



**P-20 Education Objectives and Indicators:  
What Do We Want to Know and  
Why Do We Want to Know It?  
A Framework for an  
Early Learning-Through-Postsecondary  
Approach to Data and Policy Analysis  
Executive Summary**

**Richard N. Brandon, Ph.D., Hilary Loeb, Ph.D., and Maya Magarati, Ph.C.**

**Washington KIDS COUNT/Human Services Policy Center**

**Daniel J. Evans School of Public Affairs, University of Washington**

**December, 2009**

URL for Full Paper: [http://hspc.org/topics/p-20/full\\_report.pdf](http://hspc.org/topics/p-20/full_report.pdf)

URL for Matrix of P-20 Indicators and Measures: <http://hspc.org/topics/p-20/Indicator-Matrix.aspx>

# **A P-20 Framework for Education Objectives and Indicators: What Do We Want to Know and Why Do We Want to Know It? Executive Summary**

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**Richard N. Brandon, Ph.D., Hilary Loeb, Ph.D., and Maya Magarati, Ph.C.  
Human Services Policy Center, University of Washington  
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## **Introduction**

There is growing consensus in Washington and other states that effective education policy development requires policy makers to consider the entire educational enterprise experienced by children and youth as they progress through early childhood, elementary–secondary, and postsecondary learning. An effective P-20 approach to educational policy requires the support of an appropriate data system. The Human Services Policy Center (HSPC) has developed a nationally applicable P-20 Policy and Data Framework to provide the foundation for a data system. We focused on clarifying what needs to be known for effective policy development and how to define and measure it consistently across students’ entire developmental trajectory. Our effort has been informed by the work of many public agencies and private organizations and hope they will draw upon our analysis to enrich their efforts.

Current policy making is fragmented, separately considering four delivery structures or “sub-systems” – early learning, elementary-secondary, career-technical and higher education. As children and youth develop from birth to adulthood, their experiences and success at each stage are largely dependent on prior stages. For example, the quality of early learning experiences affects success in elementary grades. In turn, success in fourth grade is a major predictor of successful completion of high school. Policies that fail to recognize this cumulative impact have inhibited student performance. The resulting policy deficiencies include: imbalances in resources; a failure to support students through challenging developmental transitions; social and economic disparities in access to high quality learning situations starting in the earliest years; lack of clear expectations to guide learning efforts; and learning standards that are not aligned across sub-systems.

## Need For a Coherent P-20 Framework

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*Educational policy can be improved by addressing issues within a framework that recognizes the duration of the developmental process, the cumulative impact of educational experiences, and the importance of transitions.*

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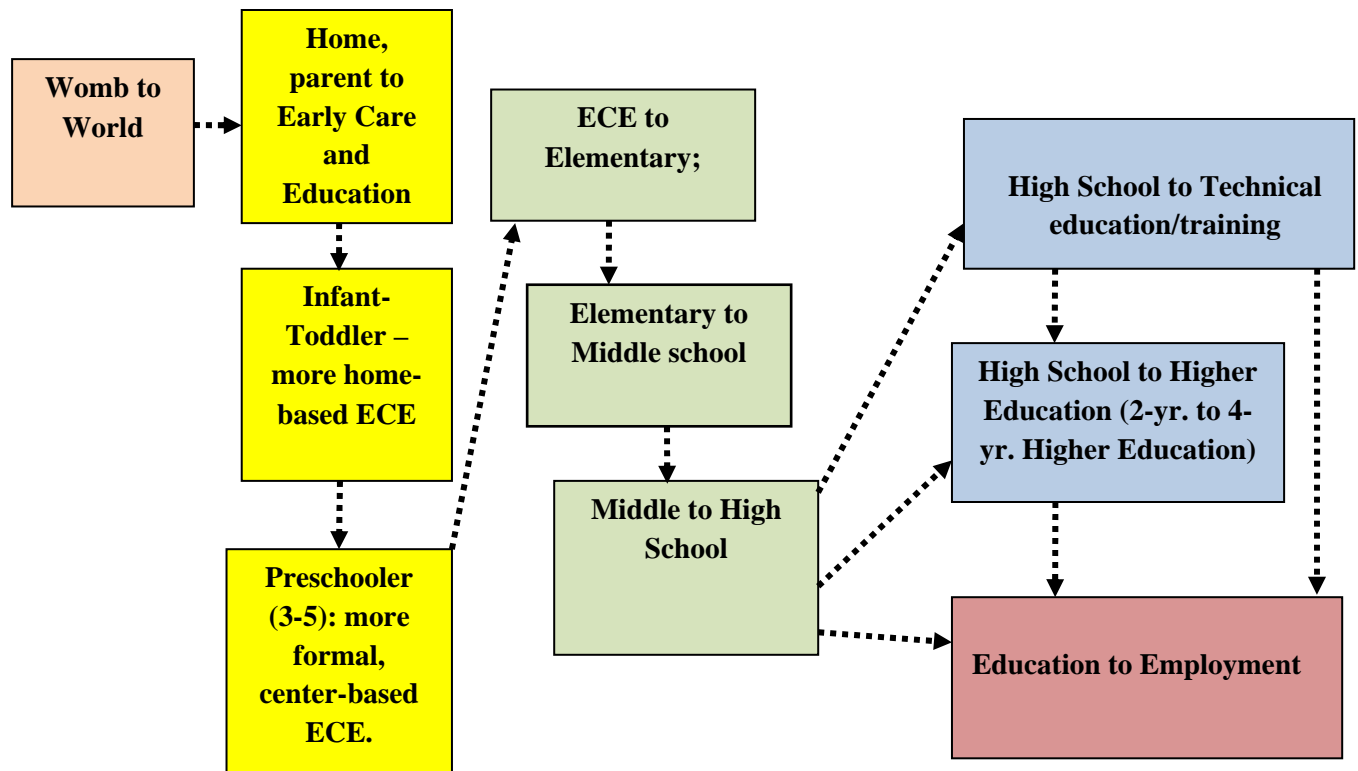
The data frameworks currently in use do not appear to have a coherent conceptual basis which differentiates the policy-relevant components of investments, service delivery systems, and student performance. Simply pulling together readily available indicators from each of the four educational sub-systems does not fulfill the potential of P-20 analysis to offer analyses of education policy that take into account the cumulative effect of learning experiences at each stage of development and improve those experiences by promoting consistency and coherence in the educational enterprise. A P-20 approach is essential to highlight data gaps, as well as to suggest reductions in reporting data that is duplicative or does not have a strong link to objectives. The P-20 Framework can facilitate more effective policy making by clarifying what data are required to test the relationships among investments, service delivery systems, and student outcomes. Providing consistent and parallel constructs across the educational sub-systems can assist in achieving policy coherence. A P-20 framework should therefore:

1. *Recognize that learning starts at or before birth and continues into adulthood.* The quality of early learning environments affects children's academic success, and lasting achievement gaps originate between nine months of age and kindergarten.
2. *Recognize that to function as an independent adult requires academic, social and vocational skills, as well as emotional maturity.* The postsecondary level should therefore encompass occupational and technical training, as well as colleges and universities.
3. *Recognize that financial, geographic, and cultural access to high quality learning opportunities must be available to all learners at each age level.*
4. *Identify and specify appropriate outcomes for students and objectives for each service delivery sub-system, such that achieving desired outcomes at one age/developmental level fosters the ability to achieve desired outcomes at later ages/levels.*
5. *Address alignment issues by establishing consistent expectations and standards* where students face significant transitions. Expectations and standards for each developmental stage should scaffold on those for earlier stages and be clear to students and parents.
6. *Prompt analyses of how financial and human resources can be more effectively* allocated by linking measures of cost and effectiveness of educational services for each of multiple units of analysis: student, learning institution, district or community, and state.

7. *Recognize that measures of disparity by race, culture, and class are as important as measures of overall levels of outcomes, service delivery objectives, and investments.*
8. *Recognize that certain key transition points pose particular challenges to learners and educators.*

Figure 1 illustrates the major transitions faced by children and youth within as well as among learning sub-systems.

**Figure 1: Key Learning Transitions**



## Washington Policy Developments and Enduring Issues

The HSPC P-20 Framework reflects the ongoing concern in Washington policy debates with performance accountability, and is designed to facilitate analysis of whether public investments achieve intended improvements in service delivery and result in a broad array of student outcomes. Conditions in the Washington educational policy environment likely to drive needs for data and analysis include changes in: (a) the nature of the student population; (b) assessment standards and approaches; and (c) governance structures and accountability demands.

### Enduring educational policy issues include:

- *Improving the overall level of student performance.* Low mathematics accomplishment is of particular concern.
- *Overcoming achievement gaps* for low-income students and historically underserved racial and ethnic groups; understanding the degree to which these gaps appear at different developmental stages and the degree to which they are moderated or amplified by experience in learning institutions with different characteristics.
- *Improving teacher/caregiver competence or quality, including cultural competence:* how to measure it; how to support it with professional skills enhancement, strong leadership, and financial incentives and rewards; and how to recruit and retain educators with high-demand skills in a competitive economy.
- *Assuring equal access to high-quality learning opportunities and settings* for children of different socio-economic backgrounds and cultures.
- *Balancing the benefits of uniformity vs. individuality and innovation* among educators and institutions.
- *Determining which interventions best meet the learning needs of particular groups of students with special needs.*
- *Allocating limited resources among learning activities and interventions* to achieve the greatest impact on student performance, overall and for lagging groups of students.

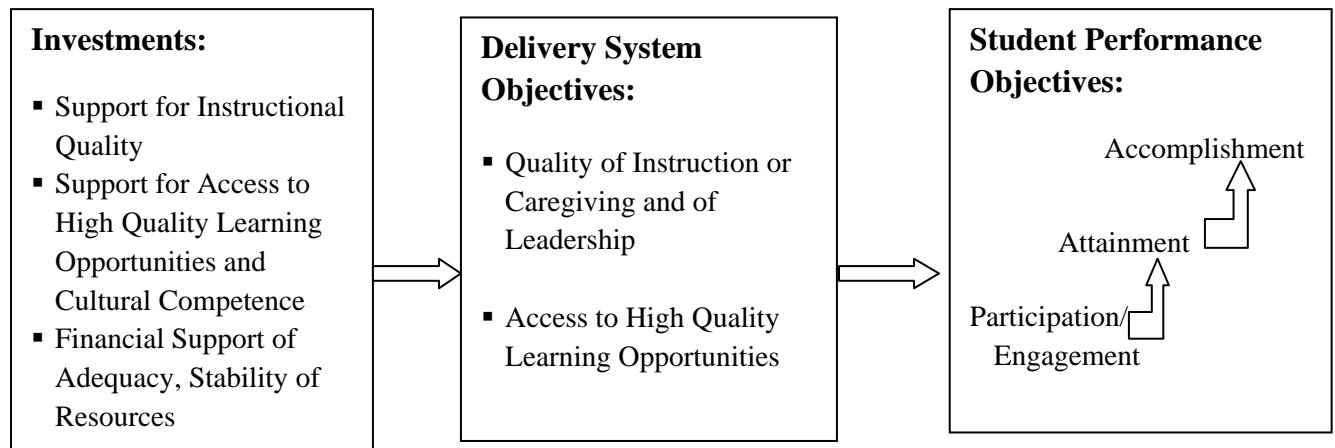
## Structure of the P-20 Policy And Data Framework

Our P-20 Framework is derived from a logic model that represents the flow from investments through service delivery system objectives to improved student performance. The major components and their relationships are summarized in Figure 2; we then explain the various components, and present a complete schematic on page 11. The framework starts with broad constructs. We then specify indicators that operationalize each construct into concrete terms, then suggest measures that define data collection needs. For example, a *construct* might be “students’ cognitive performance;” an *indicator* that operationalizes this could be “achieving certain criteria of proficiency in science;” *measures* might consist of the median scores on specific test scales of science proficiency; *data elements* would be individual students’ scores on those tests, linked by common identifiers to data regarding characteristics of children and learning institutions. We reviewed key international, federal, and state indicator reports to consider: (a) what currently

available indicators and measures best reflect the categories in the Framework; (b) what types of information are available at the individual student, staff/educator, and school/institutional level in Washington; (c) what practices are available from national or multi-state studies to inform data gathering efforts in Washington; and (d) how the potential indicators inform a state-level P-20 agenda for data and policy analysis.

The major components of the Framework are shown in Figure 2; a complete schematic is shown in Figure 3 on page 12. A detailed set of constructs, indicators and measures for each educational sub-system is available at <http://hspc.org/topics/p-20/Indicator-Matrix.aspx>

**Figure 2: Key Components of HSPC P-20 Framework**



*Student-Centered Data Systems*

It seems optimal to conceive of the individual student as the central or primary unit, and attach essential data about teachers, classrooms and learning institutions to individual student records. It would then be possible to analyze these broader units of concern - for example, comparing the performance of students in child care centers or schools that have different structures and resources. With this approach, it is also possible to analyze how differences among educators, classrooms, schools or districts contribute to variation in student success. Twenty-one states are already implementing linkages for elementary-secondary education data and Washington is expanding its linkages through CEDARS, the work of the ERDC and the SLDS administered by OSPI.

## Student Performance Objectives (Outcomes)

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*You have to show up, participate and pay attention; then you have to complete the requirements; but the bottom line is that you have to show what you actually learned.*

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### *Accomplishment*

We refer to ultimate educational outcomes or competencies as *Accomplishment*. The goal of the educational enterprise is demonstrable competence: knowledge, skills, and ability to marshal learning resources as needed or desired. To reflect the community's objectives for children and youth, dimensions of accomplishment must include the levels of students' social-emotional, cognitive, occupational, and citizenship development. Care must be given to designing indicators which provide valid comparison of achievement gaps while also allowing clear communication of findings to the public.

### *Attainment*

The second level of outcomes consists of *Attainment*. Graduation or certification from a secondary or postsecondary program, either academic or vocationally oriented, implies benefiting from the experience and acquiring a certain amount of knowledge and skills. Failure to persist and complete is a clear measure of non-performance. However, many students complete a stage without the intended accomplishment, so attainment is not the final outcome.

### *Participation/Engagement*

*Participation* is a necessary stepping stone to attainment. Since for early and post-secondary learning, financial access is not universally guaranteed, measuring *access through enrollment* is an essential precondition to learning. Once enrollment is achieved, *engagement* comes to the fore. Participation encompasses such behaviors as enrollment and attendance, while engagement entails emotional attachment to the learning process. At each stage of education, parental education, resources and expectations exert substantial influence on students' expectations, which in turn influence their levels of participation and engagement.

## **Delivery System Objectives**

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*Many policies aim to assure all children have access to desired P-20 learning opportunities, and to improve the quality of the educational settings to which they have access.*

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Education policy operates through large, complex service and support structures. Many policy interventions are intended to improve the quality of the educational delivery and support systems with the ultimate aim of improving student performance. Delivery System Objectives are divided into two major categories that reflect the research literature on what affects learning: quality of instruction or caregiving and access to high-quality learning opportunities.

### ***Instructional/Caregiving Quality***

#### *Qualifications and Competence of Caregivers/Teachers/Instructors*

Educators with appropriate knowledge, attitudes and skills are the core of educational success. Essential indicators therefore include educators' classroom effectiveness and whether competent individuals are attracted to the teaching profession. This includes recruiting and retaining teachers trained in fields currently in short supply: pre-literacy and pre-numeracy skills; primary-secondary math, science, and English language learning (ELL); and special education.

#### *Effective Curriculum*

Curriculum issues are salient at each level of the educational enterprise. For early learning, the balance between social-emotional-regulatory skills and cognitive skills is hotly debated. For primary and secondary, inquiry-based instruction and the balance of content, problem solving, deliberation, and creativity are contested. Academic rigor; scope and sequence within and across grade levels; and how knowledge is organized and represented are widely discussed. Interdisciplinary approaches, the relationship between liberal arts and occupational or professional preparation, and the organization of knowledge claim attention for post-secondary.

#### *Enriching Co-Curricular Activities*

There are multiple pathways to learning. Many children and youth learn best by applying classroom learning to activities for which they have a passion, be it drama, music, athletics or visual arts. Access to these pathways for students of all backgrounds is a pressing issue.

#### *Institutional Leadership: Culture and Climate of Educational Setting*

For human or financial resources to yield the desired delivery system objectives, leaders must inspire, guide, support and learn with faculty and staff to foster a learning culture that is encouraging to all students. Leaders are responsible for establishing and communicating expectations and providing support, rewards and sanctions. Appropriate training, support, and incentives must be provided to leaders in each educational sub-system.

### *Articulation and Transition Planning*

An effective P–20 delivery system requires determining effective linkages, transitions and consistent expectations among the sub-systems. Early learning must build the social, emotional, and cognitive basis for students to participate in the somewhat more structured primary school environment. Support and assistance to students facing transitions through primary and middle grades, buttressed by consistent goals and expectations, is essential. Moving from high school to postsecondary settings requires better alignment of standards for students to arrive at college or technical training with sufficient grounding to avoid remedial instruction.

### *Duration and Consistency of Policies*

Stability is a valuable commodity often lacking in educational settings. The pressure for improvement, and responses to shifting fiscal and political imperatives, often forces such frequent changes that no clear policy can be said to be in place.

## ***Access to Effective, High-Quality Learning Settings and Opportunities***

### *Geographic Access*

Parents of young children and elementary-secondary students often prefer to have their children in settings close to their homes, both to avoid the stress of long travel times and to facilitate parent and community involvement. Many post-secondary students attend part time while managing employment or family responsibilities. Low-income students often find it difficult to pay for housing in an urban area. The degree of segregation of learning institutions is also an indicator of geographic access, since it relates to residential segregation and access.

### *Cultural Appropriateness: Cultural Competence and Diversity of Staff*

Cultural appropriateness depends on a wide array of delivery system attributes. At the level of educational setting, these include a welcoming environment for students and parents of diverse backgrounds, providing bilingual services, and facilitating mutual understanding and respect. At the level of individual staff, both instructional and administrative, cultural competence in promoting expectations and standards for both students and parents is essential.

### *Student and Family Support*

Many students face barriers to success that lie in the disruption of their personal and family lives. Low-income families often lack the knowledge and financial resources to obtain assistance. At all ages, lack of effective parenting or ongoing conflict in the home can distract from academic or extra-curricular activities. Counseling for students and services for families may be provided by agencies partnering with learning institutions.

### *Financial Access: Adequacy, Equity, Stability and Affordability*

Financing must be analyzed both from the perspective of learning institutions that require stable resources for planning and development, and from the perspective of students and families who may require financial assistance to participate in the full range of educational activities.

- The first consideration is *adequacy of total resources* to generate the desired levels of quality. The major drivers of instructional cost are staff compensation, student:educator ratios, breadth of curriculum, and duration of instructional time. The relationship of these factors to student performance remains controversial, and, indicator and data systems must connect those cost drivers to student performance.
- *Equity of resource allocation* among social, geographic and economic groups is a persistent concern. It must be determined if funding is adequate for the needs of particular groups.
- *Stability of funding* has received inadequate attention. Significantly fluctuating funding, either overall or for categories of students, disrupts the sustained commitments necessary to assure high quality service delivery and to build expectations of access and support.
- *Affordable access* is crucial. There is no universally accessible publicly or privately funded early-learning system prior to kindergarten. For post-secondary education, broad scale financing is available through state support of colleges and universities and the package of federal and state loans and scholarships. However, students still struggle with costs, and available financial assistance does not afford most low and moderate income students access to the same range of institutions as more affluent students. Affordable access also determines if low-income minority students have access to high quality early learning and post-secondary opportunities.

## Investments

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*Financial data are rarely collected in a manner that relates specific expenditures to delivery system objectives.*

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Sufficient financial data to support analysis of investments in activities designed to promote service system improvements are sorely lacking. Budgets are routinely described in accounting terms (e.g., the amounts for salaries, benefits, contracts, transportation, or food service). The amounts of investments to improve instructional quality or access are often not reported, making it impossible to assess their impact on services or outcomes. Our P-20 framework incorporates a set of investment categories that have been demonstrated to promote critical service system objectives. We propose two types of investment indicators: the *amount* invested in various activities; and the *terms and conditions* under which funds are allocated. For example, in addition to knowing levels of teacher compensation, we will want to know how teachers may qualify for increases, such as longevity, demonstrated competence, student performance, or responsibilities for instruction or supervision.

### ***Investments That Support Instructional Quality***

Investments that have been demonstrated to improve teacher quality and student performance include: some pre-service preparation; recruiting teachers from more selective institutions; in-service professional development embedded within coherent school improvement strategies; and coaching, supervision and mentoring by trained senior teachers. Compensation structures that reward classroom practice and student performance are of interest, as is promoting retention past the first few years of teaching. Struggling students may require more intensive instruction, such as tutoring or special classes, and additional counseling time. The amount and structure of time for instruction - length of both the instructional day and year - have major cost implications, but their relationship to performance requires additional analysis.

### ***Investments that Support Access and Cultural Appropriateness***

*Support for geographic access* includes equalizing funding among communities or learning institutions, capital investments, or support for technology to facilitate distance learning. Investments that *support cultural appropriateness* include: curriculum accessible to diverse students; staff development and training to respond to the variety of student needs and create a welcoming climate; minority staff recruitment and support. For the post-secondary sub-system, assuring access entails minority student development, recruitment and support. Supporting parent engagement through such investments as paid liaison staff, changes in governance, and training for parents and educators to work effectively together, can promote success.

### *Financial Support for Adequacy, Stability*

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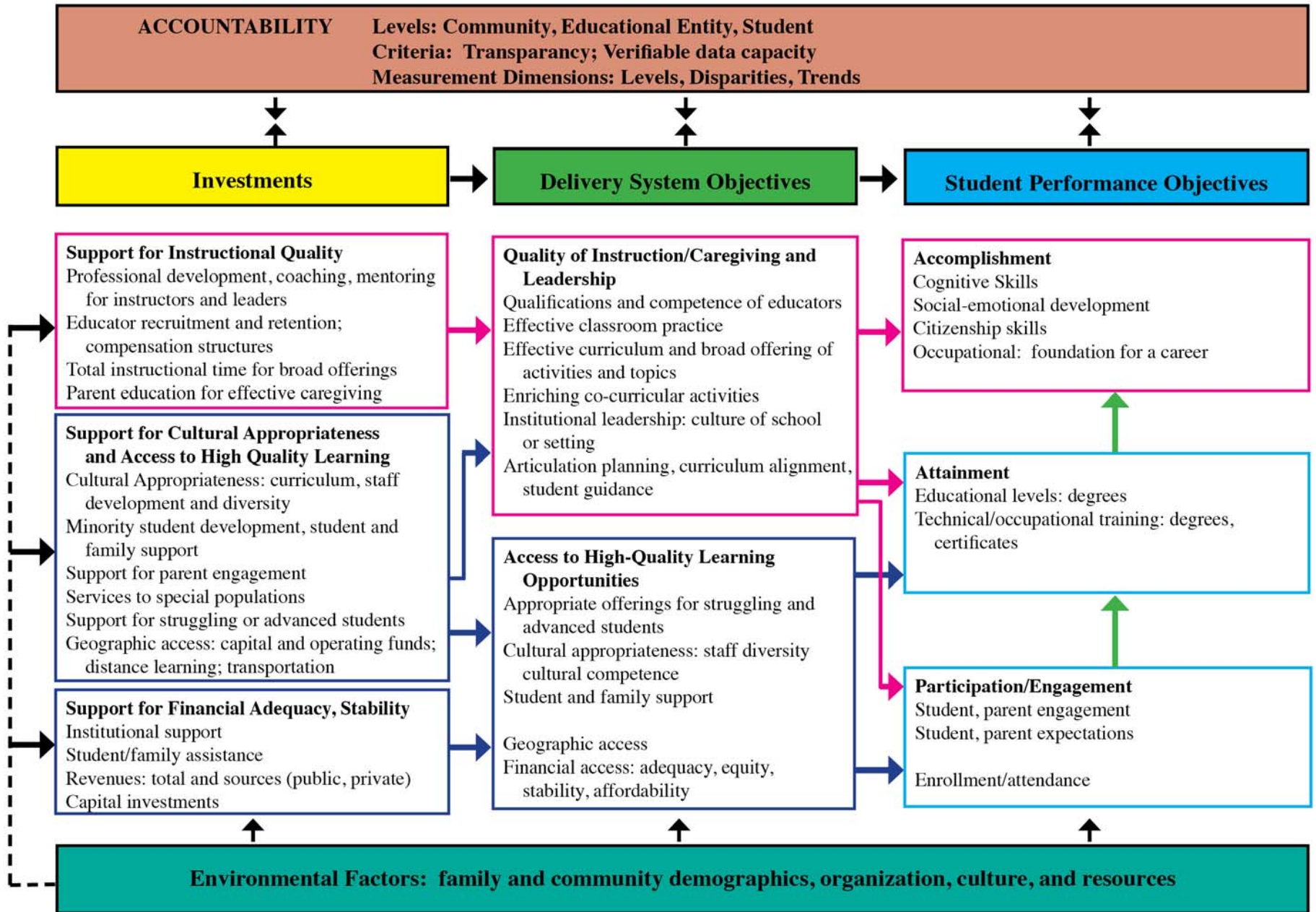
*A major distinction is between financial support directly to educational institutions and assistance that flows to students or families before reaching institutions.*

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Financial challenges are faced by both students and institutions, and currently education financing is directed to each. In the Service Delivery Objectives section, we discussed indicators for whether adequacy, equity, stability and affordable access are being achieved. Investment to promote these objectives includes support to learning institutions to maintain their services and make them available to students at less than the cost of providing them. It also includes direct support to students and families as grants, loans or vouchers. For early learning, where eligibility for vouchers based on income and employment can vary month to month, family-based financing lacks stability. Institutional support avoids the unexpected decreases caused by eligibility changes, but responds slowly to increases in enrollment and may limit parental choice.

We have noted that *capital expenditures* may be instrumental to geographic access, affecting such contributors to instructional quality as laboratory facilities or musical equipment and performance space classrooms.

**Figure 3: Full Schematic of HSPC P-20 Framework**



## **Conclusion: High Priority Data Opportunities and Gaps**

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*Better data and analysis alone cannot 'solve' the policy deficiencies we face. But they can help reveal ineffective patterns of investments, and provide policy makers with tools for better decision making that contributes to improving the lives of children and youth.*

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Enticing short-term opportunities to expand ongoing efforts plus longer term needs to develop essential new data components became apparent in our review of potential indicators to bring the P-20 Framework to life. Policy leaders should begin to address these immediate and longer-term opportunities. The efforts of the ERDC and SLDS to link data systems are a great opportunity to improve the utility of current data. However, where important data does not exist or is not regularly reported, focus must shift to collecting new data.

Our review and analysis suggested that student-centered data systems have the greatest flexibility and potential to fulfill the promise of a P-20 Framework. We also encountered some potential dangers of misapplication that policy makers should take care to avoid.

### *Data System Dangers: Misapplications to Avoid*

We recognize that there are potential dangers of unintended consequences of promoting P-20 data and analysis. One danger is misapplying concepts from one educational subsystem to another. A second is having the cognitive outcomes that are most easily measured drive practice away from promoting valuable outcomes that are more challenging to measure, such as social-emotional development. While these are legitimate concerns, we believe the potential danger lies more in the tendency of policy makers to look for simple solutions than in the data systems created to track the impact of those solutions.

### *Opportunities for Modification or Expansion of Current WA Data Systems*

1. Support efforts by ERDC and OSPI to link current data systems and create a longitudinal structure for linking students and teachers.
2. Increase the utility of the Health Youth Survey, which has valuable student engagement and social-emotional development measures, by linking it to academic and other data with a unique student identifier, while protecting confidentiality.
3. Enhance K-12 teacher data by better functional information on teacher activities and participation in professional development.
4. Providing more rapid feedback to students, teachers and parents from cognitive achievement tests.
5. Expand Washington state participation in the National Assessment of Educational Progress (NAEP) to include grade 12.
6. Encourage Washington schools and districts to participate in National Student Clearinghouse to link secondary and post-secondary information.
7. Add occupational skills from the Work Readiness Credential to K-12 assessments.

### *Opportunities to Develop Essential New Data Components*

1. Develop a sample-based monitoring of development for children ages birth through five to link early learning experiences to kindergarten readiness and elementary performance.
2. Expand the pilot Quality Rating and Improvement System for early learning facilities to a statewide quality monitoring system, measuring both educator and program quality.
3. Restructure the state's financial reporting to reflect functional investment categories linked to improving service delivery systems.
4. Apply observational measures of educator competence and link them to student performance.
5. Monitor levels of student and parent engagement, applying nationally developed models.
6. Support a Washington state over-sample of the National Assessment of Adult Literacy.

Setting priorities for addressing these opportunities and gaps will require careful consideration. One approach would be to give top priority to topics where there is a lack of regularly reported data about such critical components of the framework such as student performance or educator competence. Another approach would be to link data development to programmatic investments and initiatives. If, for example, increased resources were made available to improve mathematics accomplishment at the secondary level, then investments in richer math assessments at all age levels and better data about math teacher competence would seem urgent. We identified many opportunities for essential data to be generated by participation in national or multi-state data collection systems. This approach can minimize cost by eliminating the need to develop and validate new instruments. It would also provide ready comparison between levels for Washington and those observed nationally or for other states, such as the Global Challenge States.

Better data and analysis alone cannot 'solve' the policy deficiencies we face. But they can help reveal ineffective patterns of investments, and provide policy makers with tools for better decision making that contributes to improving the lives of children and youth.