TEACHING THE TEACHERS OF OUR YOUNGEST CHILDREN:
THE STATE OF EARLY CHILDHOOD HIGHER EDUCATION IN INDIANA, 2015

SEPTEMBER 2015

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CSCCE

CENTER FOR THE STUDY OF CHILD CARE EMPLOYMENT

UNIVERSITY OF CALIFORNIA, BERKELEY

The Center for the Study of Child Care Employment (CSCCE), founded in 1999 focuses on achieving comprehensive public investments which enable and reward the early childhood workforce to deliver high-quality care and education for all children. To achieve this goal, CSCCE conducts cutting-edge research and proposes policy solutions aimed at improving how our nation prepares, supports, and rewards the early care and education workforce to ensure young children's optimal development.

Suggested Citation:

Kipnis, F., Sakai, L., Amanta, F., Whitebook, M., Austin, L., & Montoya, E. (2015). *Teaching the Teachers of Our Youngest Children: The State of Early Childhood Higher Education in Indiana, 2015*. Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley.

The views presented in this report are those of the primary authors only and do not reflect the opinions of the report's funders.

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INTRODUCTION

Midway through the second decade of this century, the importance of early care and education (ECE) to children's lifelong learning and to our nation's economic well-being is recognized up to the highest levels of government, and in businesses, schools, and living rooms across the country. This understanding represents a dramatic shift from earlier decades, and carries with it heightened expectations for what teachers of young children should know and be able to do (Whitebook, Phillips, & Howes, 2014), particularly in light of mounting evidence about inadequate and unequal educational quality for many children, particularly those of color and those living in low-income families (Yoshikawa et al., 2013; Hernandez, 2011; Karoly, 2009).

In 2015, the Institute of Medicine and the National Research Council of the National Academy of Sciences issued several recommendations to strengthen professional preparation standards for early childhood practitioners and the institutions responsible for their preparation and ongoing learning. *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation* (Institute of Medicine [IOM] & National Research Council [NRC], 2015), includes among its recommendations: 1) transitioning to a minimum requirement of a bachelor's degree, with specialized knowledge and competencies, for all lead teachers working with children from birth to age eight; and 2) the development and enhancement of interdisciplinary higher education programs for early care and education professionals, including practice-based and supervised learning opportunities.[1]

In recent years, Indiana, like many states, has committed public and private resources toward multiple efforts to improve educational services and to ensure that teacher education degree and certification programs can better prepare their graduates to meet the complex needs of young children of all ages (Swartz & Johnson, 2010; Ray, Bowman, & Robbins, 2006; Hyson, Horm, & Winton, 2012). Yet, there remains a demand for close to 15,000 new early childhood professionals to provide quality care and education to Indiana's most at-risk children (Indiana Early Learning Advisory Council, Workforce and Professional Development Committee Report, 2015). Critical to responding to this need is the establishment of a well-coordinated and comprehensive professional preparation and development system that can prepare an incoming generation of professionals while also strengthening the skills of the existing early education workforce. Institutions of higher education are critical to meeting these evolving and increasing demands for improving developmental and learning outcomes for the state's young child population.

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[1] Adapted from "Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation," by the Institute of Medicine and National Research Council, copyright 2015 by the National Academy of Sciences.

In light of the changing expectations for effective preparation recommended by the Institute of Medicine/National Research Council, and the workforce needs of the state, now seemed the appropriate time to examine the status of early childhood higher education offerings in Indiana, in order to allow policy makers, institutions of higher education, and other stakeholders to assess the capacity of the state's higher education system and inform policy, practice, and investment.

To undertake this assessment, the Center for the Study of Child Care Employment (CSCCE) implemented the *Early Childhood Higher Education Inventory* (Kipnis, Ryan, Austin, Whitebook, & Sakai, 2012a), a research tool used to describe the landscape of a state's early childhood degree program offerings at the associate, bachelor's, master's, and doctoral levels, and to provide a portrait of early childhood faculty members.[2] (See **Box 1** for a description of the Inventory Methodology.)

The Early Childhood Higher Education Landscape in Indiana

A network of 14 community colleges and 15 public and private colleges and universities offers an array of early childhood degree programs. This network includes 14 community colleges that offer 27 associate degree programs. It also includes 15 public and private universities offering eight associate degree programs, 35 bachelor's, seven master's and six doctoral degree programs. Eighty-six percent of associate degree programs reported serving a mix of those already working in the early childhood field as well as more traditional pre-service students. Sixty percent of the bachelor's degree programs reported exclusively targeting pre-service students, and the graduate programs primarily served those already working in early childhood settings.

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The Inventory findings are presented in two sections. The first section, *Early Childhood Higher Education Today* examines the extent to which Indiana ECE higher education programs:

- offer the knowledge, skills, and experiences associated with effective teaching practice and program leadership;
- have a faculty workforce prepared to provide early childhood practitioners with the necessary knowledge and skills associated with effective teaching practice and program leadership; and
- have the resources to support student and faculty success.

The second section of this report, *Early Childhood Higher Education, An Evolving Landscape,* examines how these institutions of higher education are adapting to emerging knowledge

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[2] Indiana is one of seven states (along with California, Nebraska, New, Hampshire, New Jersey, New York, and Rhode Island), that have participated in the Inventory to date.

about children's learning and development. Specifically, the report explores the extent to which Indiana ECE higher education programs have incorporated recent findings related to the importance of:

- promoting early mathematical understanding; and
- engaging families to support young children's optimal development, learning and school success.

Box 1. Study Design

In the 2014-15 academic year, researchers from CSCCE implemented the Early Childhood Higher Education Inventory, which consists of three modules: a mapping of the population of higher education programs within a state; an online program survey completed by the degree program leader (e.g., dean, chair, or coordinator); and an online faculty survey completed by individual faculty members. The program findings reported here are drawn from a final sample of 33 associate, 29 bachelor's, six master's, and six doctoral degree programs.[3] The faculty findings are drawn from a final sample of 88 community college faculty members, and 46 bachelor's and graduate degree faculty members.

See the Technical Report for a detailed description of the methods of this study, including the sampling frame and selection, field procedures, response rate, survey questions, along with detailed findings from the Inventory.

A note on interpreting findings presented in this report: Data for the master's and doctoral degree programs are not included in the figures because of small sample sizes. These data are included in the narrative as appropriate. In addition, data for the doctoral degree faculty members are not reported due to the limited sample size.

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[3] For those institutions offering more than one degree program at the same level (e.g., multiple bachelor's degrees), a member of our research team engaged in a phone conversation with the identified program representative to determine whether one or more program modules would be sent to them to complete. As a result, some institutions were sent one program module to be completed for multiple degree programs at the same level.

PART 1: EARLY CHILDHOOD HIGHER EDUCATION TODAY

This section of the report examines program offerings, faculty characteristics, student supports, and institutional challenges.

> **FINDING ONE: PROGRAM OFFERINGS**
> Goals, Course Content, and Age-Group Focus

Indiana early childhood degree programs report differing goals for preparing students, with bachelor's degree programs the most likely to identify teacher and/or administrator preparation as their primary goal. These programs offer a range of topics related to child development and approaches to teaching, but content focused on infants and toddlers and children who are dual language learners is notably underrepresented across all degree levels. Smaller percentages of programs require content related to administration and leadership.

What we asked about goals, course content, and age-group focus:

Program leaders participating in the Inventory (e.g., deans, coordinators) were asked to indicate the primary goal of their degree program(s) among five options:

1. to prepare students for teaching and/or administrative roles in early childhood education settings only;
2. to prepare students for teaching and/or administrative roles in early childhood and elementary education settings;
3. to prepare students for the roles of early interventionists or early childhood special educators;
4. to prepare students for multiple roles involving young children, working in many types of settings; and
5. to prepare students for a career as a researcher or college-level faculty member.

Program leaders were also asked to identify course content topics for the degree related to three domains:

1. child development and learning;
2. teaching (comprising three primary categories):
   - teaching diverse child populations;
   - teaching and curriculum; and
   - teaching skills in early childhood settings); and
3. administration and leadership.

Program Goals

Indiana includes public-school preschool teachers in the teacher licensing system, requiring them to have an Early Childhood Education P-3 (Pre-kindergarten - Grade 3) license (http://www.doe.in.gov/licensing). The P-3 license, as is the case for other teacher licenses in the state, is closely aligned with the state's higher education system through the Rules for Educator Preparation and Accountability (REPA) (http://www.doe.in.gov/tags/repa). The various routes to licensing all require REPA-approved teacher preparation degree programs or REPA-approved courses of study for students who have already attained non-education degrees.

But there remains great variability in what constitutes an appropriate course of study and licensure for teachers and administrators working with young children in non-public school settings. Early childhood educators in other sectors of the field are not subject to a teacher license. For example, lead teachers in licensed child care centers must have one of the following: 1) a current Child Development Associate (CDA) credential[4]; 2) a bachelor's degree in early childhood or elementary education (with a kindergarten endorsement); 3) a bachelor's degree in another field that includes 15 credit hours in early childhood; or 4) an associate degree in early childhood education.

Bachelor's degree programs were the most likely of the degree programs to report that their primary goal was "to prepare students for teaching and/or administrative roles", 57 percent did so, compared to 38 percent of the associate degree programs. Few of the graduate programs reported this as a primary goal. The associate degree programs (58 percent) were twice as likely as bachelor's degree programs (29 percent) to report that their primary goal was "to prepare students for multiple roles involving young children, working in many types of settings." Four of six master's degree programs also reported this as their primary goal. Three out of four doctoral degree programs reported that their primary goal was to "prepare students for a career as a researcher or college-level faculty member." It is important to recognize that even if programs reported a primary goal other than teacher or administrator preparation, these degree programs may still be preparing students for teaching and administrative roles. (See **Figure 1**.)

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[4] The CDA is a credential issued by the Council for Professional Recognition. It can be earned through college and/or non-college based training.

Domain	Topics
Table 1. List of Domains and Topics of Course Content Included in the Indiana Early Childhood Higher Education Inventory	
Domain	**Topics**
Child Development and Learning	Knowledge about children's development in different domains
	Effects of culture, gender, class, and race on development
	Effects of disability on development
	Development of dual language learners
	Development of children's understanding and skills: early literacy, and science
	Child development theory and its relationship to teaching
Teaching	*Teaching diverse child populations*: children who are living in poverty, are dual language learners, have special needs, and/or exhibit challenging behaviors, and children from diverse ethnic and cultural backgrounds
	Teaching and curriculum: using integrated curriculum and play in teaching, supporting social and physical development, and teaching art, literacy, science, and social studies
	Teaching skills in early childhood settings: using observation, assessment, and documentation to inform teaching and learning, different teaching techniques, and classroom management
Administration and leadership	*Supervision*: Building relationships with other teachers and/or early childhood professionals, guiding practitioners in implementing curriculum and appropriate teaching strategies, adult supervision, adult learning styles, and assessment and documentation to inform teaching and learning
	Program operations: Assessment and documentation to inform program quality, program planning, development, and operations (e.g., child enrollment, daily operations), using technology to maintain records and enhance program operations, managing and maintaining facilities, human resources/personnel policies, fiscal procedures and management, grant management and proposal writing, and organizational development and change
	Policy and advocacy: The early childhood system and public policy, effective advocacy, and policy analysis and development

**Figure 1. Primary Goal of Indiana's Early Childhood Higher Education
Degree Programs, by Program**
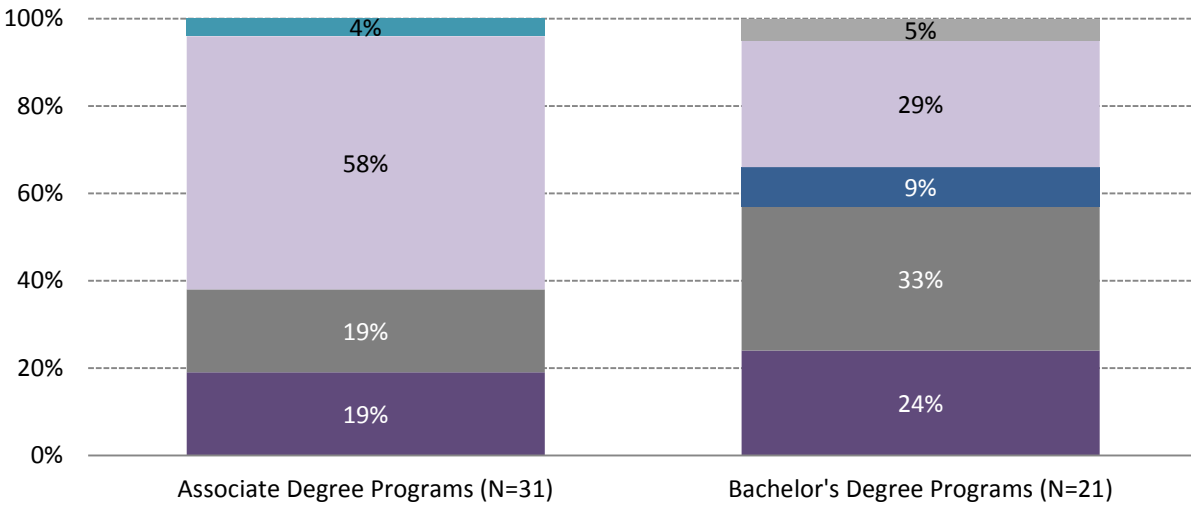
- Other

- To prepare students for a career as a researcher or college-level faculty member

- To prepare students for multiple roles involving young children, working in many types of settings

- To prepare students for the roles of early interventionists or early childhood special education teachers

- To prepare students for teaching and/or administrative roles in early childhood and elementary education settings

- To prepare students for teaching and/or administrative roles - only in early childhood education settings - for children birth to five

Course Content

There is broad consensus that early childhood education degree programs should include course content that encompasses theories of development and learning, subject matter content (e.g., literacy), and methods of teaching and pedagogy (IOM & NRC, 2015). In addition, leadership preparation, program administration and principles and practices related to adult learning are considered key content for creating high-quality experiences for children (IOM & NRC, 2015; Whitebook et al., 2012; Whitebook & Ryan, 2011).

Child Development and Learning

Almost all topics within the child development and learning domain were required by at least 95 percent of associate and bachelor's degree programs and the majority of graduate degree programs. Slightly smaller percentages of associate (79 percent), bachelor's (85 percent), and doctoral (two out of four programs) degree programs reported requiring the topic "the development of dual language learners." Although this did not represent a large gap in content, challenges related to teaching children who are dual languages were reported throughout the Inventory.

Teaching

Similar to the child development and learning domains, the topics in each of the three dimensions of the teaching domain were required by all or nearly all degree programs, across levels, with a few exceptions. Slightly smaller percentages of associate (77 percent), bachelor's (85 percent) and doctoral (two out of four programs) degree programs reported requiring the topic "teaching children who are dual language learners." In addition, four of the nine "teaching and curriculum" topics were required by only two out of six master's degree programs. These included teaching the following skills to children: science, math, art, and social studies.

Administration and Leadership

Course content was not consistently offered to prepare practitioners for early childhood supervisory, administrative, or other leadership roles. Overall, a smaller percentage of degree programs across all types reported offering coursework related to this domain than any others. Only four of the 15 topics examined in the Inventory—assessment and documentation to inform program quality; building relationships with other teachers and/or early childhood professionals; assessment and documentation to inform teaching and learning; and the early childhood system and public policy—were offered by two-thirds or more of all programs, across degree levels.

Age-Group Focus

Depending on the ages of children they serve and the setting in which they work, teachers of young children are often perceived as requiring different levels of skill and knowledge, and are expected to meet significantly more or less rigorous qualifications. These differing expectations contribute to long-standing variations in content and design among early childhood higher education programs (Whitebook et al., 2012). The Institute of Medicine and the National Research Council conclude that this variability is both inconsistent with the science of early development and learning, and unlikely to produce consistently effective preparation

of teachers and administrators for early learning programs serving children from birth to age eight (IOM & NRC, 2015).

Thus, creating an integrated birth-to-age-eight early care and education system, inclusive of the institutions preparing the ECE workforce, has emerged as a major goal, as well as a metric by which to measure progress toward it. The Inventory intentionally sought to compare differences among programs along the age continuum. When child development and learning and teaching topics were required, degree programs across all types consistently reported that these were focused on preschool-age children. Whereas bachelor's and graduate degree programs reported focusing many topics on infants and toddlers, associate degree programs did so more consistently (see **Figure 2** as an example). The focus on children in the early elementary grades varied by topic and degree program.

Figure 2: Development of Children's Early Literacy Skills: Age-Group Focus of Programs Participating in Indiana Early Childhood Higher Education Inventory, Selected Topics
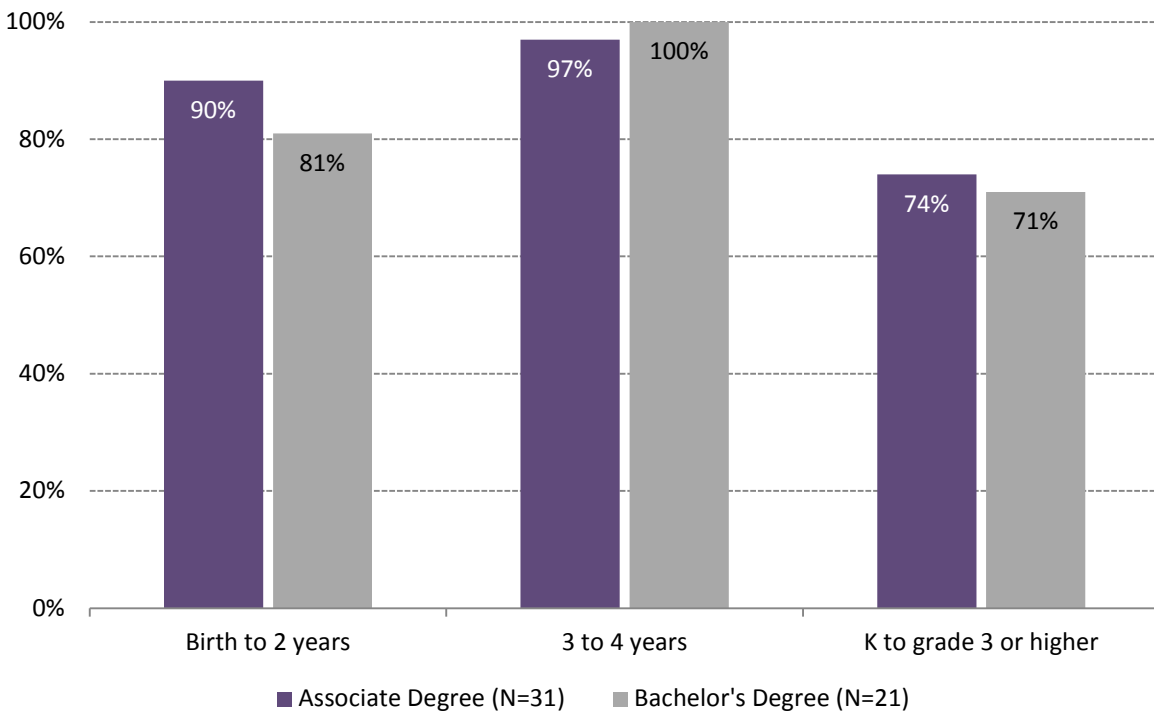
Students earning a bachelor's degree in early childhood are typically required to complete a student teaching experience, and participate in additional practica. In contrast, the majority of students completing an associate degree in early childhood participate only in practica, and there is little consistency as to the criteria for field sites and supervising teachers, and the duration and frequency of the experiences.

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What we asked about field-based experiences:

Program leaders were asked about two distinct types of field experiences: student teaching and practica. For each, respondents were asked to indicate whether the field-based experience was required in order to attain the degree, and if it was, they were asked a series of questions pertaining to the field experience, including: 1) criteria for field sites and supervising teachers; 2) timing and duration; 3) age-group focus; and 4) differences in field experience structures for pre-service and experienced teachers.

There is widespread agreement that field-based learning experiences for teachers working with children of all ages are critically important for developing new teaching skills or improving upon existing ones (IOM & NRC, 2015; Whitebook et al., 2012; National Council for Accreditation of Teacher Education, 2010b). In the K-12 community, this recognition has led to efforts to increase the length of student teaching, introduce it earlier into a program of study, and strengthen student supervision during field experience (Whitebook et al., 2012). In early childhood, however, there is no widely implemented standard of field experience, such as student teaching (Whitebook, 2014; Whitebook & Ryan, 2011). This structural divide in educator preparation runs counter to the call by many experts, policy makers, and stakeholders for a more integrated birth-to-age-eight educational system (IOM & NRC, 2015).

Required Field-Based Experiences

The vast majority of bachelor's degree programs (84 percent) required a student teaching experience, and all also required at least one practicum. In contrast, 17 percent of associate and one master's degree required student teaching. However, almost all associate (97 percent), two out of six master's, and two out of four doctoral degree programs required at least one practicum. (See **Figure 3.**)

**Figure 3: Field Experiences Required in Indiana Early Childhood
Higher Education Degree Programs**

■ Associate Degree (N=29)   ■ Bachelor's Degree (N=19-20)
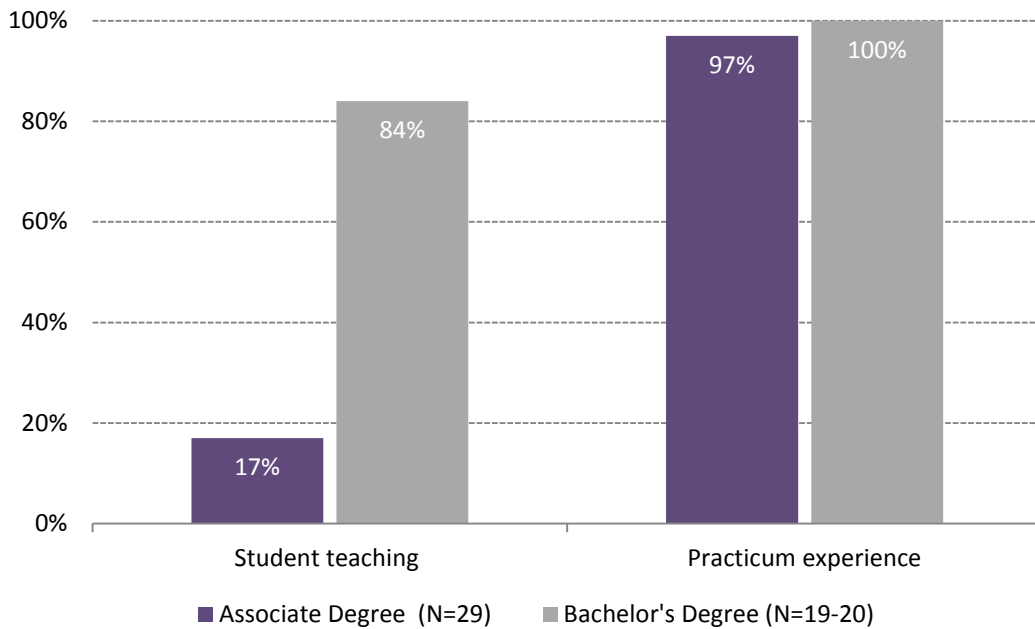
Criteria for Selecting Field Sites

Most programs reported criteria for selecting both field sites and supervising teachers, but criteria varied by degree program and type of field experiences. For example, bachelor's degree programs reported more criteria for student teaching experiences than for practicum experiences. The criteria for student teaching sites reported by at least 60 percent of the bachelor's degree programs were: "site is a public school," "location of the site," "age of children served at the site," and "teacher qualifications/characteristics." Only two of these were reported as criteria for practicum experiences by at least 60 percent of the programs ("location of the site" and "age of children served at the site.")

Associate degree programs were more likely than bachelor's degree programs to report quality-related criteria for selecting practicum sites. The criteria for practicum sites reported by at least three-quarters of the associate degree programs were: "site is a nationally accredited early childhood program," "observed quality rating of the site," and "teacher qualifications/ characteristics."

Number, Duration, and Timing of Practicum Experiences

Practica are the most common, and for many early childhood degree students, the only type of required field-based learning experience.[5] There were variations in the number of practicum courses required and the number of on-site hours typically required to complete a practicum course. (See **Table 2**.)

The first practicum experience occurred at different times for students at different degree levels, and for many students it did not occur until the end of the course of study. For example, 40 percent of associate degree programs reported that the first practicum occur at the end of the course of study, compared to 20 percent of bachelor's degree programs.

Practicum experiences for early childhood students were relatively unlikely to reflect students' status as either novice or experienced teachers. Approximately one-fifth of associate and one-quarter of bachelor's degree programs reported structuring practicum experiences differently for novice and experienced teachers.

Table 2. Number and Mean Hours of Practica Required by Programs Participating in the Indiana Early Childhood Higher Education Inventory					
Program Type	One practicum required	Two practica required	Three practica required	Four or more practica required	Mean number of hours typically required for completing a practicum course
Associate Degree (n=28)	50%	46%	4%	0%	127
Bachelor's Degree (n=17)	20%	25%	10%	45%	70

Age-Group Focus

Similar to program content, field experiences were generally not targeted to infants and toddlers. Bachelor's degree programs were more likely to require a focus on a specific age group than associate degree programs. For student teaching, they were more likely to require a focus on the early elementary grades (88 percent) than on younger children (38 percent preschool, six percent infants and toddlers). For practicum experiences, they were more likely

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[5] Because practica were the primary strategy for field-based experiences required by degree programs, they are the focus of this section of the report. For details on the number, duration, and timing of student teaching requirements, see the Technical Report.

to require a focus on preschoolers (85 percent), than on early elementary (61 percent) or infants and toddlers (56 percent). One-third of associate degree programs required a focus on preschoolers and only 11 percent required a focus on infants and toddlers.

> FINDING THREE: PORTRAIT OF FACULTY Employment Status, Demographics, Professional Background, and Professional Development Needs.

Indiana early childhood degree programs rely heavily on part-time faculty. Faculty members report being primarily women, White/Caucasian, middle-aged, and monolingual English speaking. Most faculty members report having had academic preparation specific to early childhood. Associate degree faculty members are more likely than other faculty members to report having worked in other professional roles in the past decade. Faculty members are particularly interested in professional development related to working with children who are dual language learners and other diverse groups of children, utilizing technology in teaching, and teacher assessment.

What we asked about and of faculty members:
Program leaders were asked to provide information about the number of full- and part-time faculty members employed in their degree programs during the term in which the survey was administered.

Individual faculty members were asked to identify:
1. their demographic characteristics, including: a) age; b) race/ethnicity; and c) linguistic capacity;
2. their academic background;
3. the primary focus of their teaching and expertise related to children across the birth-to-age-eight spectrum;
4. professional experiences in addition to college-level teaching in the previous ten years; and
5. professional development in which they had participated and topics in which they would find it helpful to gain additional knowledge and training.

Employment Status

The reliance on part-time faculty is endemic throughout institutions of higher education, constituting two-thirds or more of faculty in colleges and universities nationwide (Curtis & Thornton, 2014; Center for Community College Student Engagement, 2014), and can pose multiple challenges for both faculty and students. Part-time faculty are often not as integrated as members of the department in which they teach, and not engaged in curriculum planning; further, they are typically paid to teach particular courses, and are not paid for additional responsibilities such as student advising or program evaluation (Center for Community College Student Engagement, 2014). This can lead to full-time faculty taking on a greater share of administrative, institutional, and student advising responsibilities in addition to their teaching load (Center for Community College Student Engagement, 2014; Curtis & Thornton, 2014; Whitebook, Bellm, Lee, & Sakai, 2005; Maxwell, Lim, & Early, 2006; Early & Winton, 2001).

Sixty-nine percent of associate, 45 percent of bachelor's, and 54 percent of master's degree faculty members identified themselves as adjunct faculty or part-time lecturers. As discussed in more detail below, challenges related to insufficient staffing were cited by both program leaders and faculty members.

Demographic Characteristics

The absence of racial and ethnic minorities among early childhood faculty, in contrast to early childhood student and child populations, is also well documented, with implications for the degree of focus on diversity in coursework and the availability of role models for students (Bornfreund, 2011; Johnson, Fiene, McKinnon, & Bahu, 2010; Lim, Maxwell, Able-Boone, & Zimmer, 2009; Maxwell et al., 2006; Whitebook et al., 2005; Ray et al., 2006; Early & Winton, 2001).

Racial, Ethnic, and Linguistic Diversity

Most faculty members participating in the Inventory identified as White/Caucasian and monolingual. (See **Figure 4**.) Census data point to an increasingly diverse population in the state, with a child population under the age of five being 71 percent White, non-Hispanic, 11 percent African American, and 11 percent Hispanic or Latino (The Annie E Casey Foundation, 2013). While all faculty members at all degree levels reported fluency in English, less than 10 percent reported fluency in another language. However, 48 percent of associate, 37 percent of bachelor's, and 33 percent of master's degree faculty reported that it would be helpful to know another language, primarily Spanish, in order to communicate better with their students.

Figure 4: Race/Ethnicity of Faculty Participating in the Indiana Early Childhood Higher Education Inventory, by Degree Program
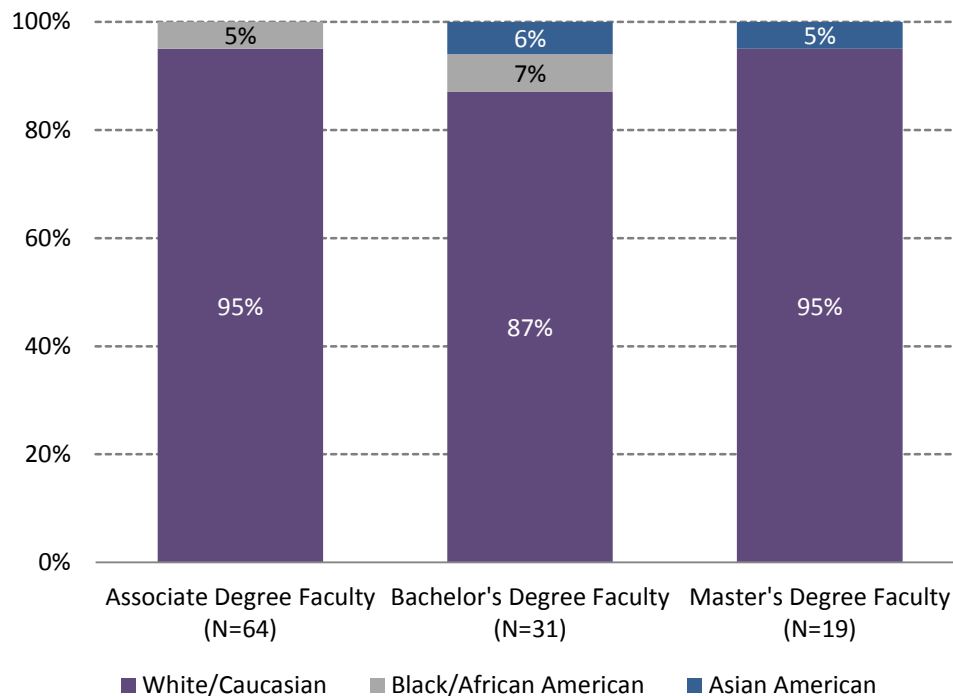
Age of Faculty Members

The average age of associate and bachelor's degree faculty members was 55 years and the average age of master's degree faculty members was 50 years. Forty-two percent of associate, approximately one-half of bachelor's, and approximately one-third of master's degree faculty members reported being age 60 or older, potentially close to retirement.

Professional Background and Development Needs

Teachers of adults, like those who teach children, require appropriate preparation as well as ongoing opportunities to refine their knowledge and skills (Whitebook & Ryan, 2011). Based on a review of the extant research, the Institute of Medicine and National Research Council (2015) have called for early childhood faculty to be versed in the foundational theories of development and learning, subject matter content, and methods of pedagogy that comprise the basic competencies expected of ECE practitioners working with young children. Additionally, teacher educators themselves are increasingly called upon to be effective practitioners, preferably having had classroom experience with children within the last decade (National Council for Accreditation of Teacher Education, 2010a & 2010b).

Academic Preparation and Teaching Focus Related to Early Childhood

Approximately three-quarters of associate and bachelor's degree faculty members, and two-thirds of master's degree faculty members, had earned at least a bachelor's degree in early childhood education or child development. While we did not ask faculty members about the primary focus of their early childhood degrees, we asked them to indicate whether the primary focus of their teaching in the degree program was "child development and learning," "curriculum and teaching methods," or "both equally," and we asked about their expertise related to various age groups of children.

At least 85 percent of faculty members at all levels reported focusing on "curriculum and teaching methods" (either exclusively, or equally with child development and learning). The associate degree faculty members (83 percent) were more likely to report focusing on "child development and learning" (either exclusively, or equally with curriculum and teaching methods) than were bachelor's (68 percent) or master's (57 percent) degree faculty members. While three-quarters or more of faculty members, across degree levels, reported that their teaching expertise included preschool-age children, fewer associate and master's degree faculty members (approximately one-half) and approximately two-thirds of bachelor's degree faculty members reported that their teaching expertise included infants and toddlers.

Professional Teaching Experience

The majority of associate (69 percent) and master's (58 percent), and one-third of bachelor's (38 percent) degree faculty members reported experience in other professional roles, including "classroom teacher" and "early childhood professional development provider" (e.g., coach, mentor, or trainer), within the previous ten years. Among these faculty members, most (77 percent of associate, 67 percent of bachelor's, and 64 percent of master's degree) reported that they had worked as a "classroom teacher," and that this experience was more likely to have occurred with preschool-age children and/or children in the early elementary grades than with infants or toddlers.

Professional Development

The vast majority of faculty members at all degree levels reported having participated in professional development during the last three years (at least 90 percent of faculty members, across degree levels). The three most frequently reported professional development opportunities, participated in by between 39 and 59 percent of faculty members at all degree levels, were "teaching practitioners to work with children from diverse cultural background," "strategies and techniques for mentoring/coaching of adults students," and "child assessment."

Faculty members at all degree levels indicated a number of areas in which it would be helpful to gain additional knowledge or training. The most commonly identified topics focused on teaching practitioners to work with children who are dual language learners and other

diverse child populations (diverse cultural backgrounds, and/or children with special needs), "teaching practitioners to use technology with children," and "early childhood teacher assessment (e.g., CLASS)."

FINDING FOUR: SUPPORTING STUDENTS
Services Offered and Ongoing Challenges

Indiana early childhood degree programs offer multiple types of support services designed to help students access resources and strengthen their academic skills. *Program leaders and faculty members indicated, however, that adequate student support is a challenge for many institutions.*

What we asked about supporting student success:
Program leaders were asked about three general categories of services offered to students in their programs:

1. counseling and cohort models;
2. access support; and
3. skill support.

Additionally, program leaders were asked to identify student-related challenges facing their programs, and faculty members were asked to identify student-related resources needed in order to improve the degree program.

Typically, higher education students who work in early childhood settings are classified as non-traditional students, because in addition to working full-time, they are frequently older than recent high school graduates, are among the first in their families to attend college, often represent linguistic and/or ethnic minorities, and may also be parents of school-age or younger children (Sakai, Kipnis, Whitebook, & Schaack, 2014). Programs that offer support specifically designed for non-traditional early childhood students are associated with greater than average success in helping students achieve their educational goals in a timely fashion (e.g., transferring to a four-year institution, or completing a degree) (Sakai et al., 2014; Whitebook, Schaack, Kipnis, Austin, & Sakai 2013; Kipnis et al., 2012a; Chu, Martinez-Griego, & Cronin, 2010).

Services Offered

As is customary among institutions of higher education, degree programs offered financial counseling and assistance, and skill support around technology and a range of academic topics including reading/writing and math. Generally, these supports were offered to all students in the institution, and were not targeted specifically to students in early childhood degree programs.

Associate degree programs (86 percent) were more likely than bachelor's (75 percent) to offer "alternative class schedule for working adults." Associate degree programs (75 percent) were also more likely than bachelor's (58 percent) degree programs to offer "classes located off-campus in community locations." Fewer degree programs offered "cohort models" compared to other services (57 percent of associate degree programs, 67 percent of bachelor's degree programs).

Associate and master's degree programs were more likely than bachelor's degree programs to offer the degree program in formats other than the traditional/on-campus program. The vast majority of associate (87 percent) and five out of six master's degree programs offered a "blended degree program, a combination of online and in person courses", compared to 43 percent of bachelor's degree programs.

Student-Related Challenges

Among degree programs that reported experiencing at least one challenge, "insufficient academic support for students for whom English is a second language" was reported by 38 percent of the associate degree programs, and "insufficient ability to support students in completing the program" (e.g., basic skills supports, tutoring) was reported by 31 percent of the bachelor's degree programs. Among faculty members who reported that additional resources were needed to improve the early childhood degree program, "increased academic support for students" was cited by 44 percent of bachelor's and approximately one-half of associate (53 percent) and master's (50 percent) degree faculty. "Increased financial resources for students" was cited by 41 percent of associate and 56 percent of bachelor's degree faculty members as a need.

Indiana early childhood degree programs experience challenges related to time and resources into fulfilling faculty responsibilities, as well as the need for faculty with specific expertise, and for a more racially and ethnically diverse faculty. Early childhood faculty members are also in need of resources to help them participate in professional development and program planning.

What we asked about program- and faculty-related challenges:
Program leaders were asked to identify any challenges facing their degree programs. Faculty members were asked to identify any resources needed in order to improve the early childhood degree program.

The vast majority of associate (86 percent) and bachelor's (90 percent), and all master's degree programs identified at least one challenge facing their degree programs. Smaller percentages of faculty members, (approximately one-half of associate and master's and 60 percent of bachelor's degree faculty members) reported that additional resources were needed to improve the early childhood degree programs at their college or university.

Faculty-Related Challenges

Two major faculty-related challenges were identified: a lack of adequate time and resources for faculty responsibilities and professional development, and the shortage of faculty members with particular expertise and backgrounds.

Support for Faculty

Among faculty members who reported a need for additional resources, almost two-thirds (63 percent) of associate and three-quarters (72 percent) of bachelor's degree faculty cited "resources for faculty professional development." More than one-half (56 percent) of associate degree faculty members identified needing resources for "additional full-time faculty" and more than one-half of bachelor's degree faculty members (56 percent) mentioned "effective mentoring of faculty." Other identified staffing-related needs included "funding for travel," and "additional faculty to assist with student advising load." Among the program leaders at the associate and bachelor's degree levels reporting challenges, the most commonly identified challenge was "faculty administrative responsibilities that interfered with time for students" (71 percent of associate degree programs, 56 percent of bachelor's degree programs). More than one-third (38 percent) of associate degree program leaders cited "insufficient number of full-time faculty."

Faculty Expertise

Among program leaders reporting challenges, the most frequently reported challenge related to lack of faculty expertise was lack of expertise in teaching young children who are dual language learners. This was cited by one-half of associate and bachelor's degree programs. The need for faculty expertise in teaching infants and toddlers was mentioned by 42 percent of associate degree programs.

Program-Related Challenges

Among faculty members citing a need for resources in order to improve the degree program, almost one-half (47 percent) of associate and approximately two-thirds (63 percent) of master's degree faculty members mentioned "resources for program planning and improvement." Forty-four percent of bachelor's degree faculty members mentioned "increased integration with other programs in the department/school." Thirty-eight percent of master's degree faculty members mentioned "more rigorous evaluation of the program to develop program improvements."

Among program leaders who identified challenges, about one-third (38 percent) of associate and bachelor's degree programs mentioned "lack of recognition of the value of early childhood from within the department or school," and about one-third of bachelor's (31 percent) degree programs identified "insufficient access to quality clinical sites."

PART 2: EARLY CHILDHOOD HIGHER EDUCATION, AN EVOLVING LANDSCAPE

This section of the report examines how institutions of higher education are adapting to emerging research related to family engagement and early mathematical development.

FINDING SIX: FAMILY ENGAGEMENT
Faculty Attitudes, Required Offerings, and Professional Development Interests

Faculty members consider the inclusion of family engagement to be very important in the preparation of early childhood teachers, and rank its importance on a par with the domain of socio-emotional development. Multiple topics related to family engagement are embedded in all levels of degree programs, with some variation in age-group focus by degree level and topic. Faculty members expressed varied levels of interest in professional development in this topic area.

What we asked about family engagement:
We asked faculty about:
1. attitudes/beliefs about the importance of inclusion of family engagement relative to other domains;
2. experience with teaching specific family engagement course content in the last two years; and
3. level of interest in professional development focused on topics related to family engagement.

Program leaders were asked to identify family engagement-related course content topics that were required for the degree.

The family engagement learning domain focuses on the environment of young children's relationships, and the knowledge and skills that early childhood educators need in order to help families support children's development and learning. Over the last two decades, mounting evidence has demonstrated how family involvement in children's learning at home and school contributes to school success (Dearing & Tang, 2010; Reynolds & Shlafer, 2012). As a consequence, the importance of including family engagement in teacher preparation has gained traction, particularly in light of research suggesting limited attention in teacher education programs to building student competence in this area (Nathan & Radcliffe, 1994; Shartrand, Weiss, Kreider, & Lopez, 1997; Epstein, Sanders, & Clark, 1999).

Faculty Attitudes about the Importance of Family Engagement in Teacher Preparation Degree Programs

The importance of understanding and implementing integrated strategies in order to engage families in supporting children's development and learning was considered "very important" by the vast majority of faculty across degree levels, and ranked on a par with the domain of socio-emotional development. (See **Box 2** for how this assessment was conducted.) At least 80 percent of faculty members at each degree level considered it "very important" to include family engagement, as well as socio-emotional development, in courses for teachers of all age groups of children, including infants and toddlers. Faculty considered it more important to include family engagement content than literacy and mathematical development content in early childhood higher education degree programs. (See **Figure 5**.)

Box 2. Tapping Faculty Attitudes about Including Various Domains of Development and Learning in Teacher Preparation Programs

The Inventory assessed faculty attitudes about the relative importance of various domains of development and learning in teacher preparation programs. Faculty members were asked to use a Likert scale of 1 to 4, with 1 meaning "not important" and 4 meaning "very important," to indicate their views on including various domains for different age groups of children. The domains were:

- Family engagement: Understanding and implementing an integrated strategy to engage families in ongoing and reciprocal partnerships, and the relationship of such partnerships to outcomes for children.
- Early mathematics: Understanding the domains and sequence of mathematical knowledge in young children, and how to promote children's mathematical understanding and ability to solve problems.
- Literacy: Understanding the components and sequence of literacy development in young children, and how to promote children's skills related to oral and written language.
- Social-emotional development: Understanding socio-emotional development and its relationship to learning, and how to support children's socio-emotional skills.
- Motor development: Understanding normal and atypical motor development in young children and its relationship to learning, and how to support the development of children's motor skills.

Figure 5: Importance of Inclusion of Domains in Teacher Preparation Programs: Percentage of Faculty Reporting "Very Important" for Infants and Toddlers, by Degree Program

Domain	Associate Degree Faculty	Bachelor's Degree Faculty	Master's Degree Faculty
Motor development	89%	85%	85%
Socio-emotional development	85%	91%	80%
Family engagement	82%	94%	90%
Literacy	70%	64%	60%
Early mathematics	35%	27%	15%

■ Associate Degree Faculty (N=73-74) ■ Bachelor's Degree Faculty (N=33)
■ Master's Degree Faculty (N=20)
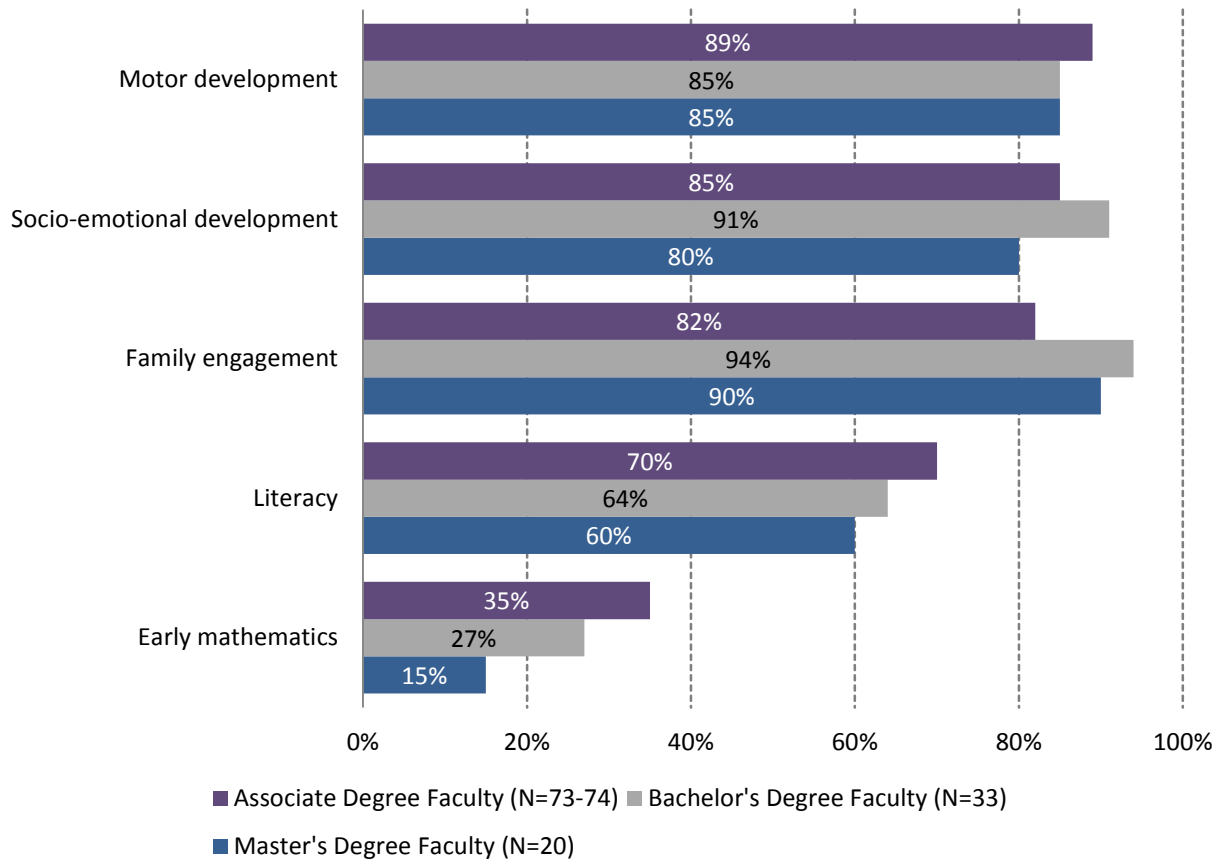
Required Family Engagement Topics in Degree Programs

Program leaders were asked about required course content and age-group focus related to 13 topics of family engagement. (See **Table 3**.) Twelve of the 13 family engagement topics listed in the Inventory were required by at least 95 of associate and bachelor's degree programs and the majority of graduate programs. "Utilizing technology to communicate with families" was required by 89 percent of the associate degree programs. Almost all associate and bachelor's degree programs, and at least 75 percent of master's programs, reported requiring each of the 13 topics for teachers working with preschoolers, and two-thirds or more of degree programs required a focus on infants and toddlers as well. At least 85 percent of associate degree programs reported requiring a focus on children in the early elementary grades, while the focus on this age group varied by topic from about one-half to about three-quarters among bachelor's degree programs.

Faculty Interest in Professional Development

Using a Likert scale of 1 to 5, with 1 being "no interest" and 5 being "very interested," faculty were asked to rate their interest levels in 12 topics related to family engagement.

Across degree levels, between one-quarter and one-half of faculty members reported being "very interested" in the topics listed in the Inventory. Level of interest by topic was somewhat lower among master's degree faculty on the majority of topics.

Table 3. List of Family Engagement Topics Included in the Indiana Early Childhood Higher Education Inventory
Theories of family engagement
Working with various family structures
Working with families of children with special needs
Working with families of various ethnic, racial, and linguistic backgrounds
Engaging families in classroom, program, and/or school activities
Effective communication strategies with families
Using technology to communicate with families
Working with families to help them enhance their children's learning at home
Using knowledge about children's families in curriculum planning
Negotiating conflicts and differences between families and teachers
Building community partnerships
Child referrals to community resources
Using community resources to support families

FINDING SEVEN: EARLY MATH
Faculty Attitudes, Required Offerings, Faculty Self-Assessment, Teaching Experience, and Professional Development Interests

Faculty members consider it less important to include early mathematics than other domains in the preparation of early childhood teachers. Multiple topics related to early mathematics are embedded in required course content, with variation by age-group focus. Many faculty do not consider themselves prepared to teach early math content, yet interest in ongoing math-related professional development varies by degree level and topic area.

What we asked about early math:
We asked faculty about:

1. attitudes/beliefs about the importance of including of early math, relative to other domains;
2. experience with teaching specific early math course content in the last two years;
3. level of interest in professional development focused on topics related to early math; and
4. capacity to teach students about specific math-related topics.

Program leaders were asked to identify early math-related course content topics required for the degree.

The early mathematics domain addresses key areas of children's cognitive development, and important foundational knowledge and intellectual skills associated with school success. The link between school success and math competency in young children has been documented in recent research, yet there is concern that teachers of our youngest children are not adequately prepared by institutions of higher education to assess or facilitate children's mathematical understanding and skills (Ryan, Whitebook, & Cassidy, 2014).

Faculty Attitudes about the Importance of Early Math in Teacher Preparation Degree Programs

Faculty members at all degree levels were less likely to consider it "very important" to include the early mathematics domain than other domains in teacher preparation programs for practitioners working with younger than school-age children, particularly infants and toddlers. Approximately one-third of associate (35 percent), one-quarter (27 percent) of bachelor's and 15 percent of master's degree faculty considered it "very important" to include the math domain in preparation programs for teachers of infants and toddlers. Approximately 70 percent of associate and bachelor's, and 80 percent of master's degree faculty members considered it "very important" for teachers working with preschool age children. In contrast, between 60 and

about 70 percent of faculty members, across degree levels, considered it "very important" to include the literacy domain for teachers of infants and toddlers, and 80 percent or more of faculty members considered the literacy domain "very important" for teachers working with children ages three and older. At least 88 percent of faculty, across degree levels, considered the inclusion of early math "very important" for those teaching in kindergarten or higher grades, a rate closer to that for the literacy domain.

Required Early Math Topics in Degree Programs

Program leaders were asked about required course content and age-group focus related to 13 topics of early math. (See **Table 4.**)

All thirteen early math topics were required by at least 90 percent of the associate and bachelor's degree programs, with the exception of "supporting English language learners in developing mathematical knowledge as they concurrently acquire English" which was required by approximately two-thirds of associate and bachelor's degree programs. In associate and bachelor's degree programs, when an early mathematics topic was required, it was more likely to be focused on preschoolers than on younger or older children. Among associate degree programs, infants and toddlers and elementary age children were included as a focus at similar rates, typically by more than three-quarters of degree programs. Among bachelor's degree programs, early math content focused on elementary age children was typically included by two-thirds or more of degree programs; in contrast, about one-half or fewer of bachelor's degree programs reported including infants and toddlers across most topics. Only two out of six master's and two out of four doctoral degree programs required all 13 early math topics.

Table 4. List of Early Mathematics Topics Included in the Indiana Early Childhood Higher Education Inventory
Number sense for children
Operations and algebraic thinking for children
Measurement skills for children
Geometry skills for children
Children's mathematical reasoning/practices
Building on children's natural interest in mathematics and their intuitive and informal mathematical knowledge
Encouraging children's inquiry and exploration to foster problem solving and mathematical reasoning
Using everyday activities as natural vehicles for developing children's mathematical knowledge
Introducing explicit mathematical concepts through planned experiences
Creating a mathematically rich environment
Supporting English learners in developing mathematical knowledge as they concurrently acquire English
Developing children's mathematical vocabulary
Assessing children's mathematical development

## *Preparedness to Teach Early Math Coursework*

The Inventory asked faculty members to assess their capacity to prepare practitioners to promote children's mathematical understanding and to teach math skills. For each of the 13 topics (see **Table 4**), faculty members were asked to identify whether they:

1. had limited familiarity;
2. were knowledgeable but not prepared to teach others; and/or
3. were capable of preparing teachers working with children, in each of the following age groups:
   - Birth through 2 years
   - 3 and/or 4 years (Pre-K)
   - Kindergarten to Grade 3

At least 70 percent of faculty members across all degree levels reported being capable of preparing teachers working with preschool-age children for each of the topics, with one exception. Between 42 and 56 percent of faculty members at the different levels reported being capable of teaching the topic "supporting English learners in developing mathematical knowledge as they concurrently acquire English." Across other topics, fewer faculty members

reported being capable of teaching the topics for practitioners working with infants and toddlers or in the elementary grades. (See **Figure 6** for an example.)

Figure 6. Creating a Mathematically Rich Environment: Knowledge and Skill as Reported by Faculty Participating in Indiana Early Childhood Higher Education Inventory, by Age Group and Degree Program
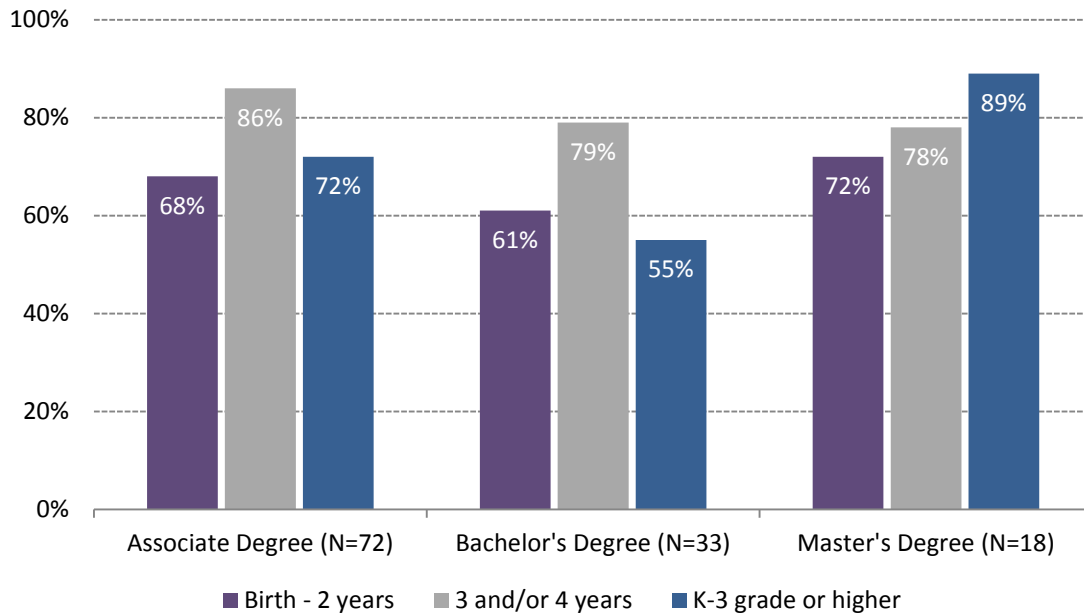
Faculty Experience in Teaching Early Math, and Interest in Professional Development

Faculty members were asked whether they had taught early math content related to 13 topics in the past two years. All early math topics were taught by at least 60 percent of faculty members at all degree levels with a few exceptions. Associate and bachelor's degree faculty members were less likely to report teaching "supporting English learners in developing mathematical knowledge as they concurrently acquire English" (42 percent of associate degree faculty, 36 percent of bachelor's degree faculty). In addition, approximately one-half of bachelor's degree faculty members reported teaching "operations and algebraic thinking for children," "geometry skills for children," "creating a mathematically rich environment," and "assessing children's mathematical developments."

Using a Likert scale of 1 to 5, with 1 being "no interest" and 5 being "very interested," faculty members were asked to rate their levels of interest in professional development on 14 topics related to early math. Master's degree faculty expressed less interest in early math

professional development topics than their counterparts in associate and bachelor's degree programs. The topics of most interest to faculty members at different degree levels were:

- Creating a mathematically rich learning environment,
- Strategies to help practitioners who struggle with mathematics build confidence in their ability to facilitate children's mathematical understanding and skill,
- Integrating mathematical understanding and skills in all aspects of curriculum,
- Integrating mathematical understanding into children's daily activities,
- Assessing children's mathematical understanding, and
- Teaching practitioners to create mathematically rich environments for young children.

DISCUSSION AND RECOMMENDATIONS

Below, we outline an approach to strengthening early childhood workforce development in Indiana with an emphasis on higher education. We identify four discrete elements, which together constitute a strategy for aligning the current system with 21st-century expectations. The success of this approach requires ensuring that its various components be implemented in unison, and that a research agenda be developed for measuring progress and challenges over time, and for learning more about the depth of instruction delivered in higher education programs. This approach is predicated on identifying new resources from state, federal, and philanthropic sources, as well as reallocating a portion of existing revenues for quality improvement and workforce system development.

We call upon policymakers, philanthropists, higher education faculty and administrators, advocates, teachers, and other stakeholders across the state to advance the following approach:

1. Unify expectations and pathways for early childhood workforce preparation

Findings from Inventories conducted in other states suggest that when states intentionally redesign their certification systems for early childhood educators, the higher education system adjusts by making changes in required course content, age-group focus, and field-based practice as appropriate. This has been the case in Indiana and other states that have established well-articulated certification standards that apply to early childhood teachers working in public preschool settings. These standards, however, affect only a limited segment of the workforce because they do not extend to early childhood teachers and administrators working in other settings or with younger children.

To erase the divisions in professional expectations and preparation across and within age groups in the birth to eight age spectrum in line with the Institute of Medicine recommendations (IOM & NRC, 2015):

- Initiate a process to establish a more uniform system for certifying teachers, administrators and other practitioners across age groups and auspice throughout the state.
- Provide clear roadmaps to identify whether the course of study is intended to prepare them for the demands of teaching young children and/or for leading ECE programs, or whether the course of study is designed for other purposes.

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2. Strengthen program content and equity across the age span

Many ECE stakeholders emphasize relying on research evidence to guide ECE policy and practice, yet our findings suggest an uneven application of such evidence across multiple domains of early learning and development for children, from infancy through the early elementary grades. In particular, course content and field-based experiences related to working with infants and toddlers were most likely to be excluded from Indiana early childhood degree programs, compared to those for preschool age-children. Additionally, the increasing diversity of Indiana's population suggests a need to prepare teachers to work with a diverse population of children.

To strengthen required content in order to align with research evidence on child development and teacher preparation, and to equalize required content for all children across the birth-to-age-eight spectrum:

- Engage faculty groups representing different degree levels and types of institutions, as well as other experts, to develop program content standards and/or faculty professional development, beginning in the following areas:
    - children's mathematical understanding from infancy through the early elementary grades, with a focus on children who are dual language learners;
    - teaching methods (pedagogy) for children across the birth to age 8 continuum;
    - infant development and learning across multiple domains;
    - working with children who are dual language learners; and
    - working with children and families from diverse linguistic, racial/ethnic, and economic backgrounds.

To strengthen the application of field-based learning experiences:

- Engage faculty groups representing different degree levels and types of institutions to develop degree program standards for the timing, frequency, and duration of field-based experiences, differentiating between experiences for pre-service and in-service students, and offering opportunities focused on children from infancy through preschool, and children from diverse backgrounds.

3. Build a Leadership Pipeline

In Indiana, principals working in public K-12 settings must earn a master's degree or higher from an accredited institution, complete an approved program in Building Level Administration, and pass the approved content licensure exam. Qualifications for directors or administrators in early childhood settings are much less rigorous and vary across auspice and setting. For example, licensed child care center directors are required to have a college degree plus at least 15 college credit hours in early childhood education and experience working in

early childhood development settings, but they are not necessarily required to earn the Indiana Early Childhood Administrator Credential. Mentors and coaches in K-12 are typically drawn from the teaching ranks and receive specific training (Isner et al., 2011), while there are no widely applied qualifications for mentors and coaches working with teachers of younger children. Further, although K-12 administrators may have oversight of public preschool classrooms and teachers, they are not required to have any early childhood-related training or education (Whitebook, 2014).

The Indiana Early Childhood Administrator Credential identifies the specific skills and knowledge needed for common leadership roles in ECE and many degree programs reported offering coursework that applied to the Administrative Credential. Nonetheless, the Inventory revealed limited coursework focused on early childhood administration and leadership that was routinely offered to prepare practitioners for early childhood supervisory, administrative or other leadership roles.

To create a better-defined leadership pipeline:
- Identify the appropriate course of study and degree level (lower division, upper division, graduate) for each leadership role, based on the specific skills and knowledge identified above; and
- Ensure an adequate number of degree programs at both the graduate and under-graduate level that offer the appropriate course content.

In addition to gaps in course content related to leadership development, the demographics of the faculty participating in the Inventory indicate an aging faculty workforce that is primarily White/Caucasian and English-speaking.

To increase the diversity of the ECE faculty:
- Investigate strategies used in a variety of disciplines (e.g., health, education, social welfare) to develop a minority faculty development program, such as a fellowship, to increase minority representation among faculty.

4. Increase faculty support

Early childhood degree programs in Indiana rely heavily on part-time faculty and report being under resourced and require additional support to allow faculty members to engage in program assessment, planning, and modification, as well as opportunities for faculty to engage in their own professional growth in response to new developments in the field and changing characteristics of the populations they serve.

To decrease the reliance on part-time faculty in ECE degree programs:
- Identify the number of full-time faculty positions necessary, to allow for adequate advising and time with students;

- Calculate the costs associated with a proposed increase in full-time ECE faculty positions; and
- Propose strategies for securing potential sources of public and private funds to address the faculty staff shortage.

To facilitate improvements in program offerings, and to enable degree programs to engage in revamping or revising course offerings and/or content:

- Ensure adequate resources, including funding, staffing and dedicated time for program planning and improvement; and
- Ensure adequate resources and articulated expectations for individual faculty professional development. Opportunities should be targeted to needs identified by faculty and gaps in faculty expertise identified by program leaders.

Concluding Thoughts

Calls for an integrated system of early learning for all young children rest upon an understanding of the critical importance of the early years, beginning at birth and extending through the first years of elementary school. But the early childhood service system and infrastructure, of which higher education is a cornerstone, is poorly integrated, ascribing differing expectations for teacher preparation across this age spectrum, and assigning different resources to teachers. This report provides a portrait of Indiana's early childhood higher education landscape amidst efforts to invest in, strengthen, and coordinate early childhood workforce development efforts. A strong preparation system for Indiana's early childhood teachers and administrators is central to these efforts aimed at ensuring that all young children in the state have access to effective early learning experiences.

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