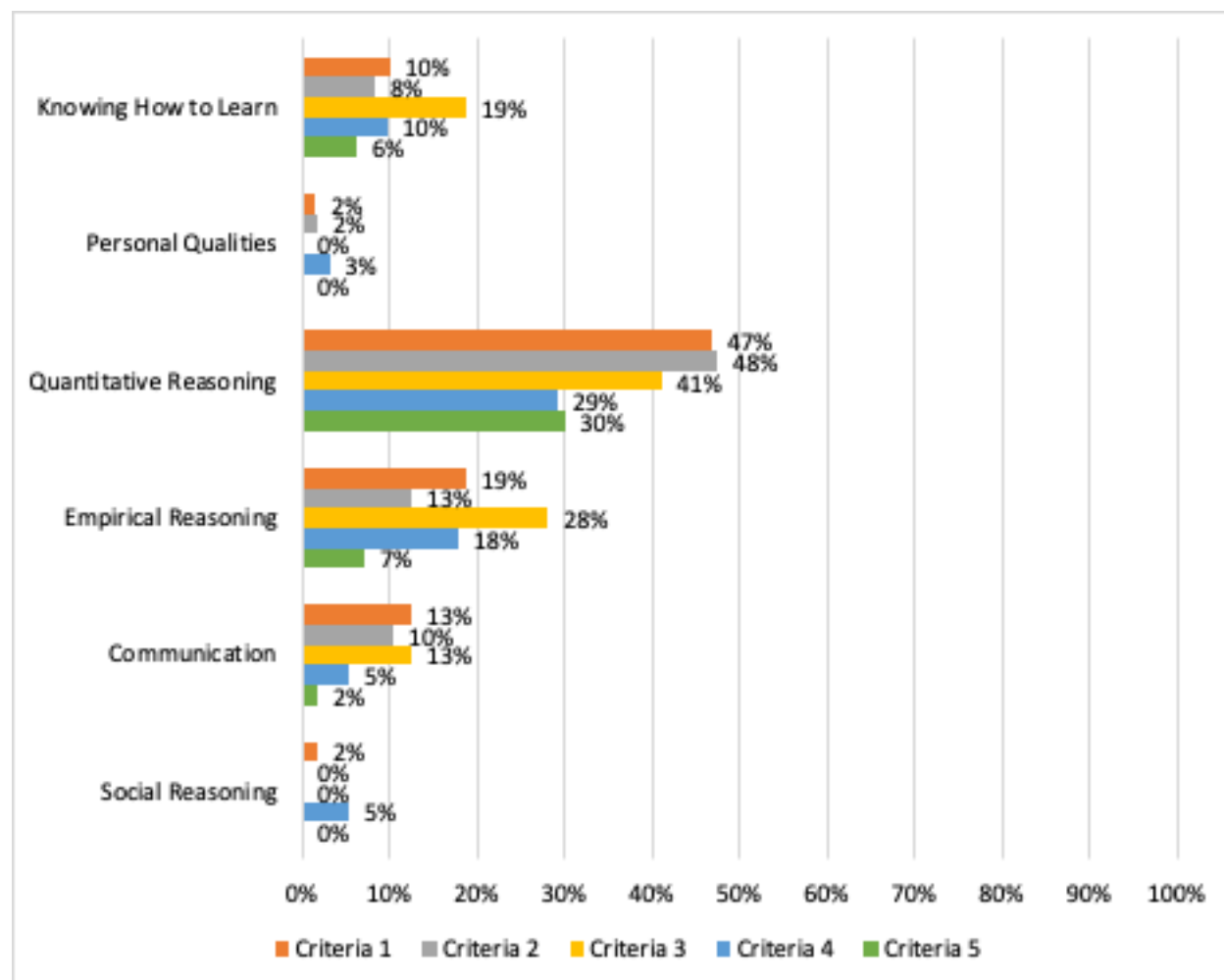
FIGURE 4. Alignment of the IBPLC Frames and the CCSS Math Practices

	1	2	3	4	5	6	7	8
Knowing How to Learn	80%	0%	50%	10%	10%	20%	0%	10%
Personal Qualities	20%	0%	10%	10%	0%	0%	0%	0%
Quantitative Reasoning	57%	57%	86%	86%	43%	43%	57%	57%
Empirical Reasoning	43%	0%	57%	57%	14%	29%	14%	43%
Communication	25%	12%	0%	0%	0%	50%	0%	0%
Social Reasoning	12%	0%	25%	25%	0%	0%	0%	0%

When we examine results further, we find that the individual math practices vary in the number of IBPLC frames in which they show any alignment. As shown in Figure 4, the first math practice (*Make sense of problems and persevere in solving them*) shows alignment with all of the frames, with alignment strongest for Knowing How to Learn (80%) and Quantitative Reasoning (57%) and weakest for Social Reasoning (12%) and Personal Qualities (20%). In contrast, two of the math practices only showed alignment with two frames each: (2) *reason abstractly and quantitatively*, and (7) *look for and make use of structure*. In the first instance, alignment was found with Quantitative Reasoning (57%) and Communication (12%), and in the second instance with Quantitative Reasoning (57%) and Empirical Reasoning (14%).

Figure 5 presents the results for each quality criteria level aggregated to the frame. The percentages for these results represent the number of ratings for a level within a frame divided by the number of opportunities for that indicator to have been coded because it had descriptors. As can be seen, four of the frames showed some level of alignment at all five of the quality criteria levels. The only levels that we did not find were levels 3 and 5 for the Personal Qualities frame and levels 2, 3, and 5 for the Social Reasoning frame.

FIGURE 5. Alignment of the IBPLC Frames and the CCSS Math Practices: Quality Criteria



When we examine the results further, we can make a few observations. First, there was good coverage of the quality criteria levels for the Quantitative Reasoning frame, with percentages ranging from 29% to 48%. Despite this, the lower levels were more predominant than the higher levels. Second, level 3 was similar to or more predominant than the other levels for the Knowing How to Learn, Empirical Reasoning, and Communication frames. Third, when level 5 was found among the frames, the percentage tended to be among the lowest.

FIGURE 6. Alignment of the IBPLC Frames and the CCSS Math Practices

	1	2	3	4	5	6	7	8
Knowing How to Learn								
Engages with learning community	67%	0%	33%	0%	0%	67%	0%	0%
Learns through inquiry	100%	0%	100%	25%	25%	0%	0%	0%
Develops a disposition for learning	67%	0%	0%	0%	0%	0%	0%	33%
Personal Qualities								
Insight into self	33%	0%	0%	0%	0%	0%	0%	0%
Insight into others and the capacity for social action	0%	0%	25%	25%	0%	0%	0%	0%
Quantitative Reasoning								
Valuing mathematics	0%	0%	50%	100%	0%	0%	50%	0%
Using mathematics	100%	100%	100%	100%	100%	67%	100%	100%
Evaluating mathematics	50%	50%	100%	50%	0%	50%	0%	50%
Empirical Reasoning								
Explores	0%	0%	100%	50%	0%	0%	0%	0%
Investigates	67%	0%	67%	33%	33%	33%	33%	33%
Evaluates	50%	0%	100%	100%	0%	50%	0%	100%
Communication								
Designs communication	0%	0%	0%	0%	0%	0%	0%	0%
Expresses meaning	50%	50%	50%	0%	0%	100%	0%	0%
Connects	33%	0%	100%	0%	0%	67%	0%	0%
Social Reasoning								
Applies social lenses	50%	0%	50%	50%	0%	0%	0%	0%
Understand social issues	0%	0%	0%	0%	0%	0%	0%	0%
Formulates responsible social action	0%	0%	0%	33%	0%	0%	0%	0%

Capability-Level Results

As shown in Figure 6, we see a lot of variation regarding alignment of the IBPLC capabilities with the individual math practices. As can be seen, the *using mathematics* capability from the Quantitative Reasoning frame shows very strong alignment with the math practices, with only math practice 6 having less than 100% alignment (*attend to precision*). We also found that all but one of the math practices aligned with the *investigates* capability from the Empirical Reasoning frame, and all but two aligned with the *evaluating mathematics* capability from the

Quantitative Reasoning frame. Interestingly, though, the *valuing mathematics* capability from the Quantitative Reasoning frame only aligned with three of the math practices.

When we view the results more directly through the lens of the math practices, we find a lot of variation in how many of the capabilities align with each of the math practices. This ranges from three to 12 capabilities for each math practice. Alignment is strongest with three practices: (1) *make sense of problems and persevere in solving them*, (3) *construct viable arguments and critique the reasoning of others*, and (4) *model with mathematics*—all of which are multidimensional and tap into both content proficiency and traits of social and emotional learning. The two math practices that showed alignment with only three of the capabilities lacked this multidimensionality: (2) *reason abstractly and quantitatively*, and (5) *use appropriate tools strategically*.

Results for the EPIC Four Keys to College and Career Readiness

Frequencies and descriptives were calculated across all of the indicators rated. The following presents the percentage of all of the indicators that were rated as aligned to a quality criteria level of one or greater. Any level that did not have a descriptor for a given indicator in the IBPLC was excluded when aggregating the data.

Domain-Level Results

Quality criteria levels of one or greater were found for all of the IBPLC frames and the EPIC four keys (see Figure 7). This was most predominant for the Knowing How to Learn frame, with small to moderate alignment across the four keys. More specifically, alignment was 10% or less for the Knowing How to Learn frame with the Content Knowledge and Transition to Knowledge keys. In contrast, alignment for the Knowing How to Learn frame was 24% for Cognitive Strategies and 55% for Learning Skills. We also found alignment between the Empirical Reasoning and Communication frames with three of the keys (i.e., Cognitive Strategies, Content Knowledge, and Learning Skills), although alignment was much stronger for the former (29% to 49%) than the latter (13% to 18%). Finally, alignment was weak for the Social Reasoning frame, with a 3% alignment for Cognitive Strategies and no alignment with the other three EPIC keys.

When examining results further, the three EPIC keys that focus the most on the secondary school experience have moderate support in the IBPLC (see Figure 7). More specifically, Cognitive Strategies shows weak to moderate alignment with five of the different frames (3% to 49%), and Content Knowledge (10% to 45%) and Learning Skills (13% to 55%) each showed alignment with four of the frames. The only EPIC key that showed poor alignment was Transition Knowledge, which focuses on knowledge and skills necessary for postsecondary life (e.g., selecting a college or university, financial aid, etc.).

FIGURE 7. Alignment of the IBPLC Frames and the EPIC Four Keys to College and Career Readiness

	Cognitive Strategies	Content Knowledge	Learning Skills	Transition Knowledge
Knowing How to Learn	24%	10%	55%	6%
Personal Qualities	0%	0%	50%	2%
Quantitative Reasoning	26%	45%	0%	0%
Empirical Reasoning	49%	29%	36%	0%
Communication	18%	13%	13%	0%
Social Reasoning	3%	0%	0%	0%

FIGURE 8. Alignment of the IBPLC Frames and Quality Criteria With the EPIC Four Keys to College and Career Readiness

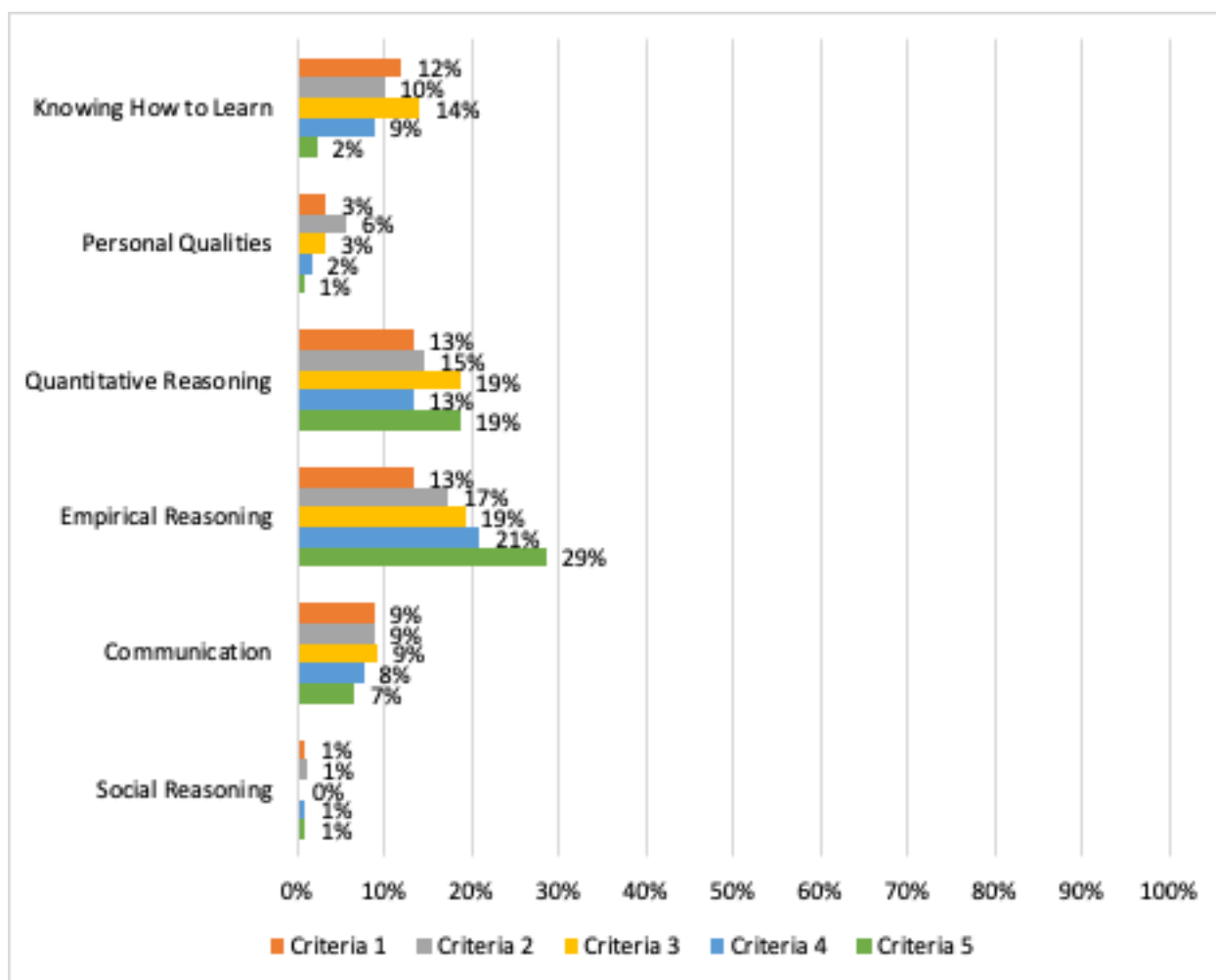


Figure 8 presents results for the quality criteria aggregated to the frame. The percentages for these results represent the number of ratings for a level within a frame divided by the number of opportunities for that indicator to have been coded because it had a descriptor. As can be seen, only the Quantitative Reasoning and Empirical Reasoning frames show alignment of greater than 10% with each of the five quality criteria levels. Percentages for the Knowing How to Learn frame range from 2% to 14%, and percentages for the Personal Qualities and Communication frames were all less than 10%. In contrast, percentages for Social Reasoning were only zero or one. Finally, for the Quantitative Reasoning and for Empirical Reasoning frames, the highest percentages were found for level 5 and percentages were lowest for level 1.

Capability-Level Results

As shown in Figure 9, we see a lot of variation regarding alignment of the IBPLC capabilities with the EPIC four keys. As can be seen, each of the capabilities showed alignment with zero to four of the EPIC four keys, with most aligned with only two or three of the keys. Capabilities that showed some alignment with three and/or four keys tended to be from the Knowing How to Learn or Empirical Reasoning frame. Among the Social Reasoning capabilities, only *applies social lenses* showed any alignment (10% with Cognitive Strategies). Finally, the only capabilities that showed alignment above 50% were *develops a disposition for learning* (83% with Learning Skills), *insight into self* (75% with Learning Skills), *evaluating mathematics* (67% with Content Knowledge), and *investigates* (53% with Cognitive Strategies).

When we view results from the lens of the EPIC keys, we find that only three of the keys show alignment with a large number of the capabilities. More specifically, Learning Skills aligns with 10 of the capabilities (13% to 83%), and Cognitive Strategies (10% to 53%) and Content Knowledge (4% to 67%) each show some alignment with 11 of the capabilities. In contrast, Transition Knowledge only showed small degrees of alignment with *learns through inquiry* and with *develops a disposition for learning* (5% and 13%, respectively).

FIGURE 9. Alignment of the IBPLC Capabilities and the EPIC Four Keys to College and Career Readiness

	Cognitive Strategies	Content Knowledge	Learning Skills	Transition Knowledge
Knowing How to Learn				
Engages with learning community	13%	6%	50%	0%
Learns through inquiry	50%	4%	38%	5%
Develops a disposition for learning	0%	22%	83%	13%
Personal Qualities				
Insight into self	0%	0%	75%	0%
Insight into others and the capacity for social action	0%	0%	13%	5%
Quantitative Reasoning				
Valuing mathematics	0%	17%	0%	0%
Using mathematics	27%	50%	0%	0%
Evaluating mathematics	50%	67%	0%	0%
Empirical Reasoning				
Explores	40%	33%	50%	0%
Investigates	53%	28%	33%	0%
Evaluates	50%	25%	25%	0%
Communication				
Designs communication	20%	0%	17%	0%
Expresses meaning	10%	33%	0%	0%
Connects	20%	11%	17%	0%
Social Reasoning				
Applies social lenses	10%	0%	0%	0%
Understand social issues	0%	0%	0%	0%
Formulates responsible social action	0%	0%	0%	0%

Summary of the College and Career Readiness Results

Overall, the IBPLC shows varied but meaningful alignment with the three frameworks associated with college and career readiness. The strongest and most consistent alignment emerged for the Knowing How to Learn and Empirical Reasoning frames, both of which mapped onto multiple domains across the CCSS ELA, CCSS Math Practices, and EPIC Four Keys. In particular, the Knowing How to Learn frame demonstrated strong alignment with the CCSS ELA Speaking domain and the EPIC key of Learning Skills, suggesting its emphasis on metacognitive,

communicative, and learning strategies aligns well with college and career readiness skills. Similarly, the Empirical Reasoning frame stood out for its connection to the Math Practices focused on argumentation and modeling, and for its broad linkage to the EPIC Cognitive Strategies domain.

The Quantitative Reasoning frame showed its most robust alignment with the CCSS Math Practices, as expected, particularly with those tied to mathematical modeling and structural reasoning. However, it was largely absent concerning the ELA standards and showed only limited ties to the EPIC Four Keys. The Communication frame, while not as consistently aligned, demonstrates targeted strengths, most notably concerning the ELA Speaking strand and in its partial alignment with EPIC domains focused on communication and content knowledge.

In contrast, the Personal Qualities and Social Reasoning frames showed minimal alignment across all three frameworks. These two frames may emphasize areas of development that are underrepresented in traditional college and career readiness frameworks, particularly those that focus on content acquisition or technical skills rather than interpersonal or civic competencies.

Social and Emotional Learning Results

The following section summarizes results for the alignment of the IBPLC frames with the two external frameworks, with a focus on social and emotional learning. We begin by examining the results for the American College of Lifestyle Medicine's six pillars. After that, we examine the results for the CASEL 5 Core Competencies. Finally, we present a summary of results regarding social and emotional learning. Expanded results for the quality criteria can be found in the appendices.

Results for the American College of Lifestyle Medicine Six Pillars

Frequencies and descriptives were calculated across all of the indicators rated. The following presents the percentage of all of the indicators that were rated as aligned to a quality criteria level of one or greater. Any level that did not have a descriptor for a given indicator in the IBPLC was excluded when aggregating the data.

Domain-Level Results

Figure 10 highlights the alignment of the IBPLC frames with the American College of Lifestyle Medicine's six pillars. Two of the frames, Knowing How to Learn and Personal Qualities, show alignment with all six of the pillars, with a particularly strong connection found between the Personal Qualities frame and the Stress Management (80%) and Social Connection (100%) pillars. The Knowing How to Learn frame also shows its strongest alignment with the Stress Management pillar. The other four IBPLC frames show minimal alignment with the six pillars. The Quantitative Reasoning and Empirical Reasoning frames do not align with any of the pillars. Finally, two of the frames show minimal alignment with the American College of

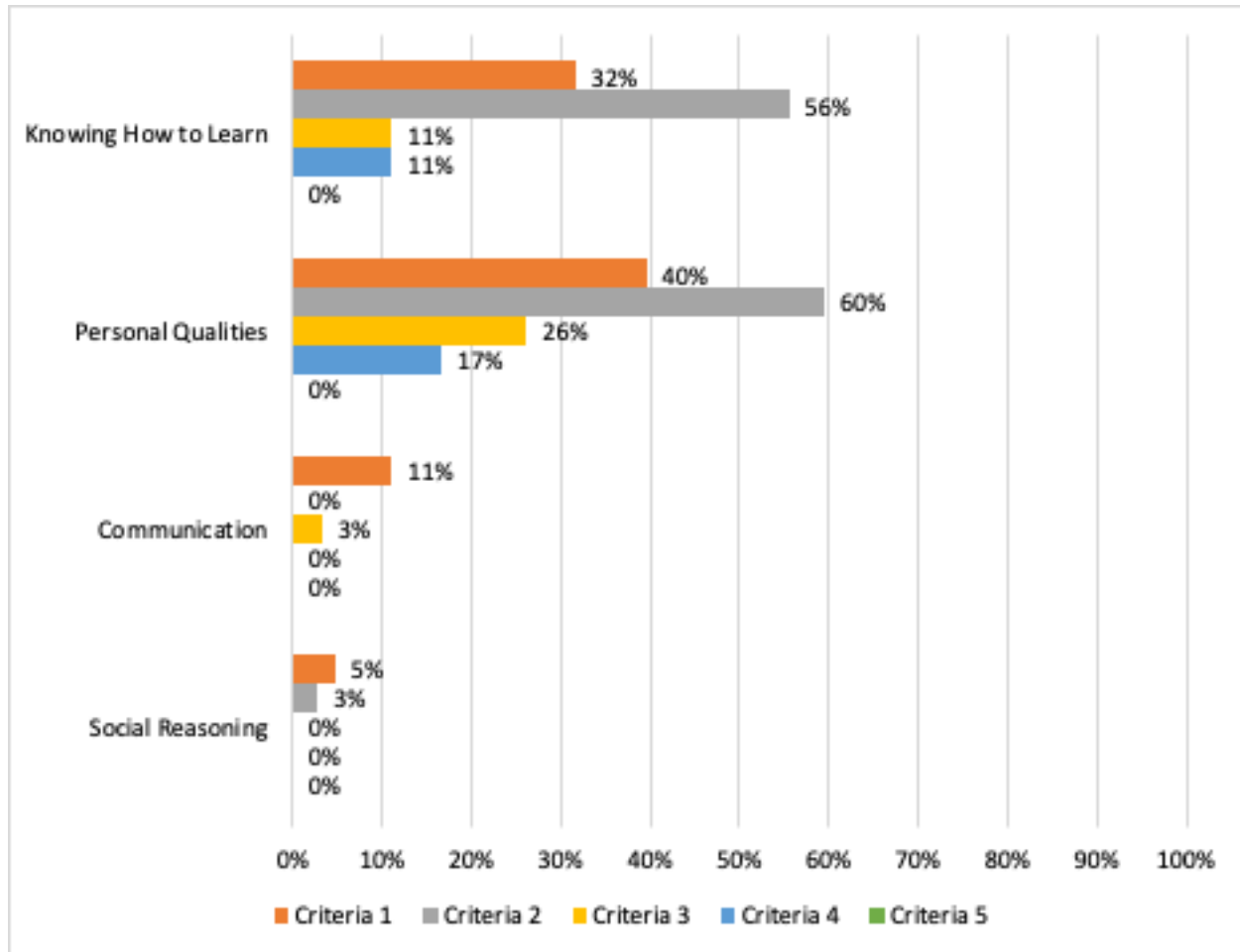
Lifestyle Medicine framework. This includes Communication having smaller alignment with the Avoidance of Risky Substances and Social Connection pillars (25% and 38%, respectively), and Social Reasoning having 38% alignment with the Social Connection pillar. This suggests that alignment between the IBPLC and the six pillars focuses more on issues of social and emotional learning that are focused on personal well-being and not on community issues.

FIGURE 10. Alignment of the IBPLC Frames and the ACLM Six Pillars

	Whole Food, Plant- Based Nutrition	Physical Activity	Stress Management	Avoidance of Risky Substances	Restorative Sleep	Social Connection
Knowing How to Learn	30%	50%	60%	50%	50%	50%
Personal Qualities	30%	40%	80%	50%	40%	100%
Quantitative Reasoning	0%	0%	0%	0%	0%	0%
Empirical Reasoning	0%	0%	0%	0%	0%	0%
Communication	0%	0%	0%	25%	0%	38%
Social Reasoning	0%	0%	0%	0%	0%	38%

Figure 11 provides results for the IBPLC quality criteria and the six pillars. As expected from the domain-level findings, alignment with level 4 was only found for the Knowing How to Learn and Personal Qualities frames (11% and 17%, respectively). In addition, alignment for these two frames was most likely to be found for levels 1 and 2. Similarly, alignment for the Social Reasoning frame was only found for the two lowest levels, and was minimal at 5% and 3%. Finally, very small levels of alignment were found between the six pillars and the Communication frame at level 1 and level 3.

FIGURE 11. Alignment of the IBPLC Frames and Quality Criteria with the ACLM Six Pillars: Quality Criteria



Capability-Level Results

At the capability level, alignment with the six pillars from the American College of Lifestyle Medicine remains concentrated in a few key areas (see Figure 12). Most notably, the capabilities of *develops a disposition for learning* and *insight into self* both demonstrate alignment with five or more of the pillars, including 100% alignment with Stress Management, Restorative Sleep, and Social Connection. The *learns through inquiry* and *engages with the learning community* capabilities also show alignment across four or more pillars. The capabilities from the Quantitative Reasoning and Empirical Reasoning frames, along with many from the Communication and Social Reasoning frames, show little to no alignment.

FIGURE 12. Alignment of the IBPLC Capabilities and ACLM Six Pillars

	Whole Food, Plant-Based Nutrition	Physical Activity	Stress Management	Avoidance of Risky Substances	Restorative Sleep	Social Connection
Knowing How to Learn						
Engages with learning community	0%	33%	33%	67%	33%	0%
Learns through inquiry	50%	50%	50%	25%	25%	50%
Develops a disposition for learning	33%	67%	100%	67%	100%	100%
Personal Qualities						
Insight into self	50%	67%	100%	67%	67%	100%
Insight into others and the capacity for social action	0%	0%	50%	25%	0%	100%
Communication						
Designs Communication	0%	0%	0%	0%	0%	0%
Expresses Meaning	0%	0%	0%	0%	0%	0%
Connects	0%	0%	0%	67%	0%	100%
Social Reasoning						
Applies social lenses	0%	0%	0%	0%	0%	0%
Understand social issues	0%	0%	0%	0%	0%	67%
Formulates responsible social action	0%	0%	0%	0%	0%	33%

Results for the CASEL 5 Core Competencies

Frequencies and descriptives were calculated across all of the indicators rated. The following presents the percentage of all of the indicators that were rated as aligned to a quality criteria level of one or greater. Any level that did not have a descriptor for a given indicator in the IBPLC was excluded when aggregating the data.

Domain-Level Results

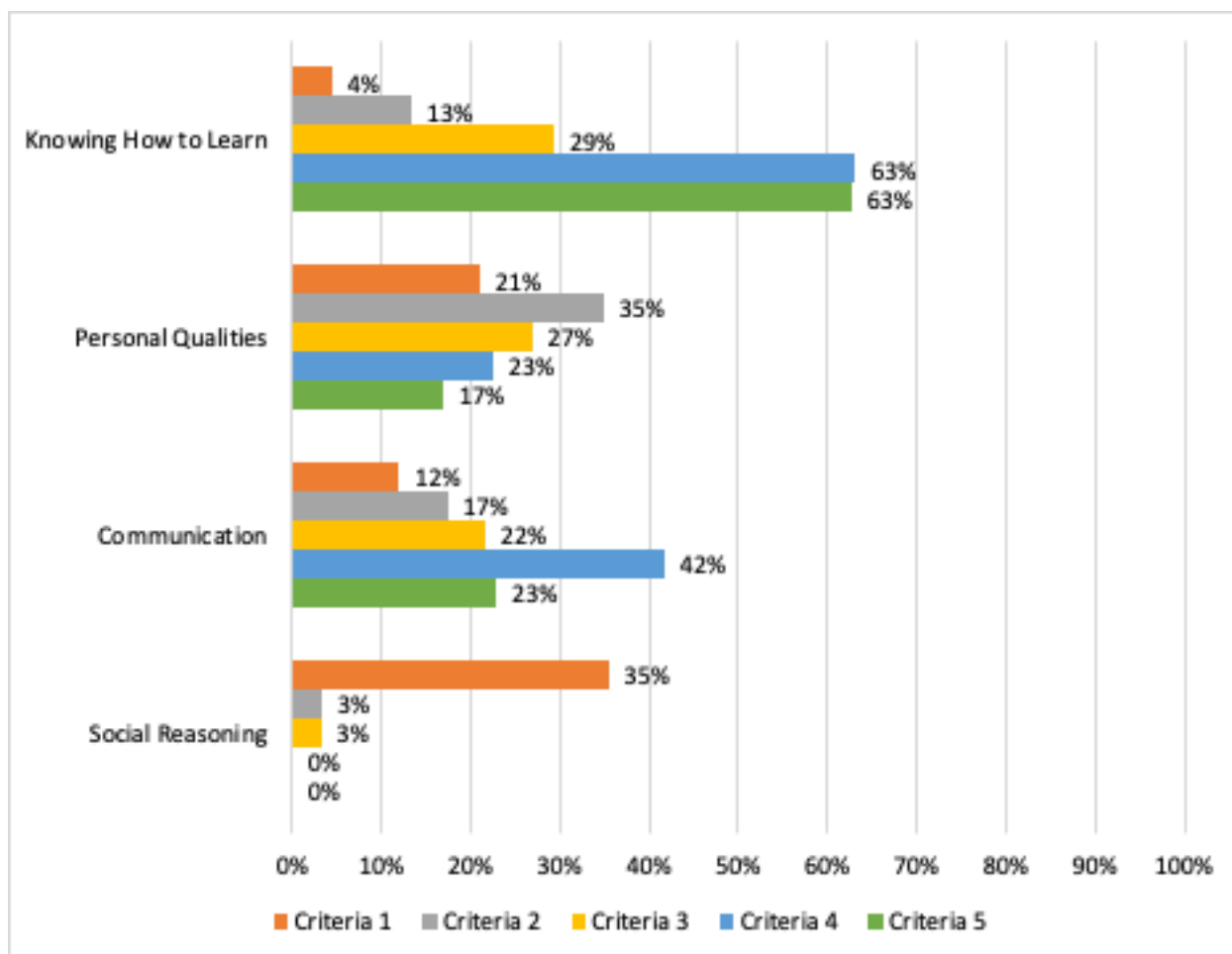
Figure 13 shows strong alignment between four of the IBPLC frames and each of the CASEL 5 Core Competencies. The Knowing How to Learn, Personal Qualities, and Communication frames demonstrated consistently strong alignment. More specifically, the Knowing How to Learn frame showed very strong alignment, with ratings of 94% to 100% for each of the CASEL 5 Core Competencies. The Communication frame showed alignment ranging from 65% to 98%, and the Personal Qualities frame showed alignment from 60% to 96%. In contrast, the Quantitative and Empirical Reasoning frames that focus on issues of content knowledge showed no alignment with any of the CASEL 5 Core Competencies, and the Social Reasoning frame showed only moderate alignment, with percentages ranging from 20% to 50%.

FIGURE 13. Alignment of the IBPLC Frames and the CASEL 5 Core Competencies

	Self-Awareness	Self-Management	Social Awareness	Relationship Skills	Responsible Decision-Making
Knowing How to Learn	94%	98%	100%	100%	100%
Personal Qualities	60%	68%	94%	96%	90%
Quantitative Reasoning	0%	0%	0%	0%	0%
Empirical Reasoning	0%	0%	0%	0%	0%
Communication	65%	75%	90%	95%	98%
Social Reasoning	40%	20%	50%	30%	35%

Figure 14 presents the percentage of ratings at each level. As can be seen, the highest percentages were found for levels 4 and 5 for the Knowing How to Learn frame, at 63% each. In contrast, the lower criteria levels for this frame range from 4% to 29%. When looking at the other frames, some alignment with all of the levels was also found for Personal Qualities and for Communication. In contrast, alignment for the Social Reasoning frame was only found for the lower levels. Finally, the highest percentage for the Social Reasoning frame was found for level 1 (35%), for the Personal Qualities frame was found for level 2 (35%), and for Communication was found for level 4 (42%).

Figure 14. Alignment of the IBPLC Frames and Quality Criteria with the CASEL 5 Core Competencies



Capability-Level Results

Figure 15 presents the capability-level results for the CASEL 5 Core Competencies. As can be seen, all three capabilities under the Knowing How to Learn frame (shown at the top of Figure 15) showed alignment of 90% or greater with each of the CASEL 5 Core Competencies. In addition, the *insight into self* and *insight into others and the capacity for social action* capabilities from the Personal Qualities frame each showed alignment of 90% or higher with at least one of the CASEL 5 Core Competencies. The three Communication capabilities—*designs communication*, *expresses meaning*, and *connects*—also showed strong alignment, with multiple ratings at or near 100%. In contrast, none of the capabilities from the Quantitative or Empirical Reasoning frames aligned with any of the CASEL 5 Core Competencies, and capabilities from the Social Reasoning frame showed only small levels of alignment.

FIGURE 15. Alignment of the IBPLC Capabilities and the CASEL 5 Core Competencies

	Self-Awareness	Self-Management	Social Awareness	Relationship Skills	Responsible Decision-Making
Knowing How to Learn					
Engages with learning community	100%	93%	100%	100%	100%
Learns through inquiry	90%	100%	100%	100%	100%
Develops a disposition for learning	93%	100%	100%	100%	100%
Personal Qualities					
Insight into self	67%	83%	93%	93%	100%
Insight into others and the capacity for social action	50%	45%	95%	100%	75%
Communication					
Designs communication	87%	100%	100%	100%	100%
Expresses meaning	60%	20%	60%	80%	90%
Connects	47%	87%	100%	100%	100%
Social Reasoning					
Applies social lenses	70%	10%	60%	60%	50%
Understand social issues	47%	20%	53%	27%	53%
Formulates responsible social action	13%	27%	40%	13%	7%

Summary of the Social and Emotional Learning Results

The results indicate strong alignment between the IBPLC and both SEL frameworks: the CASEL 5 Core Competencies and the American College of Lifestyle Medicine’s Six Pillars. The strongest evidence of alignment was found with the CASEL 5 Core Competencies, particularly for the Knowing How to Learn and Personal Qualities frames. These frames showed high levels of alignment across all CASEL 5 Core Competencies, with multiple capabilities receiving ratings at levels 4 and 5. The Communication frame also showed substantial alignment to capabilities, especially in areas related to Self-Awareness, Relationship Skills, and Responsible Decision-Making.

The American College of Lifestyle Medicine's Six Pillars showed a more selective pattern of alignment. High alignment was found for the Personal Qualities frame, particularly concerning stress management and social connection. The Knowing How to Learn frame also demonstrated consistent but moderate alignment with five of the six pillars. In contrast, Quantitative Reasoning and Empirical Reasoning showed no alignment with the pillars, while Social Reasoning and Communication demonstrated alignment only concerning Social Connection and, in one case, the Avoidance of Risky Substances.

Across both frameworks, the alignment supports the premise that the IBPLC attends to student development in areas traditionally associated with social-emotional learning and personal well-being. However, this alignment is concentrated in particular frames and capabilities, suggesting that while SEL is embedded in the IBPLC, its presence is stronger in some areas of the learning design than others.

Summary and Conclusions

This alignment study provides evidence that the IBPLC aligns meaningfully with both college and career readiness frameworks and social-emotional learning frameworks. The alignment is strongest for frames that emphasize metacognition, inquiry, communication, and self-awareness. Notably, the Knowing How to Learn frame emerges as the most broadly aligned across all five external frameworks, followed by Empirical Reasoning, Communication, and Personal Qualities.

The results also highlight important distinctions. While the IBPLC aligns well with academic practices like mathematical modeling and argumentation, it also supports broader competencies such as learning strategies, stress management, and self-regulation—areas less commonly emphasized in traditional college readiness measures. Conversely, frames such as Quantitative Reasoning and Social Reasoning showed more domain-specific alignment, indicating that certain capabilities may play a more specialized role in supporting student readiness.

Taken together, the findings reinforce the integrative potential of the IBPLC. It bridges academic, social, and personal development, offering a holistic framework for preparing students not just for postsecondary success, but for lifelong learning and well-being.

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Appendix A: External Frameworks

College and Career Readiness

Common Core State Standards for English Language Arts and Literacy

Domain	CCSS ELA Anchor Standard
READING	
Key Ideas and Details	1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
	2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
	3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
Craft and Structure	4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
	5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
	6. Assess how point of view or purpose shapes the content and style of a text.
Integration of Knowledge and Ideas	7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.
	8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
	9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
Range of Reading and Level of Text Complexity	10. Read and comprehend complex literary and informational texts independently and proficiently
WRITING	
Text Types and Purposes	1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
	2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
	3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

Domain	CCSS ELA Anchor Standard
Production and Distribution of Writing	4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
	5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
	6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
Research to Build and Present Knowledge	7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
	8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
	9. Draw evidence from literary or informational texts to support analysis, reflection, and research.
Range of Writing	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.
SPEAKING AND LISTENING	
Comprehension and Collaboration	1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
	2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
	3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.
Presentation of Knowledge and Ideas	4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
	5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
	6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.
LANGUAGE	
Conventions of Standard English	1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
	2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
Knowledge of Language	3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Domain	CCSS ELA Anchor Standard
Vocabulary Acquisition and Use	4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
	5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
	6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Note. National Governors Association Center for Best Practices, & Council of Chief State School Officers. (2010). *Common Core State Standards for English language arts & literacy in history/social studies, science, and technical subjects*. <http://www.corestandards.org/ELA-Literacy/>

Common Core State Standards for Mathematics

CCSS Standards for Mathematical Practice
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Note. National Governors Association Center for Best Practices, & Council of Chief State School Officers. (2010). *Common Core State Standards for mathematics*. <http://www.corestandards.org/Math/>

EPIC Four Keys of College and Career Readiness

Domain	Description
Key Cognitive Strategies	Problem formulation, research, interpretation, communication, precision and accuracy
Key Content Knowledge	Key terms & terminology, factual information, linking ideas, organizing concepts
Key Learning Skills & Techniques	Time management, study skills, goal setting, self-awareness, persistence, collaborative learning, student ownership of learning, technological proficiency, retention of factual information
Key Transition Knowledge & Skills	Postsecondary program selection, admissions requirements, financial aid, career pathways, postsecondary culture, role & identity issues, agency

Note. Conley, D. T. (2011). *Four keys to college and career readiness*. Educational Policy Improvement Center (EPIC). <https://files.eric.ed.gov/fulltext/ED539251.pdf>

Social and Emotional Learning

American College of Lifestyle Medicine Six Pillars

Pillar	Description
Whole food, plant-based nutrition	Extensive scientific evidence supports the use of a wholefood, predominantly plant-based diet as an important strategy in prevention of chronic disease, treatment of chronic conditions and, in intensive therapeutic doses, reversal of chronic illness. Such a diet is rich in fiber, antioxidants, and nutrient dense. Choose a variety of minimally processed vegetables, fruits, whole grains, legumes, nuts and seeds.
Physical activity	Regular and consistent physical activity combats the negative effects of sedentary behavior. It is important that adults engage in both general physical activity as well as purposeful exercise weekly as part of overall health and resiliency.
Stress management	Stress can lead to improved health and productivity -or it can lead to anxiety, depression, obesity, immune dysfunction and more. Helping patients recognize negative stress responses, identify coping mechanisms and reduction techniques leads to improved wellbeing.
Avoidance of risky substances	Use of tobacco and excessive alcohol consumption have been shown to increase the risk of chronic diseases and death. Treatments often take time, different approaches and many attempts. Patience and support are an important part of breaking risky substance habits.
Restorative sleep	Sleep delays/interruptions have been shown to cause sluggishness, low attention span, decreased sociability, depressed mood, decreased deep sleep, decreased caloric burn during the day, increased hunger and decreased feeling of fullness, insulin resistance and decreased performance. Strive for 7 or more hours per night for optimal health
Social connection	Positive social connections and relationships affect our physical, mental and emotional health. Leveraging the power of relationships and social networks can help reinforce healthy behaviors.

Note. American College of Lifestyle Medicine. (2023). *The six pillars of lifestyle medicine: 6 ways to take control of your health* [Booklet]. <https://lifestylemedicine.org>

CASEL 5 Core Competencies

Competency	Description
Self-awareness	The abilities to understand one's own emotions, thoughts, and values and how they influence behavior across contexts.
Self-management	The abilities to understand the perspectives of and empathize with others, including those from diverse backgrounds, cultures, & contexts.
Social awareness	The abilities to manage one's emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations.
Relationship skills	The abilities to establish and maintain healthy and supportive relationships and to effectively navigate settings with diverse individuals and groups.
Decision-making	The abilities to make caring and constructive choices about personal behavior and social interactions across diverse situations.

Note. Collaborative for Academic, Social, and Emotional Learning. (2020). *Core SEL competencies*.
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Appendix B: Alignment of the Quality Criteria

Table A1a

Alignment of the IBPLC Frames and the CCSS ELA Anchor Standards

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Communication	0	104	75	72%
Communication	1	78	20	26%
Communication	2	78	16	21%
Communication	3	65	19	29%
Communication	4	91	20	22%
Communication	5	91	14	15%
Empirical Reasoning	0	91	66	73%
Empirical Reasoning	1	52	9	17%
Empirical Reasoning	2	65	16	25%
Empirical Reasoning	3	52	10	19%
Empirical Reasoning	4	91	18	20%
Empirical Reasoning	5	91	16	18%
Knowing How to Learn	0	130	97	75%
Knowing How to Learn	1	130	24	18%
Knowing How to Learn	2	78	13	17%
Knowing How to Learn	3	78	19	24%
Knowing How to Learn	4	117	19	16%
Knowing How to Learn	5	78	13	17%
Personal Qualities	0	130	121	93%
Personal Qualities	1	104	8	8%
Personal Qualities	2	91	3	3%
Personal Qualities	3	91	4	4%
Personal Qualities	4	104	3	3%
Personal Qualities	5	117	4	3%

Table A1b

Alignment of the IBPLC Frames and the CCSS ELA Anchor Standards

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Quantitative Reasoning	0	91	91	100%
Quantitative Reasoning	1	52	0	0%
Quantitative Reasoning	2	65	0	0%
Quantitative Reasoning	3	91	0	0%
Quantitative Reasoning	4	78	0	0%
Quantitative Reasoning	5	65	0	0%
Social Reasoning	0	104	93	89%
Social Reasoning	1	91	10	11%
Social Reasoning	2	78	9	12%
Social Reasoning	3	65	5	8%
Social Reasoning	4	91	10	11%
Social Reasoning	5	91	8	9%

Table A2a

Alignment of the IBPLC Frames and the CCSS Math Practices

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Communication	0	64	53	83%
Communication	1	48	6	13%
Communication	2	48	5	10%
Communication	3	40	5	13%
Communication	4	56	3	5%
Communication	5	56	1	2%
Empirical Reasoning	0	56	36	64%
Empirical Reasoning	1	32	6	19%
Empirical Reasoning	2	40	5	13%
Empirical Reasoning	3	32	9	28%
Empirical Reasoning	4	56	10	18%
Empirical Reasoning	5	56	4	7%
Knowing How to Learn	0	80	62	78%
Knowing How to Learn	1	80	8	10%
Knowing How to Learn	2	48	4	8%
Knowing How to Learn	3	48	9	19%
Knowing How to Learn	4	72	7	10%
Knowing How to Learn	5	48	3	6%
Personal Qualities	0	80	76	95%
Personal Qualities	1	64	1	2%
Personal Qualities	2	56	1	2%
Personal Qualities	3	56	0	0%
Personal Qualities	4	64	2	3%
Personal Qualities	5	72	0	0%

Table A2b

Alignment of the IBPLC Frames and the CCSS Math Practices

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Quantitative Reasoning	0	56	22	39%
Quantitative Reasoning	1	32	15	47%
Quantitative Reasoning	2	40	19	48%
Quantitative Reasoning	3	56	23	41%
Quantitative Reasoning	4	48	14	29%
Quantitative Reasoning	5	40	12	30%
Social Reasoning	0	64	60	94%
Social Reasoning	1	56	1	2%
Social Reasoning	2	48	0	0%
Social Reasoning	3	40	0	0%
Social Reasoning	4	56	3	5%
Social Reasoning	5	56	0	0%

Table A3a

Alignment of the IBPLC Frames and the EPIC Four Keys to College and Career Readiness

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Communication	0	144	129	90%
Communication	1	90	8	9%
Communication	2	90	8	9%
Communication	3	65	6	9%
Communication	4	105	8	8%
Communication	5	105	7	7%
Empirical Reasoning	0	126	92	73%
Empirical Reasoning	1	60	8	13%
Empirical Reasoning	2	75	13	17%
Empirical Reasoning	3	52	10	19%
Empirical Reasoning	4	105	22	21%
Empirical Reasoning	5	105	30	29%
Knowing How to Learn	0	180	148	82%
Knowing How to Learn	1	150	18	12%
Knowing How to Learn	2	90	9	10%
Knowing How to Learn	3	78	11	14%
Knowing How to Learn	4	135	12	9%
Knowing How to Learn	5	90	2	2%
Personal Qualities	0	180	169	94%
Personal Qualities	1	120	4	3%
Personal Qualities	2	105	6	6%
Personal Qualities	3	91	3	3%
Personal Qualities	4	120	2	2%
Personal Qualities	5	135	1	1%

Table A3b

Alignment of the IBPLC Frames and the EPIC Four Keys to College and Career Readiness

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Quantitative Reasoning	0	126	98	78%
Quantitative Reasoning	1	60	8	13%
Quantitative Reasoning	2	75	11	15%
Quantitative Reasoning	3	91	17	19%
Quantitative Reasoning	4	90	12	13%
Quantitative Reasoning	5	75	14	19%
Social Reasoning	0	144	143	99%
Social Reasoning	1	105	1	1%
Social Reasoning	2	90	1	1%
Social Reasoning	3	65	0	0%
Social Reasoning	4	105	1	1%
Social Reasoning	5	105	1	1%

Table A4a

Alignment of the IBPLC Frames and the American College of Lifestyle Medicine's Six Pillars

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Communication	0	48	43	90%
Communication	1	36	4	11%
Communication	2	36	0	0%
Communication	3	30	1	3%
Communication	4	42	0	0%
Communication	5	42	0	0%
Empirical Reasoning	0	42	42	100%
Empirical Reasoning	1	24	0	0%
Empirical Reasoning	2	30	0	0%
Empirical Reasoning	3	24	0	0%
Empirical Reasoning	4	42	0	0%
Empirical Reasoning	5	42	0	0%
Knowing How to Learn	0	60	31	52%
Knowing How to Learn	1	60	19	32%
Knowing How to Learn	2	36	20	56%
Knowing How to Learn	3	36	4	11%
Knowing How to Learn	4	54	6	11%
Knowing How to Learn	5	36	0	0%
Personal Qualities	0	60	26	43%
Personal Qualities	1	48	19	40%
Personal Qualities	2	42	25	60%
Personal Qualities	3	42	11	26%
Personal Qualities	4	48	8	17%
Personal Qualities	5	48	0	0%

Table A4b

Alignment of the IBPLC Frames and the American College of Lifestyle Medicine's Six Pillars

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Quantitative Reasoning	0	42	42	100%
Quantitative Reasoning	1	24	0	0%
Quantitative Reasoning	2	30	0	0%
Quantitative Reasoning	3	42	0	0%
Quantitative Reasoning	4	36	0	0%
Quantitative Reasoning	5	30	0	0%
Social Reasoning	0	48	45	94%
Social Reasoning	1	42	2	5%
Social Reasoning	2	36	1	3%
Social Reasoning	3	30	0	0%
Social Reasoning	4	42	0	0%
Social Reasoning	5	42	0	0%

Table A5a

Alignment of the IBPLC Frames and the CASEL 5 Core Competencies

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Communication	0	200	31	16%
Communication	1	150	18	12%
Communication	2	150	26	17%
Communication	3	125	27	22%
Communication	4	175	73	42%
Communication	5	175	40	23%
Empirical Reasoning	0	175	175	100%
Empirical Reasoning	1	100	0	0%
Empirical Reasoning	2	125	0	0%
Empirical Reasoning	3	100	0	0%
Empirical Reasoning	4	175	0	0%
Empirical Reasoning	5	175	0	0%
Knowing How to Learn	0	250	4	2%
Knowing How to Learn	1	250	11	4%
Knowing How to Learn	2	150	20	13%
Knowing How to Learn	3	150	44	29%
Knowing How to Learn	4	225	142	63%
Knowing How to Learn	5	150	94	63%
Personal Qualities	0	250	46	18%
Personal Qualities	1	200	42	21%
Personal Qualities	2	175	61	35%
Personal Qualities	3	175	47	27%
Personal Qualities	4	200	45	23%
Personal Qualities	5	225	38	17%

Table A5b

Alignment of the IBPLC Frames and the CASEL 5 Core Competencies

Frame	Quality criteria	Ratings across indicators	Yes #	Yes %
Quantitative Reasoning	0	175	175	100%
Quantitative Reasoning	1	100	0	0%
Quantitative Reasoning	2	125	0	0%
Quantitative Reasoning	3	175	0	0%
Quantitative Reasoning	4	150	0	0%
Quantitative Reasoning	5	125	0	0%
Social Reasoning	0	200	130	65%
Social Reasoning	1	175	62	35%
Social Reasoning	2	150	5	3%
Social Reasoning	3	125	4	3%
Social Reasoning	4	175	0	0%
Social Reasoning	5	175	0	0%