

***“It’s all over the map”*: A Report on Nature-Based Early Childhood Teacher Preparation Programs in the United States**

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ABSTRACT

In the United States, early childhood programs inclusive of nature experiences for young children vary widely in terms of time spent outdoors; purpose of the program, approaches to use of the environment, curricular aims and support of young children’s development¹. A commonality across many of these early childhood programs available in the United States is their focus on nature as a context for learning and play, some with an intentional approach to teaching about the environment, and, less commonly, to overtly engage with early childhood education for sustainability (ECEfS). The early childhood years are seen as a critically important time for learning, as well as for development of pro-environment behaviors and dispositions (Chawla & Derr, 2012), underscoring the importance of nature-based early learning.

Keywords: nature-based education, early childhood education, teacher preparation, professional development

As reported by the North American Association for Environmental Education (2020), the number of nature-based early childhood education programs has increased twenty-five-fold since 2017. Despite this increase in the number of early childhood education programs with an intentional focus on nature-based learning or sustainability, teacher preparation programs in the United States are slow to meet the demand for skilled professionals with the appropriate disciplinary expertise, or the values and dispositions necessary to engage with issues concerning sustainability and the environment. All of these are thought to be necessary for teachers’ engagement with today’s pressing environmental concerns (Evans, Stevenson, Lasen, Ferreira, & Davis, 2017). A 2021 report published by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) recommended that preservice and inservice teacher preparation programs should support teachers’ development of the knowledge, skills, and pedagogical strategies necessary to effectively address issues of climate and environment in the classroom-at every level of education.

Young children are curious about, invested in, and deeply engaged in questions about the natural world, their future, and their lived experience (Davis & Davis, 2021), yet initial teacher preparation programs in the United States also generally lack an intentional approach to supporting this part of children’s learning and development (Merritt, Archambault, Hale 2018), despite a clear need. While there are great many higher education programs available to those who wish to become early childhood educators, the vast majority of programs, coursework and degrees on offer in the United States are grounded in more “traditional” content, despite growing interest in and support of nature-based approaches to early childhood education. Universities and colleges’ approaches to nature-based early childhood education (NbECE), or education for sustainability (EFS) in teacher education, when present at all, are varied. Typical foci of early childhood teacher education programs focus on child development, academic growth, observation and assessment of young children, as well as health and safety. At this time, the concept of education for sustainability, the environment, and its role in the lives of young children, remains at the margins in

¹ For a description of some of the major differences and characteristics to nature-based approaches in the United States, see Bailie (2012); Finch and Bailie (2015); Larimore (2016; 2018); and Sobel (2014).

the majority of early childhood teacher preparation programs (Ernst, 2014) in the United States.

In an effort to better understand trends, needs, and the current landscape of nature-based and sustainability-oriented early childhood education (ECE) coursework in higher education settings, a group of individuals (known hereafter as “the survey team”) affiliated with the professional organization Natural Start Alliance/North American Association for Environmental Education constructed a survey in 2017 to gather baseline information related to preservice teacher education in college and university settings around the United States. The ultimate purpose of the survey was to explore *what opportunities exist for professional development and preservice teacher education around nature-based early childhood education* and further, to establish baseline information on the state of NbECE/ECEFS teacher preparation in higher education in the United States, as well as to identify potential areas for advocacy and growth.

The term “nature-based early childhood education” was used in the survey since it more broadly applies to the range of teacher preparation activities identified in the survey. The author acknowledges that there are many differences between *nature-based early childhood education* and *early childhood education for sustainability*, and justification for the language choice follows later in the paper. Results from the survey shaped the direction of a day-long convening at the Natural Start annual conference in New Hampshire in 2019, in order to facilitate exchange of ideas, resources, challenges and opportunities. A facilitated discussion resulted in shared action steps and affinity group formation. This paper shares the results of the preliminary survey.

Literature Review and Methodology

It is widely accepted that Earth’s climate is facing many catastrophic challenges. From ocean acidification to biodiversity loss to deforestation to an increase in extreme weather events, it seems no place on the planet is immune to the effects of climate change. One of the most powerful tools humans have to turn the tide on these impacts is education. As people learn more about their role in climate change and the interdependence of all Earth’s beings and systems, they will be better equipped to compel change in their own behavior, as well as their local communities and beyond. The United Nations, in drafting the Sustainable Development Goals in 2013, acknowledged the importance of Quality Education, naming it the 4th of 17 goals established to ensure a sustainable future for all. The United Nations Framework Convention on Climate Change (UNFCCC) has called for non-governmental and governmental agencies to support education across all sectors, recognizing that a literate citizenry is key to combating climate change and maintaining hopes for a sustainable future.

In addition to acknowledging the need for a populace who is engaged in caring for the Earth and acting on its behalf, educators who respond to young children’s lived experience and questions are engaged in a form of constructivism, which is a common and well-respected approach to early childhood education (ECE) in the United States. Constructivism, an approach used commonly in ECE in the United States recognizes experience as central to learning and development. Some teachers recognize that legions of children across the US are experiencing the effects of climate change even now: through extreme weather events, water scarcity, excessive heat etc. and aim to acknowledge children’s lived experience in ECE settings. Furthermore, many educators are themselves curious about the natural world and the many affordances it offers for play and learning, viewing it as a resource for supporting pedagogical aims (Ernst, 2014).

Early childhood teacher preparation programs vary throughout the United States. Even within states, those individuals wishing to teach young children can choose from a number of higher education pathways: 2 year degrees, known as Associate degrees, or 4 year degrees from private or public institutions. There are also a number of certificates, credentials and endorsements available to those wishing to educate young children. Some programs require additional teaching licenses of their staff. Furthermore, the settings in which early care and education are provided vary greatly as well. Rooted in historical foundations of social care, child welfare and education, early childhood programs often provide full-time or part-time care, and settings can be home-based, located in school districts, community centers, and may be corporate- or privately owned. For this reason, preparation of staff also varies, since even within states, there is some leeway for individual settings to establish their own requirements for training, education, and credentials. Most states have a set of guidelines that dictate what children of a certain age

should know and be able to do by the time they reach kindergarten, which is the first year of compulsory education in the United States. Most children entering Kindergarten are age 5 or 6 years old. In order to work with young children, most educators in the United States must possess some level of higher education. Among the many certifications, credentials, licenses and other documents in the field of early childhood education, there exist a handful of certificates that can be obtained. These certificates generally consist of several to many hours of coursework or training, and may or may not be associated with higher education institutions. Certificates acknowledge the recipient has completed a certain number of courses, hours of training, etc. but these are granted by organizations individually, and while there is an accrediting body that approves academic certificates in some states, many professional development providers grant their own certificates, with little oversight from federal or state education agencies.

In the United States, teachers desiring to work with children aged birth-8 years old have a number of education options for preparation. Many choose to pursue higher education, but options are wide-ranging and vary from state to state, institution to institution. At the time of this writing, according to the National Association for the Education of Young Children (NAEYC), there are approximately 1300 Associates degree programs, which typically take two years to complete, 1069 Bachelor's degree (4 years, public or private institution) programs, 612 Master's degree programs (typically 2 years, post Bachelor's degree) and 84 terminal (Doctoral) degrees throughout the United States. The NAEYC is an organization committed to ensuring high-quality early care and education, and its work focuses on connecting policy, practice, and research. (2020)

Some states require teaching licenses in addition to degrees, although even within states, licensing requirements vary from site to site, provider to provider. As such, there are few unifying standards that are present in all early childhood education preparation programs. The NAEYC has provided "Professional Standards and Competencies for Early Childhood Educators" (2019); meant to be a framework or set of guidelines for what early childhood educators should all know and be able to do regardless of which teacher preparation program they complete. These recommendations are intended to guide local policies, programs, and/or educator professional preparation programs. How (and if) they are adopted, and by which programs, licensing organizations, and states, is inconsistent across the United States. Nevertheless, NAEYC is considered by many in the early childhood education profession as the "Gold standard" and is very highly regarded by those in the profession, whether or not the state in which their program exists has used the NAEYC standards in its framing, assessment, and licensing of early childhood programs.

As one might expect, this variation in the accessibility, availability, content, and requirements of professional education programs means that there is no national curriculum for young children, as there is in some other countries. Commonly, US teacher preparation programs include practica-hours spent in classroom settings observing the behavior and interactions of young children. These opportunities are seen as critical to the development of teachers of young children. As coursework from program to program varies so much, it's challenging to determine which programs include opportunities for students to complete practicum hours outdoors or in sustainability-focused or nature-based settings, however many institutions do require practicum hours spent inside classrooms, observing and assessing children's behavior and gaining valuable experience.

The structure of the paper is as follows: the survey design will be presented in the next two sections, followed by a discussion of the findings from the survey and next steps. A discussion of the survey limitations and thoughts about next steps will conclude the paper.

Survey design

The following steps were completed as part of the survey design and implementation:

1. Conduct preliminary literature review to ensure the survey would close some gaps in understanding or research
2. Design the survey to identify basic demographic information; identify the variety of contexts in which nature-based early childhood education figures in teacher preparation programs, including by whom,

where, and to what extent; and to provide space for those working in teacher preparation to voice their opinions, express any identified needs for the field, and begin to build a network of teacher education professionals engaged in this work

3. Obtain clearance from Hamline University's Institutional Review Board to conduct web-based research through the use of Google forms
4. Distribute the survey to networks of teacher preparation providers, using contacts provided by the research design team and administrators at Natural Start/NAAEE
5. Perform qualitative analysis of data, searching for emergent themes. and
6. Summarize and share results at a "Higher Education Summit" at the Natural Start Conference, in Manchester, New Hampshire, in the summer of 2019.

This paper shares the results of steps 1-5.

The aim of the survey was to better understand the ways and means by which teacher preparation programs throughout the US are addressing nature-based learning and its role in young children's development and education. A representative of the Natural Start Alliance, an organization of the North American Association for Environmental Education, approached the author of this paper and requested the development of a survey to not only determine the state of NbECE in teacher preparation programs throughout the United States, but to also identify any needs or opportunities by which it, as an organization, could support the field of teacher education more broadly. It was suggested that determining the current opportunities for teacher education and professional development would be an appropriate first step—a baseline of information from which to learn more. Importantly, the survey needed to provide a baseline from which future surveys could springboard. The preliminary review of literature indicated a wide range of teacher education programs throughout the region, few of which articulated explicit nature-based education on their website or other marketing materials. This information helped to structure the survey structure and questions.

The design of the survey was established with the understanding that it would be shared with a network of early childhood education professionals, many of whom were familiar with the concepts of ECEfs or NbECE. From the beginning, the intention was to share the survey via Google forms with known networks of educators involved, however tangentially, in teacher preparation and who had some connection to or interest in NbECE or ECEfs. The surveys were thus delivered via links provided in email sent from planning team members to individual networks, social media platforms, Natural Start website and news updates, the North American Association for Environmental Education website and other relevant web-based channels. To incentivize participation, respondents could choose to leave their name and contact information to be entered into a drawing to receive free conference registration at an upcoming Natural Start conference.

The survey team conducted a review of higher education programs either known to be or suspected to be offering NbECE training and education for teacher candidates. The design team looked at schools of education that offer Bachelor's degrees, Associates' degrees, and Masters' degrees in early childhood education, early childhood studies, as well as licensure in early childhood and primary grades education. Additionally, two-year programs, certifications in early childhood education or related programs were also reviewed. It was important for the purposes of this study to cast a wide net. Given the variety of settings and contexts in which early childhood teacher education is available, the survey language was intended to encompass any and all opportunities for teacher candidates to learn more about nature-based learning, sustainability, etc. Thus, the following caveat was included in the introduction to the survey: *For purposes of this survey, we are interested in programs or courses which fit broadly into our understanding of nature-based early childhood education and may include the following terms: "early childhood environmental education," "early childhood education for sustainability," "place-based early childhood education," "early childhood special education," "early childhood education." Again, we are interested in programs that specifically address the role of nature in early learning.*

Questions were created and several drafts of the survey were reviewed and edited by a team (led by the author) resulting in a final survey draft. The design team aimed to keep the number of questions low to encourage participation. Hence, the final survey consisted of a total of 15 questions:

- 4 Multiple Choice/checkbox questions
- 6 Open ended questions
- 2 ranking questions
- 3 Boolean questions (yes/no, name of state)

There were two optional questions where respondents could provide their contact information and/or the name of their institution.

Results

The survey was completed in October 2017, and was available and being actively shared from then until August, 2018, for a total of ten months. Despite this, only 52 responses were recorded. Possible reasons for the low response rate will be discussed in the limitations section. The survey had 3 sections: Demographics, "Determining the Need" and "Looking Ahead." Questions and results from each section follow.

Demographics

The survey was focused on programs and services, as opposed to individuals and therefore data collected on individuals was limited to title or position held. Specific questions and results for this section were focused on institutions. Questions sought information related to the category of institution, as well as programmatic offerings. A question was included to identify the role of the survey respondent, with no additional personal information relevant to the study.

Which of the following best describes your institution was the first question and sought to capture the variety of educational settings with which respondents identify. Of the 52 respondents, 52% Public 4-year University or college, 17% Private 4 year college or university; 8% PD provider; 8% Community College. Respondents also had the option to specify an alternate setting by choosing "other" and they were given the option of specifying a context. Examples such as "Forest school," "botanic garden," "preschool," and "non-profit education center" were listed, but not all respondents chose to specify what they meant by "other."

In which state is your institution located was the next question. 22 United States were represented and there were 5 respondents not from the United States.

Respondents identified themselves as:

- 52% full time faculty
- 14% adjunct faculty
- 10% non-teaching care provider/director of program
- 4% part time faculty
- "Other"- student, program manager, interpretive naturalist, etc.

Next, respondents were asked ***which of the following, with an explicit focus on NbECE, does your institution offer.*** Bearing in mind the note in the introduction of the survey, we hoped and expected that responses would be inclusive of all of the terms we provided to cast as wide a net as possible and determine the scope of available offerings. Respondents could select as many as apply from a list of options and responses were grouped into the following categories as shown in Table 1. The data in these tables are not broken down into percentages, as some institutions offer more than one context in which NbECE is delivered. Rather, the units shown here are reflective of individual checkmarks submitted in the survey.

Table 1

Responses to the question: *Which of the following WITH AN EXPLICIT FOCUS on NbECE does your institution offer? Select all that apply.*

Educational offering	Individual selection from checklist
Licensure	
Early childhood education	19
Early childhood special education	11
Undergraduate degree (2- or 4- year)	
Environmental studies	8
Early childhood studies	17
Early childhood education	8
Sustainability or sustainability education	6
Graduate degree	
Sustainability or sustainability education	6
Environmental studies	8
Environmental education	3
Early childhood studies	9
Early childhood education	5
Nothing like this is offered at my institution	3
Just courses , no licensure or degree attached to those courses	43
Professional Development (no academic credit) workshops or courses	19
CERTIFICATES	4 2 under development

Determining the need

Questions in this section of the survey were designed to elicit participants' thinking and perceptions of the value and need for coursework or other educational opportunities that are specifically focused on NbECE.

In your personal opinion, is there a need for NbeECE coursework and training in higher education/teacher preparation programs was the first question asked in this section, with 99% of respondents selecting “yes” and 1% selecting “unsure.”

Why or why not was the next, open-ended question. Several responses to this question focused on the benefits to children; their well-being and academic development. A much greater number of respondents described the benefits to their adult students entering the teaching profession, or the challenges they face though these responses tended to be focused more on professional outcomes (i.e., job prospects) than overall well-being such as was suggested for children.

To organize these responses, a process of open coding (Saldaña, 2009) was employed by the author to identify themes and subthemes that emerged within the broader context of benefits to children or benefits to educators. The following themes emerged when analyzing the type and content of responses to this question: Benefits to children, challenges within teacher preparation, and needs of the field. Tables 2, 3 and 4 identify the subthemes along with representative quotes from responses to provide examples of respondents’ thinking along these lines.

Table 2
Responses Related to *Theme 1: Benefits to Children*

<i>Theme 1: Benefits to children</i>	
Subthemes	Representative quotes provided by respondents
Academic learning and/or likelihood to choose a science, technology, engineering, or mathematics-related career	<i>“We need to ensure early connections to learning in nature that will strengthen K8 learning and green career pathways- establish a pipeline from beginning”</i>
Well-being: social-emotional learning, stress relief	<i>“Physical and mental health, social and emotional development, and self-regulation are all areas impacted [as well as increased knowledge of natural science and ecological awareness].”</i>
Stewardship	<i>“Taking care of our planet is critical for us.”</i>
Sense of place and nature connection	<i>“Children and adults need to forge strong sense of place and nature’s relationship to our very existence.”</i>

Table 3
Responses related to *Theme 2: Challenges within teacher preparation*

<i>Theme 2: Challenges within teacher preparation</i>	
Subthemes	Representative quotes provided by respondents
Limited options exist for preservice teacher education or practice	<i>“Coursework is currently limited for NbeECE training, unless you attend conferences annually. “</i>
Not enough faculty prepared to teach about NbeECE	<i>“There is a push to take education outside and into/with nature, but there is very little being taught about how to go about doing that. Nature can’t just be seen as a</i>

	<i>backdrop for education; it has to be seen as one of the many educators.”</i>
NbECE is still too far outside the norms of traditional teacher education	<i>“Despite what appears to be growing interest in this field, most teachers and administrators continue to view NbECE as far beyond their professional comfort zones. The field cannot advance if educators don't know how to proceed.”</i>
The professional benefit to students is not yet clear	<i>“Not only to address the growing interest by families in NbECE, but to provide this workforce with the knowledge base of ECE.”</i>

Table 4

Responses related to *Theme 3: Needs of the [early childhood education] profession more broadly*

<i>Theme 3: Needs of the [early childhood education] profession more broadly</i>	
Subthemes	Representative quotes provided by respondents
Teachers who know how and why to use this pedagogical approach	<i>“The setting in which NbECE occurs is quite different from the traditional classroom. Thus, in order to be adequately prepared to teach in this setting, a different approach to teacher preparation is needed.”</i>
Teachers need to have content knowledge related to environmental literacy/stewardship/sustainability	<i>“Educators need to be able to foster nature inquiries and teach children about environment and the bigger topic of sustainability”</i>
Compliance with laws and policies	<i>“As NbECE expands into existing licensed care facilities, teachers need these credentials and training opportunities to comply with local, state, and federal regulations. If training and coursework is more readily available to traditional early childhood educators, then they are more likely to adopt NbECE practices into their classrooms.”</i>

The question, *if you answered ‘yes’ above, what needs exist within institutions of higher education to better support teacher preparation in NbECE*, was optional. As with the question above, a process of open coding helped the author to identify themes. Four themes emerged: Faculty resources; additional coursework or opportunities for students to learn; institutional support; and practical opportunities for students. Table 4 provides a breakdown of responses for each theme, along with representative quotes for each theme to provide an example of context.

Table 4

Emergent themes in response to the question *what needs exist within institutions of higher education to better support teacher preparation in NbeCE*

Emergent themes	Individual responses grouped within this theme	Representative quotes provided by respondents
Faculty resources (understanding the need, competent/experienced faculty)	18	<i>“Trying to convince [early childhood education faculty] of the value of this, that this is legitimate, that there is space and need for this.”</i>
Additional coursework/opportunities needed	11	<i>“More coursework, observation, placement, and certification programs, as well as a deeper understanding as to why this is both relevant and beneficial.”</i>
Institutional supports (funding/financial accessibility for students, awareness of the value of NbeCE)	13	<i>“Understanding how NbeCE can support critical awareness, equity issues in Education (and other reasons why it’s important). Also methods and experiences (how). To integrate across content areas (not limited to science).”</i>
Practical opportunities for students (clinical settings, study away trips)	11	<i>“Better links between academia and practice”</i>

The fourth question, **thinking about any early childhood education classes or degree programs WITH AN EXPLICIT FOCUS ON NbeCE, how would you describe enrollment over the course of the past 3 years** was a multiple-choice question with the option to supply a custom response by checking “other.” Notably, 40 % of respondents selected N/A-meaning not applicable, suggesting that those respondents either do not have access to enrollment data, or possibly that they perceive that their classes or degree programs do not have an explicit focus on NbeCE (see Fig 1).

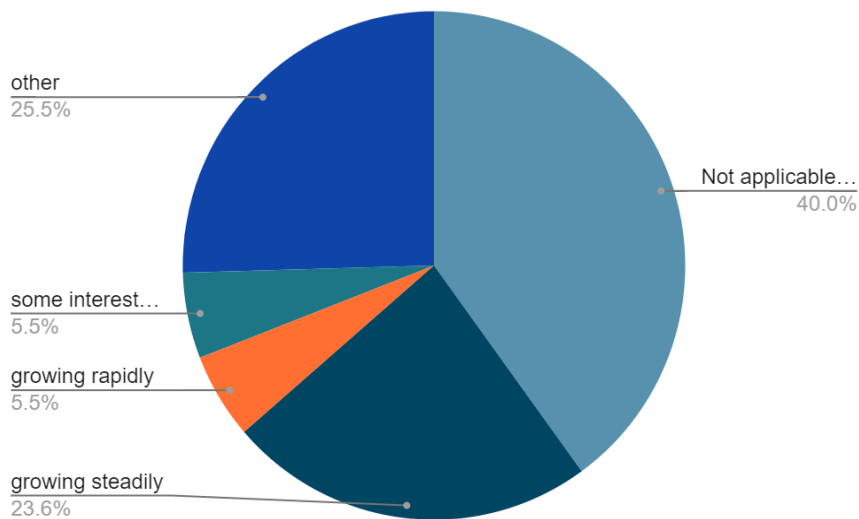


Figure 1. Responses to “Thinking about any early childhood education classes or degree programs WITH AN EXPLICIT FOCUS ON NbeCE, how would you describe enrollment over the course of the past 3 years?”

The final question in this section was a ranked scale: *if your program/institution offers specific NbECE coursework, how would you rate the INTEREST in these courses over the past 3 years?* Approximately, 85% of respondents indicated some to extreme student interest in the courses.

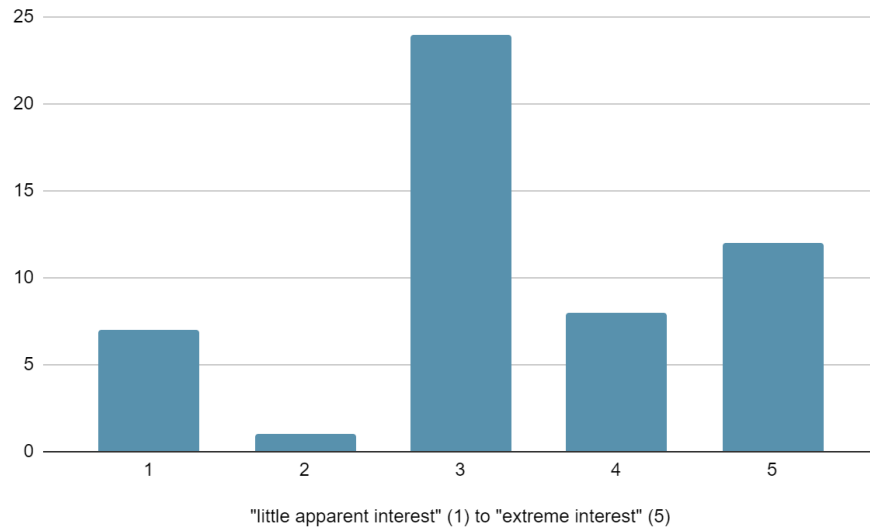


Figure 2. Responses to “How would you rate student interest in NbECE courses?”

Looking ahead

The aim of this section of the survey was partially to gather information about participants’ views toward creation of a national accreditation or credential for NbECE.

What can institutions of higher education do to better support the NbECE community was the first question and was also optional. Individuals could include one to many items in their responses, so many respondents listed several suggestions, while some provided only one. Overall, the prevailing themes were related to offering more coursework or professional development opportunities, and increasing visibility or promoting the profession. Suggestions that were offered more than once but fewer than 5 times were grouped into the following themes: create partnerships with organizations or programs doing NbECE; reduce tuition costs, influence policy to increase NbECE in local communities; help students find jobs in the field.

Table 5

Emergent themes related to the optional question *What can institutions of higher education do to better support the NbECE community?*

Emergent themes	Individual responses grouped within this theme	Representative quotes
Offer more coursework or Professional development opportunities	22	develop & share course [curricula], find ways to offer NbECE field experiences,
Increase visibility for the profession and NbECE	9	create bridges with local early ECE settings so graduates are connected with job opportunities

The next question was required, and it was a yes/no/maybe question. *If there were a national certification or credential for NbECE, would that be a valuable contribution to the field?* To which 59.6% of respondents selected yes, 3.8 % selected no, and the remaining 36.5% said maybe.

If there were a national credential for NbECE, would that be a valuable contribution to the field?

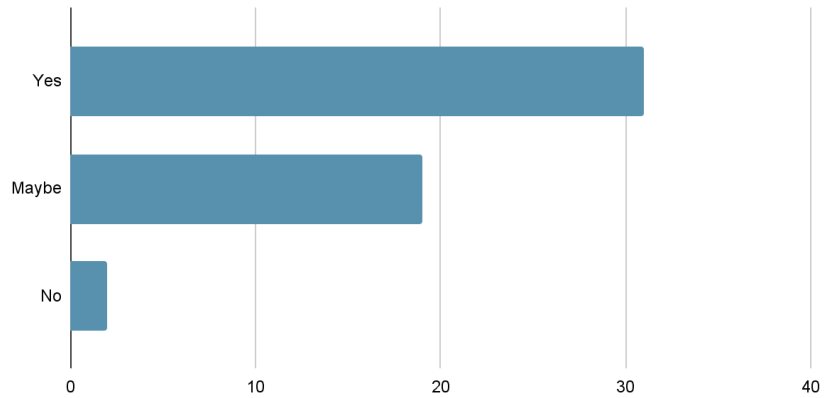


Figure 3. Visual representation of question “*If there were a national credential for NbECE, would that be a valuable contribution to the field?*”

Many of the respondents to question #2 chose to elaborate on their responses in the next question, which was an open-ended, optional question: *why or why not?* Respondents who selected any of the options (yes, no, maybe) to question 2 were invited to share their thoughts. The themes that emerged upon review of the responses were grouped into two major categories: why and why not. In the why category, the subthemes that emerged were: benefits to children, visibility and legitimacy for the discipline, the growth in the number of NbECE-focused settings suggests a need; and the benefit to preservice and inservice teachers.

If there were a national certification or credential for NbECE, do you think the demand among students would be....

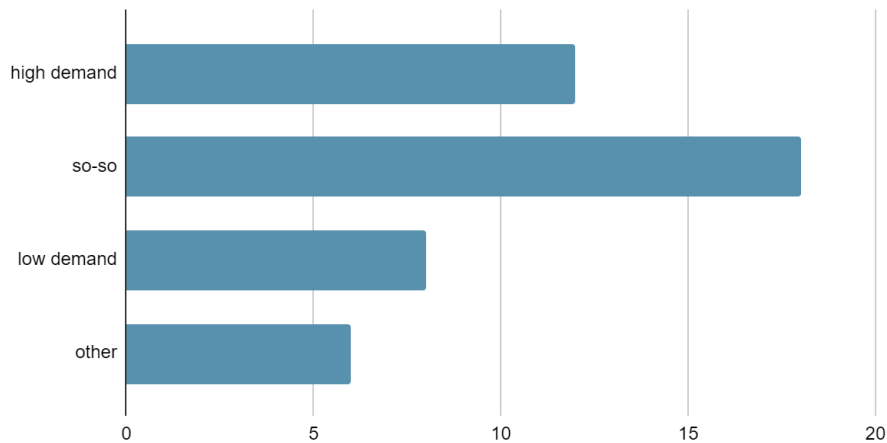


Figure 4. Visual representation of the question: *If there were a national certification or credential for NbECE, do you think the response from students would be....*

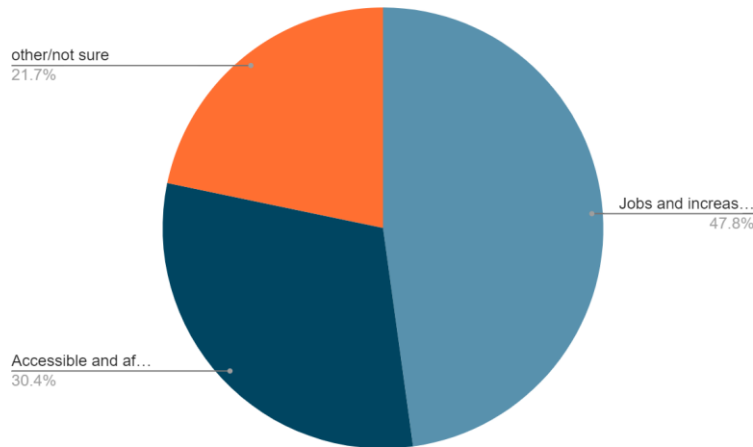


Figure 5. Responses to "What would make a national credential appealing to students?"

Discussion

The survey provides a clear, albeit limited, picture of the many barriers to any unified understanding of how best, and indeed whether to deliver NbECE within teacher education programs. While respondents were generally interested in the topic, and willing to share feedback as the responses indicate, there are divergent rules, regulations, certifications and policies present in every state and often within states. As expected, the survey, despite its limitations, provided important insight into multiple issues and opportunities concerning NbECE in the United States. It highlighted a growing interest in the field of NbECE and a desire among many in teacher education to support preservice and inservice teachers' skills and confidence in this area. It further elucidated a clear need for structural supports within institutions of higher education including faculty who are skilled and competent in this area, a need for greater visibility of the benefits of NbECE, and also an awareness of the many barriers to participation and access to coursework and training in NbECE among institutions of higher education for interested preservice or inservice educators. There was also a clear need expressed by respondents to collaborate or work with state agencies that are involved in licensing of educators and also program sites, as well as to be more actively involved in helping students find practical experience and jobs.

Awareness of these issues will help those who teach and conduct research in early childhood teacher education, environmental education, or education for sustainability, better understand the experience and perspective of many of their colleagues. The perspectives gleaned from this survey will hopefully help to guide future questions for research and development of teacher education programs or credentials that focus on NbECE.

Limitations

There are numerous limitations of this survey; including small sample size, survey design, and ambiguity in some of the questions. In spite of this, however, it has offered a valuable baseline of knowledge related to the presence and potential for NbECE within institutions of higher education. As a reminder, the original purpose of the survey was to determine *what opportunities exist for professional development and preservice teacher education around nature-based early childhood education?* The survey team intended to use this information to establish baseline information on the state of nature-based early childhood education (NbECE) teacher preparation in higher education as well as to identify potential areas for advocacy and growth.

Small sample size. Despite being open and accessible for 10 months, the survey only received a total of 54 respondents. This is most likely due to the means by which the survey was shared: the link for the survey was disseminated from within the popular Natural Start organization to individuals already working within higher education, and who had expressed or demonstrated interest in NbECE within higher education. Individuals within those networks were asked to share the link with their networks, many of whom are already involved in or interested

in NbECE within higher education. As a result, the survey respondents already likely had some “buy-in” to the topic, resulting in a limited picture of the topic. It would be helpful to have responses representing higher education more broadly. In the future, the survey will be shared with a wider audience, including higher education institutions that aren’t necessarily already involved with NbECE to any significant extent. There are also several national organizations (including the National Association for the Education of Young Children) that could be tapped for support in disseminating the survey more broadly throughout the field of early childhood researchers and practitioners who likely have important insights to these issues.

Survey design. The number of open-ended questions provided in the survey allowed for thoughtful and reflective responses, which offered a glimpse into many different perspectives and ideas about NbECE in teacher preparation. The nature of these sorts of comments demands individual analysis and is subject to the author’s interpretation, bias, and presuppositions. Moreover, the coding process used in analyzing the survey results is just one possible approach to interpreting the data (Belotto, 2018; Mazeley, 2009). A future version of the survey could include fewer open ended questions to eliminate or reduce bias, increase validity and credibility. More closed-ended questions would also provide for more concrete analysis of results.

Ambiguity. The original purpose of the survey was to establish baseline information on the state of nature-based early childhood education (NbECE) teacher preparation in higher education as well as to identify potential areas for advocacy and growth. However, as described in the introduction to this paper, “nature-based” early childhood education is defined very broadly across the field of early childhood education, and can—and often does—include many possible ways to support and respond to children’s relationships with the environment. As was shared with all respondents, in the beginning of the survey, “for purposes of this survey, we are interested in programs or courses which fit broadly into our understanding of nature-based early childhood education and may include the following terms: *early childhood environmental education, early childhood education for sustainability, place-based early childhood education, early childhood special education, early childhood education.* Again, we are interested in programs that specifically address the role of nature in early learning.” While the survey team tried to be explicit about the multiplicity of program types, it is possible that respondents interpreted these terms differently.

The limitations identified herein will help to guide further development and refinement of the survey in order to more effectively collect data in future iterations.

Conclusion

While this survey and analysis process is not without its limitations, it has provided important fodder for continued investigation of the original question *what opportunities exist for professional development and preservice teacher education around nature-based early childhood education.* It offered a glimpse into the perceptions of others working in higher education settings, or who have interest in how teacher preparation programs are engaging with NbECE. Analysis of the survey results further suggested ways to refine the questions, reach a broader audience, and ultimately provide more information about the presence of NbECE in teacher education, needs of the profession, as well as barriers and challenges that exist. Ultimately, the field of early childhood teacher education will benefit from a better understanding of the nuances outlined in this paper, suggesting value in refining and repeating the survey.

Perhaps not surprisingly, the results of the survey underscore the fact that with teacher preparation programs in the United States, there is great variation depending on a wide range of factors; location, workforce availability, perceived value of NbECE skills and experience, employment prospects, and local, state, regional and national guidelines and regulations. Despite these differences, at least among the survey respondents, there is generally support for this discussion and a recognition that it is an important topic for the profession and for teacher education programs throughout the United States.

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