# Investigating the Value of Colorado Alliance for Environmental Education Certification: Motivations, Obstacles, Outcomes, and Suggestions

A THESIS

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**Abstract**

Educators and scholars consistently revisit, revise, and reflect on the best methods to implement environmental education and prepare educators to be effective environmental educators. The North American Association for Environmental Education (NAAEE) works to professionalize and improve the field of Environmental Education (EE) by creating standards, including guidelines specifically for preparing environmental educators in training and educational settings. Colorado Alliance for Environmental Education (CAEE), an affiliate of the NAAEE, offers a competency-based certification program framed within NAEEE's guidelines. EE certification is a voluntary pursuit of increasing competence, confidence, and knowledge in environmental education. The value of certification has yet to be fully realized, with limited research investigating the outcomes of environmental education certification programs. This study utilizes a non-experimental mixed-method design to investigate the value of the CAEE certification program. Through survey research, the results in this study indicate that individuals are motivated differently to participate in certification and that individuals at later stages in their careers may be more intrinsically motivated. Furthermore, participants identified overall positive outcomes of participating in certification at all stages of one's career, and this study identifies specific benefits. Lastly, the study provides a list of suggestions for the CAEE based on participants' experiences and obstacles to increase the value of their certification program.

## Introduction

Environmental education serves as a field of study seeking to address the growing ecological crisis by producing more environmentally literate and conscious citizens (North American Association for Environmental Education, n.d.). Environmental education (EE) is a generally well-established transdisciplinary discipline. However, in many cases it still needs to be institutionalized to reach consistency in implementation.

Some scholars and educators debate the role of standardization within environmental education training and implementation, specifically how or if it should be encouraged or enforced (MacDonald, 1997). They argue that standardization may lead to the loss of educator passion or a decreased integration of affective teaching (Dobrinski, 2011; MacDonald, 1997). However, many scholars and educators (e.g., May, 2000; Heimlich et al. 2004) have agreed and acknowledged the importance of environmental educators holding specific pedagogical skills and environmental content knowledge to teach EE successfully. In 2000, Theodore S. May identified various elements that contribute most to effective EE by interviewing 18 experienced environmental educators (May, 2000). He discovered that teaching conditions, teacher competencies, and teaching practices all contribute to the success of environmental education implementation (May, 2000). The competencies were identified as skills that were specifically important to teaching environmental education such as listening and questioning skills, creativity, and understanding of local and global connections. The various practices also included EE-specific practices, including experiential teaching and promoting a sense of place (May, 2000).

Though May has studied the importance of educators holding various prerequisite skills to teach EE successfully, most states have not implemented standards for pre-service EE

teaching. Currently, some states, such as Kentucky, require teachers to teach specific environmental-related content standards; however, many state legislatures and school mandates have yet to fully adopt standards to prepare pre-service teachers to teach about such standards (Heimlich et al., 2004). Heimlich et al. (2000) assessed the status of environmental education in pre-service teacher education programs in the United States. They found that out of the 446 institutions that responded, about half of the pre-service teachers are exposed to environmental education training. In the programs that offer exposure to environmental education, two-thirds self-ranked the programs as poor to adequate (Heimlich et al., 2004). Pre-service teacher training serves as only one channel in which environmental education is taught; however, the lack of preparation provided to teachers is essential in contextualizing the training opportunities for all environmental educators.

Many environmental educators teach in non-formal educational settings. In these cases, professional development opportunities and other extended educational opportunities (like certification) are important in understanding how to best prepare educators to teach environmental education. Environmental education certification is a voluntary pursuit of solidifying and gaining knowledge in EE and has yet to be extensively researched (NAAEE, n.d.). This study seeks to contextualize and understand the role of certification in preparing environmental educators to implement environmental education.

## Literature Review

### Professional Certification

Professional certification is “a process by which individuals receive recognition for their knowledge, skills, and competency in a particular specialty from a professional organization or external agency” (Cumberland et al., 2018, p. 58). Although “certified” and “licensed” are

sometimes used interchangeably, certification is not required to participate in one's profession. Licensure, however, is administered by a political or governing body and is legally required to attain to practice certain professions (such as lawyer, doctor, and public-school teacher) (Fertig et al., 2009; Wiley, 1995). Licensure also measures competencies; however, certification is voluntary (Wiley, 1995). Certification is growing among many professions, specifically project management, human resource management, and project management (Blomquist et al., 2018).

**Motivations to Pursue Certification**

Identifying the motivations for pursuing certification prove helpful for certifying organizations to understand who participates in certification and why. Furthermore, understanding the motivations for pursuing certification may contextualize the efficacy of certification. Generally, those who pursue certification for intrinsic or internal reasons may be more willing to apply what they learned or more readily accept changes (Fertig et al., 2009).

Types of motivation are often discussed through Self-Determination Theory, which identifies the intrinsic and extrinsic roots of human motivation (Ryan & Deci, 2000). Intrinsic motivation is generally understood as doing an activity because of purely internal motivation for the inherent satisfaction and enjoyment of the activity (Ryan & Deci, 2000). Extrinsic motivation is generally understood as pursuing an activity for external satisfaction or an outcome separate from the activity (Ryan & Deci, 2000). Ryan and Deci have since expanded on these theories.

Ryan and Deci (2000) state that intrinsic motivation, or internal motivation, stems from an individual's need to be competent. They describe that pursuing an activity for intrinsic motivation becomes increasingly rare as individuals age. Many individuals are motivated for extrinsic reasons; however, they can vary in reason. Ryan and Deci (2000) argue that motivation can be autonomous but varies in the degree to which people have autonomy. Some situations

involve more compliance, fear, or control. The authors present a continuum in which an individual can be extrinsically motivated from “unwillingness, to passive compliance, to active personal commitment” (Ryan & Deci, 2000, p. 60). Suppose someone actively commits to an activity and they have extrinsic regulations pushing them to do that activity, but they also integrate these regulations into their goals and values. In that case, they internalize the reasons for pursuing an activity. This degree of external motivation is called “integrated regulation” (Ryan & Deci, 2000, p. 61). Because pure intrinsic motivation is rare, understanding this specific degree of extrinsic motivation helps contextualize motivations for pursuing certification. Motivations for pursuing certification have been generally identified as extrinsic. However, individuals can autonomously pursue this task and be in a state of internal regulation if it aligns with their goals (Blomquist et al., 2018).

A few studies have examined the motivations, expected benefits, and realized benefits of participating in a certification. Two influential studies include Blomquist et al. (2018) and Carolyn Wiley (1995).

Blomquist et al. (2018) investigated the motivations to pursue a project management certification and the benefits of the certification by surveying groups of project managers in 2004 and 2014. They assessed whether there were demographic differences between the groups and time in motivations and expected benefits. Blomquist et al. (2018) approach their study by describing the main motivating factors and benefits as “Being good,” “Feeling good,” and “Looking good.” Blomquist utilizes Ryan and Deci’s Self-Determination Theory framework to analyze the motivations and benefits of certification.

Carolyn Wiley examined four associations that have provided certification in human resources since the mid-1970s, explicitly investigating the benefits and potential adverse outcomes of pursuing certification.

**"Being Good."** Blomquist et al. (2018) describe pursuing certification to increase individual competencies as being motivated to "Be Good." This motivator is described as knowing that "a well-established system of certification can develop knowledge and skills of the certificant and the certificant would have a higher level of professional attitude and job performance" (Blomquist et al., 2018). Blomquist et al. frame "Being Good" as a type of extrinsic motivation; specifically, they categorized it as "Identified Regulation" (within the continuum of the Self-Determination Theory), meaning that the individual has identified with the importance of the behavior (Ryan & Deci, 2000). The expected outcomes of "Being Good" are increased competencies and standardization of a profession.

In 2004 and 2014, professional growth and job skill improvement, categorized as "Being Good," were top motivators for project managers pursuing certification in Blomquist et al.'s (2018) study (p. 504). Similarly, in 2004 and 2014, managers identified professional growth and job skill improvement as a benefit more frequently than the other cited benefits (Blomquist et al., 2018).

Carolyn Wiley (1995) describes the primary goals of certification as promoting and measuring competencies and the advancement of a profession. In her study that examined four associations that have provided national certification in human resources since the mid-1970s, Wiley (1995) discovered that participating in the certification process requires individuals to demonstrate knowledge and abilities, leading to a mastery of the profession’s body of knowledge. Fertig et al. (2009) similarly identified that certifications help standardize knowledge

and skill sets and allow employees to identify the appropriate person for a job. Assessments from participating in the certification process provide a worker with helpful feedback in improving skills and knowledge (Fertig et al., 2009), all contributing to an individual's ability to "Being Good" in a profession.

**"Looking Good."** Blomquist et al. (2018) describe pursuing certification to "achieve higher levels of payment, prestige, better career opportunities" as motivators to "Look Good." "Looking Good" recognizes the value of certification to communicate to potential employers and other professionals that the participant has achieved a certain level of competency. "Looking Good" describes the commonly understood definition of extrinsic motivation, in which the activity leads to a different outcome.

In Blomquist et al.'s (2018) study, "Looking Good" was defined as status and power, career progression, and financial gain. These factors were ranked as the lowest motivators for pursuing certification by project managers in both 2004 and 2014. Furthermore, they also were the least identified benefits. However, in 2014, "Looking Good" was experienced as an identified benefit at a slightly higher rate than in 2004, although it was still the lowest among the other realized benefits of certification (Blomquist et al., 2018, p.505).

Wiley's (1995) study identified specific outcomes of certification that align with Blomquist et al.'s framework of "Looking Good," including public and personal recognition of work.

**"Feeling Good."** Lastly, Blomquist et al. (2018) describe the third motivator and benefit of certification as "Feeling Good," which includes self-development and achievement, such as increasing knowledge and skills. This motivator is intrinsic. Achievement and self-development, the two sub-motivators of "Feeling Good," were the highest motivators for pursuing certification

among project managers in 2004 and 2014. Furthermore, "Feeling Good" was identified as the highest experienced benefit in 2004 and 2014 among Blomquist et al.'s study participants. In both motivations and benefits, "Feeling Good" was slightly higher than "Being Good," but both were top motivators and benefits.

Wiley (1995) and Kok (1983) also discovered similar results, stating that participants in human resources certification increased their self-confidence in their professional attitude and exhibited a predisposition to lifelong learning.

**Environmental Education Certification**

Environmental education (EE) certification is a specific type of certification that demonstrates that an individual has met specific requirements, training, and competencies in environmental education. Like other certifications, environmental education certification is not required to participate in environmental education but can be encouraged or promoted by employers or academic programs. Brenda G. Weiser (n.d.) describes the benefits of EE certification to standardize the field by creating a baseline of knowledge and skills, opportunities for professional recognition and growth, and explicitly distinguishing oneself as an environmental educator.

There are currently 13 states that offer environmental education certification. Each program's requirements vary, with some requiring different experiences, courses, and demonstrations of knowledge (NAAEE, n.d.). However, all certification programs exist within the North American Association for Environmental Education affiliate network. The NAAEE, formally the National Alliance for Environmental Education, was founded in 1971 and now acts as a leading EE organization. Among their many initiatives, this organization established the guidelines and a professional network that launched the current environmental education

certification programs (Simmons, 2022). Their affiliate network consists of 49 state associates that work to advance the field of environmental education through expanding professional networks to foster shared learning and advocacy (NAAEE, n.d.).

The NAAEE has sought to implement consistent standards and knowledge within the field of environmental education by creating the National Project for Excellence in Environmental Education. This project, which began in 1994, developed and constantly revise a series of guidelines for environmental education in varying contexts, including community engagement, early childhood, environmental education programs and materials, k-12 environmental education, and professional development (Simmons, 2022).

These guidelines are essential in understanding environmental education certification because NAAEE is a leader in providing EE certifications, and their *Professional Development of Environmental Educators: Guidelines for Excellence* serve as a framework for most EE certification programs.

**NAAEE's Professional Development of Environmental Educators: Guidelines for Excellence.**

First published in 2000 and revised several times later (years), the NAAEE created a set of guidelines and recommendations for individuals and organizations involved in training environmental educators, including pre-service teacher education programs, environmental education courses, and professional development programs (Simmons et al., 2019). These guidelines seek to synthesize information to create a standard within the field (Franzen, 2013). The procedures include 24 competencies categorized into six themes, each describing a knowledge or skill area that should be included in environmental educator training (Simmons et al., 2019).

The NAAEE officially accredits four states (Georgia, Colorado, Kentucky, and Michigan) that offer certification, meaning these programs explicitly meet the criteria outlined in the guidelines (NAAEE n.d.).

**Colorado Alliance for Environmental Education (CAEE) Certification**. The Colorado Alliance for Environmental Education (CAEE) is an affiliated NAAEE non-profit organization offering a competency-based, accredited certification program framed by the NAAEE's guidelines for excellence. The CAEE certification program, unlike many others, involves compiling a portfolio to demonstrate the competencies outlined in the guidelines. NAAEE's guidelines include six themes of 24 competencies, while the CAEE's portfolio requirements include only five themes because CAEE converged NAAEE's fourth and fifth themes into one (CAEE, 2013). The themes required for a CAEE certification portfolio include the following:

- Theme 1: Environmental Literacy (Questioning, Analysis, and Interpretation, Knowledge of Environmental Processes and Systems, Addressing Environmental Issues)
- Theme 2: Foundations of Environmental Education (Basic Understanding of the goals, theory, practice, and history of the field of EE)
- Theme 3: Professional Responsibilities of the Environmental Educators (Exemplary Practice, Professional Development)
- Theme 4: Planning and Implementing Environmental Education (Advocacy vs. Education, Knowledge of Learners and Teaching Methods, Appropriate Environment, Goals, and objectives)
- Theme 5: Assessment and Evaluation (Learner Outcomes and Assessment, Improving Instruction, Evaluating Programming)

The CAEE has historically offered two levels of certification: Master Certified and Certified. For an individual to become Master Certified, they must show evidence for each competency within each of the themes. For an individual to become Certified, they must show evidence that shows an understanding of each of the themes (CAEE, 2013). The distinction between Master Certified and Certified is an expectation of degree and extent of competency. CAEE recently introduced a new lower level entitled Apprentice Certified.

The CAEE offers two deadlines for portfolio submission a year when submitted portfolios are reviewed by The Certification Peer Review Panel comprised of master certified environmental educators using a rubric for the specified level of certification (CAEE, 2013). The panel notifies the participant whether they receive certification within one - three months of submission; if the applicants still need to meet the requirements for specific competencies, they may re-submit their portfolio at any time (CAEE, 2013).

**Existing Literature on EE Certification**

Few studies have explicitly investigated the motivations and outcomes of environmental education certification programs. Two studies focused on the North Carolina EE certification program that requires participants to complete 200 hours of training spread across five criteria (Bennett & Matthews, 2005).

Bennett and Matthews (2005) examined the overall experiences of K-12 educators who participated in the certification process. The study examined the participant's experiences while undergoing the certification process and investigated some obstacles and outcomes of participating. Bennet and Mathews (2005) discovered that the EE-certified teachers "mostly enjoyed the program itself (83%), networking with other environmental educators (15%), and the sense of accomplishment (2%) for having achieved EE certification" (p. 19). Furthermore, more

than half of the teachers said the workshops or specific workshops were the most enjoyable part of the program.

Harrison et al. (2017) investigated the impact of participating in North Carolina's EE certification program, specifically its impact on perceptions of personal teaching efficacy. The study compared personal teaching efficacy scores between certified and non-certified environmental educators and certified and licensed teachers. They found a significant difference in teaching efficacy between the two groups, indicating a link between EE certification and personal teaching efficacy.

**Perceptions of Certification.** Some studies investigated the perceptions of implementing a certification program. Gharis et al. (2018) conducted a study in Wisconsin to investigate how environmental educators perceive a potential implementation of a professional EE certification program. The authors distributed an online survey of 138 participants, asking individuals about certification benefits and challenges, the perceived need for certification, leadership of a potential certification, and costs and timing. Respondents perceived both benefits and challenges to a potential professional certification. The positive outcomes were identified as increasing the professionalism of environmental educators, while the time commitment and accessibility to certification were identified as potential obstacles (Gharis et al., 2018).

Similarly, Dobrinski's (2011)study examined the knowledge that EE educators deemed critical in teaching EE in Canada and any preparation needed to enable more effective implementation of environmental education. Teachers agreed that teacher education programs should have mandatory EE components (Dobrinski, 2011). There was no consensus among participants on the need for implementing an NAAEE environmental education certification program. Participants who thought certification would be an essential additive to EE preparation

had little experience in the field and were non-formal educators (Dobrinski, 2011). Participants identified the recognition of knowledge and abilities as benefits. Some participants worried that certification would "neglect affective elements and favor knowledge abilities," discounting the emotional component of connecting to nature and implementing EE (Dobrinski, 2011, p. 97). The study also pointed out that it was unclear whether certification objectives were intended to increase knowledge or solidify professional ability (Dobrinski, 2011).

**Purpose of Study**

The NAAEE states that,

> Professional certification ensures that individuals are fully prepared for work within a specific field of expertise. Certified environmental educators meet stringent requirements for proficiency in both the interdisciplinary content and pedagogy necessary to develop and deliver high-quality, effective EE programs. (NAAEE, n.d.)

Though there are many ways in which educators can progress their education, I believe that the best way for educators to gain and solidify content knowledge and skills needed to implement EE is through constant re-examination and reflection.

This study responded to the need for more literature related to environmental educator certification, specifically, the motivations, obstacles, and outcomes of pursuing certification. Although two prior studies examined the North Carolina EE certification program, Colorado Alliance for Environmental Education has yet to execute a comprehensive study of the value of its certification. This study investigates the motivations, obstacles, and outcomes of CAEE certification. It provides insight into who benefits most and why and how participants might benefit even more from CAEE's certification program.

This study addresses the following research questions:

1. Who participates in the CAEE certification process and why?
2. What obstacles exist to acquiring certification?

3. What are the outcomes of participating in the certification process, and how might they differ throughout career progression?
4. Which part of the CAEE portfolio is most beneficial, and what changes can be made to make the certification process more valuable?

## Methods

This study utilizes a non-experimental, mixed method design to investigate the value of CAEE certification by identifying who participates in certification and why they participate, what aspects of the certification process participants deemed to be most beneficial, and any professional or personal outcomes participants experienced upon acquiring certification. Survey research was selected to provide qualitative and quantitative data to identify specific motivations, outcomes, and obstacles to achieving and participating in certification.

### Participants

Participants in study comprised 60 environmental educators certified and master certified by the Colorado Alliance for Environmental Education (N=60). The Colorado College Institutional Review Board approved this study in September 2022. Because this study investigated outcomes upon certification, a non-purposeful sample was employed by surveying all individuals who attained Certification or Master Certification through the Colorado Alliance for Environmental Education Certification Program before the survey was administered in December 2022. Honorary Master Certified Educators and Apprentice Certified Educators were not included in this study.

Among the participants, 73.3% identified as female (n=44), 18.3% identified as male (n=11), and 8.3% identified as another gender identity (n=5). Most participants were white (78.3%, n=47), and 6.7% identified as another race, ethnicity, or origin (n=4). Most participants were aged 18-34 (63.2%, n= 38), and 29.9% (n=14) were aged 45-64. The three most common

professions among the participants were program director (13.3%, n=8), PreK-12 teacher (16.6%, n=10), and non-formal educator (31.6%, n=19). Master Certified (n=33) accounted for 55.0% of the participants and 45.0% were Certified (n=27) (Table 1).

**Survey Development**

The survey instrument was created in collaboration with the Colorado Alliance for Environmental Education (CAEE). A preliminary interview was performed with the CAEE Executive Director to discuss any similar prior research, study objectives, and how to create the most effective instrument. After the interview, a first draft of the survey was created and presented to CAEE. A second draft of the survey was created by discussing edits with the CAEE Executive Director and another CAEE member who is well-versed in the certification process. The second draft of the survey incorporated questions from two previously used questionnaires created by the CAEE: The Certification Program Evaluation (Appendix C) and the Focus Group Protocol (Appendix B). Both questionnaires were administered in 2008 as a pilot survey (CAEE, 2008). These pilot surveys had only eight responses.

**Focus Group Protocol (2008).** This questionnaire included ten open-ended questions for a focus group seeking to address the value of the CAEE certification program. No identical questions from this questionnaire were used in this study's survey instrument; however, themes from this questionnaire were used to create new questions that addressed participants' motivations to pursue certification, results of participating (such as professional networking), and resources that helped or hindered participation.

**Table 1.**

*Demographic Profile of Total Sample Population*

| Characteristic | n | % |
|---|---|---|
| Gender | | |
| Female | 44 | 73.3 |
| Male | 11 | 18.3 |
| Another gender identity | 5 | 8.3 |
| Race | | |
| White | 47 | 78.3 |
| Another race, ethnicity or origin | 4 | 6.7 |
| Asian | 3 | 5.0 |
| Black | 1 | 1.6 |
| Prefer not to say | 5 | 8.3 |
| Ethnicity | | |
| Not of Hispanic, Latino/a/x or Spanish origin | 47 | 78.3 |
| Another Hispanic Latino/a/x Spanish origin | 8 | 13.3 |
| Mexican, Mexican American, Chicano/a/3 | 5 | 8.3 |
| Prefer not to say | 2 | 3.3 |
| Age | | |
| 18 – 24 | 19 | 31.6 |
| 25 – 34 | 19 | 31.6 |
| 35 – 44 | 4 | 6.7 |
| 45 – 54 | 8 | 13.3 |
| 55 – 64 | 6 | 16.6 |
| 65 – 74 | 4 | 6.7 |
| Involved with Environmental Education | | |
| Paid | 46 | 76.7 |
| Volunteer | 8 | 13.3 |
| Student | 6 | 10.0 |
| Environmental Educator Experience (Years) | | |
| 0 – 10 | 38 | 63.3 |
| 11 – 20 | 9 | 15.0 |
| 21 – 30 | 6 | 10.0 |
| 31 – 40 | 2 | 3.3 |
| 41 – 50 | 1 | 1.6 |
| NA | 4 | 6.7 |
| Current Profession | | |
| PreK-12 | 10 | 16.6 |
| Non-Formal Educator | 19 | 31.6 |
| College/University Instructor | 5 | 8.3 |
| Program Director | 8 | 13.3 |
| Undergraduate Student | 4 | 6.7 |
| Graduate Student | 4 | 6.7 |
| Other | 10 | 16.6 |
| Current Certification | | |
| Master Certified | 33 | 55.0 |
| Certified | 27 | 45.0 |

**The Certification Program Evaluation (2008).** The final questionnaire included a subset of demographic questions used in the Certification Program Evaluation, specifically those about professional experience. It also included some of the Certification Program Evaluation Likert-scaled questions and two questions that asked participants to rank portfolio themes.

**Final Questionnaire (**Appendix D)**.** The final questionnaire used in this study included themes from the Focus Group Protocol and questions from the Certification Program Evaluation. A third draft was presented and approved by the executive chief and director of the CAEE, with a few final edits. The survey was piloted by the executive chief and director of the CAEE, another CAEE member who is thoroughly versed in the certification process, and one Colorado College professor.

**Survey Instrument**

The online questionnaire was delivered via Qualtrics Surveys. The questionnaire was divided into seven sections: Demographics, Motivations to Pursue Certification, Certification Type, Obstacles in Certification, Experiences in Certification, Outcomes of Certification, and Portfolio Themes. The survey began with 12 inclusive demographic questions, three of which had follow-up short answer questions. The demographic questions were adapted from Harvard University's ORARC Demographic Data Collection (Office of Regulatory Affairs and Research Compliance, 2020).

**Certification.** Although Apprentice certification was listed as an option, no apprentice-certified individuals were administered the survey. The level participants applied for on their first submission determined which questions they received next. For example, if they applied for Certified level, they were asked motivations for becoming Certified, the outcomes of becoming Certified, and if they plan to pursue Master Certified. If they applied for Master Certified, they

were asked if their portfolio met the criteria for Master Certified. If their portfolio did not meet the criteria for Master Certified, they were asked which theme did not meet the criteria and if they planned to re-submit their portfolio. If their portfolio met the criteria, they were asked which themes were most challenging to fulfill criteria and their most important outcome of becoming Master Certified.

**Survey Administration**

After the survey administration received final CAEE approval, the online questionnaire was administered. Participants received an email briefly describing the study purpose and containing a link to the online questionnaire. Participants had the option to remain anonymous, but all participants were provided the opportunity to provide contact information if they wanted to be entered into a raffle or if they would consider a follow-up interview. The first round of surveys was emailed on December 16, 2022, to 164 individuals, including both Certified and Master Certified Environmental Educators. The Colorado Alliance of Environmental Education provided the email addresses of the certified individuals. During the first round of survey administration, 20 emails failed to send, so 144 successful online questionnaires were administered in the first round. A reminder email was sent one month later to all 144 individuals. Among the 20 failed attempts, 15 updated emails were located, and these individuals received an email with a link to the online questionnaire on Qualtrics. These 15 individuals received a reminder email one week later. In total, 159 surveys were administered over a period of six weeks: December 16, 2022 - January 20, 2023. The survey received 70 responses, creating a response rate of 44%. Ten responses were not used because they completed less than 75% of the survey, leaving 60 (38%) total responses used in the data analysis.

**Data Analysis**

The quantitative data were analyzed first, and then the qualitative data was analyzed. After both data were analyzed separately, they were analyzed together to help answer the research questions.

The Qualtrics surveys were then exported to Excel Version 16.69.1. Each multiple-choice question was coded by assigning each choice a numerical value, the first choice (1), second choice (2), and third choice (3). Rank-order questions were ranked as best (5) to worst (1), and Likert-scaled questions on the survey were assigned a number from 1 (strongly disagree) to 6 (strongly agree). Any Likert-scale question that was negatively worded was reverse coded. Nominal variables were labeled with numerical codes for ease of analysis. The imported Excel data were screened to ensure that each participant completed at least 75% of the survey. Participants who completed less than 75% of the survey were not included in the data analysis.

Because the demographic questions offered multiple-choice answers, participants were grouped into various demographic variables to allow for more straightforward data analysis (Table 2). The main demographic variables analyzed are provided in Table 3.
Qualitative data was analyzed through thematic analysis. Five short answer questions from the online questionnaire were coded individually in three cycles. The first cycle identified participants' words and phrases that answered the short answer question. The second cycle grouped similar words and phrases to create codes. The third cycle identified more significant themes that represented the codes. Lastly, to understand the demographic frequencies of how participants answered the short answer questions, each answer was re-analyzed to determine the frequencies of codes within each demographic group, allowing for demographic analysis of the qualitative data. Each answer was categorized into at least one code, but some answers were

categorized into multiple codes because they included different reasons why they pursued motivation in their answer. The demographic analysis was organized using the same demographic variables used in the quantitative data demographic analysis (Table 3).

**Table 2.**

*Methods for Creating Variables for Data Analysis*

| Variables | Code | How Variable was Made |
|---|---|---|
| Type of educator (Classroom/Non-Classroom) | PreK-12 Teacher, College University instructor or explicitly wrote in short answer questions that they taught in a classroom = classroom teacher<br>All other participants = non-classroom teacher | Participants grouped based on their answer of "what is your current profession" |
| Experience in Years as EE Educator | A little = 1- 5 years<br>A lot = 6 > | The median of all participants' answers was found (median = 5), and 5 determined the cut between A Little and A Lot |
| Age | Young = 18 – 24 years<br>Mature = 25 > | The median of all participants' ages was found (median = 34), which determined the cut for Young between Mature |
| Number of Participants Reached Per Year | Some = 0 - 115<br>A lot = 116 > | The median of how many participants per year reached was determined as 115 which determined the cut between Some and A Lot |
| Current Certification | Master Certified<br>Certified | Participants identified which certification they have |

**Table 3**.

*Demographics of Variables Used for Data Analysis*

| Characteristic | n | % |
|---|---|---|
| Age | | |
| Younger (18 – 34 years) | 38 | 63.3 |
| Older: (>35 years) | 22 | 36.7 |
| Type of Educator | | |
| Classroom | 29 | 48.3 |
| Non-Classroom | 31 | 51.7 |
| Number of Participants | | |
| Some (0-115 participants) | 33 | 55.0 |
| A lot (>115 participants) | 27 | 45.0 |
| Experience in Years Environmental Educator | | |
| A little (0-5 years) | 33 | 55.0 |
| A lot (>5 years) | 27 | 45.0 |
| Current Certification | | |
| Certified Master | 33 | 55.0 |
| Certified | 27 | 45.0 |

## Results

This study sought to answer the four research questions stated above. The findings are organized by research question with sub-themes corresponding to each section in the online questionnaire: motivations, certification, obstacles, process, outcomes, and themes. The first research question includes the sub-themes motivations and certification. The second research question includes the sub-themes of obstacles and processes. The third research question includes the sub-theme of outcomes. The last research question includes the sub-theme of portfolio themes. The quantitative data is presented first in each sub-theme, followed by the qualitative data. The quantitative data analysis included describes the analyzed variables (Table 3), and the qualitative data includes the thematic analysis if applicable (Tables 6, 8 and 10). In the discussion, each research question is answered in order by converging the quantitative and qualitative data and analyzing them together.

Generally, quantitative data were analyzed by determining if a group of participants identified experiencing motivation, type of certification, certification obstacles, certification process, or outcomes differently than another (Table 2). The quantitative data results provided a direction for understanding how different groups of participants experienced and benefited from the certification and which parts of the certification were most beneficial or challenging. The qualitative data expanded upon these results by providing insight into why different individuals experienced the portfolio process differently and why some parts of the portfolio are more helpful or challenging.

**RQ1: Who participates in the Colorado Alliance for Environmental Education certification process and why?**

**Motivations.** Following the demographic questions, the second section of the survey asked participants about their motivations for participating in the CAEE certification process (Table 4). When divided into two sections of three items, the scale for each sub-section was reliable. The first sub-scale consisted of Motivaiton4, Motivation5, and Motivation6 ($\alpha$ =.744). The second subscale consisted of Motivation1, Motivation7, and Motivation8 ($\alpha$ =.702). Since the scale reliability for the whole section was relatively low (n=8; $\alpha$ = .58), all possible independent-sample t-tests (40) were conducted to compare the motivation scores for age, type of educator, number of participants, years as an environmental educator, and current certification level. There was no significant difference observed in agreement scores for the type of educator, number of participants, and current certification. There was a significant difference in agreement scores for young-aged participants (M =3.24 SD=1.74) in Motivation4 and mature-aged participants (M=2.27 SD=1.51; t(58) = 2.15, p= .018, two-tailed). The magnitude of the difference in the means (mean difference = .96, 95% CI [.07, 1.85]) was a moderate effect (eta squared = .074). There was a significant difference in agreement scores for young-aged participants (M =4.39 SD=1.71) in Motivation5 and mature-aged participants (M=2.73 SD=1.80; t(58) = 3.55, p= .001, two-tailed). The magnitude of the difference in the means (mean difference = 1.67 95% CI [.729, 2.605]) was a large effect (eta squared = .178).

There was also a significant difference in scores between participants with little experience as an environmental educator (in years) and a lot of experience as an environmental educator in Motivation3, Motivation7, and Motivation8. (Table 5).

The online questionnaire asked participants to describe their motivations for pursuing certification in a short answer question. Among the 55 responses, three themes describing the main motivating factors for pursuing certification emerged during thematic analysis: personal motivation, professional motivation, and institutional motivation (Table 6).

**Personal Motivation.** Personal Motivations were themed by responses that generally described personal motivation. The codes included: the opportunity for reflection, desire to challenge and push self, and desire to solidly experience as an EE educator. In total, 18 responses included personal motivation for pursuing certification.

**Professional Motivation.** Professional motivations were themed by responses that generally described professional motivations. Professional motivation codes included: networking opportunities, employability, formal recognition of skills, and advancing education in EE. In total, 38 responses included professional motivation.

**Institutional Motivation.** Institutional motivations were themed by responses that generally described institutional factors or contexts influencing motivations for pursuing certification. Institutional motivation codes included: Portfolio Process integrated into Academic Program or Work, CAEE certification is the best program available, and professionalization of the environmental education field. In total, 21 responses described an institutional factor influencing the motivation to pursue certification.

Generally, participants with five years or less of experience as an environmental educator that responded (N=30) indicated that one of the reasons they pursued certification was because it was a part of their semester program or work requirements (n=11, 36.6%). Also, individuals with less experience identified employability as a motivating factor (n=6, 20.0%). Four individuals

identified advancing their education of EE as a motivating factor (13.3%). One individual identified reflection as a motivating factor (3.3%).

For individuals with more experience in the field (5 or more years) that responded (N=25), seven individuals identified solidifying their experience as an EE educator as a motivating factor (28.0%). Individuals with more experience also identified gaining more education as a motivating factor (n=6, 24%). Lastly, every response that identified professionalization of the field as a motivating factor came from individuals with more experience (n=5, 20.0%). Five individuals identified reflection as a motivating factor (20.0%). Three individuals identified that CAEE offers the best program as a motivating factor (12.0%).

**Certification.** Independent-samples-t-tests (3) were conducted to compare the ages, years as an environmental educator, and years as a classroom teacher for Master Certified and Certified individuals. There was a significant difference between Master Certified and Certified individuals in terms of age, years as an environmental educator, and years as a classroom teacher (Table 7).

Among the 27 Certified participants, five plan to pursue Master Certification, 12 individuals do not, and 10 Participants are unsure if they plan to pursue Master Certification. Among the participants who achieved Certified level on their first submission and re-submitted for Master Certified, the time required to re-submit varied from a couple of days to six months.

The certified participants were asked why they are unsure or do not plan to pursue Master Certification, and 20 participants provided a reason. The two themes that emerged were that the certification was no longer relevant to the individual's career and that the participant did not perceive Master certification as a necessary investment (Table 8).

**Table 4.**

*Motivation Variable Codes*

| Variable | Likert-Scaled Question |
|---|---|
| Motivation1 | I pursued the Colorado Alliance For Environmental Education Certification program to gain skills and knowledge as an environmental educator. |
| Motivation2 | I pursued the Colorado Alliance For Environmental Education Certification program to increase my employability. |
| Motivation3 | I pursued the Colorado Alliance For Environmental Education Certification program to access a more extensive network of environmental educators. |
| Motivation4 | I pursued the Colorado Alliance For Environmental Education Certification program because my friend, colleague, mentor, or partner was doing it. |
| Motivation5 | I pursued the Colorado Alliance For Environmental Education Certification program because my school/program encouraged me to. |
| Motivation6 | I pursued the Colorado Alliance For Environmental Education Certification program because my job encouraged me to. |
| Motivation7 | I pursued the Colorado Alliance for Environmental Education Certification program to gain professional development opportunities. |
| Motivation8 | I pursued the Colorado Alliance For Environmental Education Certification program to reflect on my practice. |

**Table 5.**

*Experience as Environmental Educator in Years Differences in Factors of Motivation*

| | **A little Experience (1-5 years)** | | | **A lot experience (6> years)** | | | **Mean Difference** | **95% Cl** | ***df*** | ***t*** | ***p*** | **Partial eta squared** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **n** | ***M*** | ***SD*** | **n** | ***M*** | ***SD*** | | | | | | |
| Motivation3 | 33 | 3.88 | 1.24 | 27 | 4.67 | 1.33 | -.788 | -1.45, -.121 | 58 | -2.36 | .021 | .088 |
| Motivation7 | 33 | 4.58 | 1.03 | 27 | 5.15 | .864 | -.572 | -1.071, -.074 | 58 | -2.29 | .025 | .083 |
| Motivation8 | 33 | 4.45 | 1.27 | 27 | 5.07 | .997 | -.620 | -1.22, -.017 | 58 | -2.05 | .044 | .068 |

**Table 6.**

*Thematic Analysis of Motivations for Participating in Certification*

| Theme | Code | Example Participant Quotation | n | % |
|---|---|---|---|---|
| Personal Motivation | Opportunity to Reflect | "I wanted to be intentional about demonstrating where my skill set lie with this discipline and reflect on areas for growth." "I felt this certification would maximize my education experience and challenge me to reflect on how I incorporate EE." | 6 | 10.9 |
| | Desire to Push/Challenge Self | "Just trying my best and proving to myself I could complete a task" "Aim high." | 5 | 9.0 |
| | Desire to Solidify Experience as Educator | "Having been in the development of the certification program nationally, I wanted to get certified early on as a sort of proof-of-concept for both the portfolio process and to push competency/professionalism in the field." "Putting all the experience in a concrete form" "for my own pride with my work in environmental education because my degree was an education degree but I have been deeply involved in environmental education through many years with my public school students" | 7 | 12.7 |
| Professional Motivation | Networking Opportunities | "To provide networking opportunities." | 2 | 3.6 |
| | Resume or Employability | "I thought it would be beneficial to have a tangible certification for future jobs. " "To increase employment opportunities" "..also wanted to be a more credible educator by having a certification through CAEE." "To be more desired by certain organizations." "To build credibility for my professional abilities" | 13 | 23.6 |
| | Formal Recognition of Skills/Leadership | "I did not go to school for EE, so having a way to formalize/certify the personal growth, learning, and professional development I have undergone since graduating was important to me." "..Also to legitimize my work as an environmental educator." "It seemed the appropriate level for someone with my skills, background and interests." "It helped give a name/acknowledgement to the skills I had cultivated outside of my schooling." "..because I saw it as a good way to demonstrate my professional leadership in the field of EE." | 13 | 23.6 |
| | Advance Education of EE | "I wanted the opportunity to learn about EE in a very hands on, experiential way." ".. and to learn more about being an environmental educator" "I wanted to become certified to gain more knowledge are the specifics of environmental education versus general education." | 10 | 18.2 |

| | | | | |
|---|---|---|---|---|
| Institutional Motivation | Portfolio Process integrated into Academic Program or Work | "It was part of my graduate school requirements"<br>"Part of the TREE semester program, I want to be an environmental educator when I graduate college" | 13 | 23.6 |
| | Accreditation from Best Program Available | "CAEE had the best online program I could find."<br>"…and I liked that this certification was also recognized by NAAEE at a national level." | 3 | 5.4 |
| | Professionalization of EE Field | "Having been in the development of the certification program nationally, I wanted to get certified early on as a sort of proof-of-concept for both the portfolio process and to push competency/professionalism in the field."<br>"Promoting EE strategic plan and training at local level to support state initiative."<br>I wanted to be a model within my organization because we require some of our staff to submit portfolios while they are here." | 5 | 9.0 |

**N=55

**Table 7.**

*Demographic Differences in Master Certified and Certified Individuals*

| | **Certified Master** | | | **Certified** | | | **Mean Difference** | **95% Cl** | ***df*** | ***t*** | ***p*** | **Partial eta squared** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **n** | ***M*** | ***SD*** | **n** | ***M*** | ***SD*** | | | | | | |
| Age | 32 | 2.87 | 1.787 | 38 | 2.14 | 1.268 | .826 | .032, 1.620 | 55.75 | 2.083 | .042 | 0.060 |
| Years as Environmental Educator | 30 | 14.63 | 13.441 | 27 | 5.48 | 5.049 | 9.152 | 3.808, 14.496 | 37.77 | 3.468 | .001 | 0.179 |
| Years Classroom Educator | 18 | 16.00 | 14.65 | 15 | 8.0 | 6.687 | 8.00 | .037, 15.963 | 24.67 | 2.071 | .049 | 0.122 |

**Table 8.**

*Thematic Analysis: Reasons Certified Participants Provided for not Pursuing Master Certification*

| Theme | Code | Example Quotation | n | % |
|---|---|---|---|---|
| Not relevant to career | No longer in EE field | "I have changed field away from environmental education. "I am retired." | 5 | 25.0 |
| | Pursuing other degrees or goals | I haven't yet significantly looked into it and am currently not sure on my best path forward. I may be focusing instead on a Masters in Nonprofit Management | | |
| Not necessary investment | Satisfied with current certification | "I feel as if the certification provides me with validation and a level of professionalism and I am not sure how adding just a little more the certification will improve upon that." "I am happy with just a certification and do not feel that the extra work to be master certified would be worth it." | 9 | 45.0 |
| | Not necessary professional investment | "I have no real reason to invest the cost or time in relation to my employment." "I don't see it as something that will help me advance in my career. Also, I might be moving out of state soon. " | | |

**N=20

**RQ2: What obstacles exist to acquiring certification?**

**Obstacles.** The fourth section of the survey asked participants about perceived obstacles to acquiring certification (Table 9).

Since the scale reliability was relatively low (n=7; α= .46), all possible independent-sample t-tests (35) were conducted to compare the obstacle scores for age, type of educator, number of participants, experience in years as an environmental educator, and current certification. There was no significant difference in agreement scores for age, type of educator, number of participants, experience in years as an environmental educator, and current certification. After the Likert-scaled questions about obstacles, participants were asked in the online questionnaire to list any potential obstacles to achieving certification in a short answer. Twenty participants responded. Four main themes were identified out of the 20 responses: no obstacles, commitment, open-ended nature of the portfolio requirements, and lacking the requisite skills (Table 10). No participants stated that the certification fee was a financial burden; however, one participant stated in their response, "CAEE also paid for my certification fee, so that was not a burden for me, though it may have been had I been responsible for it" (anonymous participant).

Eight participants identified the portfolio's open-ended nature as an obstacle to achieving certification. Factors contributing to this obstacle include confusion in understanding the rubric, vague expectations, and lack of structure or reference to refer to when compiling the portfolio. One participant stated, "examples of the portfolios helped me get an idea of how to put it together" (anonymous participant).

**Process.** The fifth section of the survey included nine Likert-scaled questions that asked participants about their experiences throughout becoming certified and compiling their portfolios.

This survey section provided a reliable scale ($\alpha = .742$) (Table 11). Thus, a new variable, MeanProcess, was created that included the mean scores of each question. Four independent-sample t-tests were conducted to compare the MeanProcess scores of ages, experience as an environmental educator in years, current certification, and the number of participants they reach per year. No results were significantly different. All possible independent-sample t-tests (36) were conducted to compare the agreement scores of each question on participant age, years as an environmental educator, current certification, and the number of participants reached per year. No results were significantly different.

The online questionnaire asked participants about potential obstacles to achieving certification. Among the 26 responses, five participants did not identify obstacles but identified what factors helped them succeed. The five participants stated that having a mentor or professor or participating in academic or professional development courses was crucial for achieving certification. One participant described their portfolio process in their survey response:

> This was not an obstacle, but I wanted to specify that I took a course through CAEE for free with assignments designed to help build the portfolio over the course of three months. I had to do minimal work following the course to complete the portfolio. The course was a phenomenal resource in guiding my portfolio-building process, so it did not feel to open-ended. (Anonymous participant)

Another participant commented on the benefit of structure, by stating, “I did it in a very structured environment where I was writing alongside others. Otherwise, I don’t think I ever

would have taken the time to do it." A third participant also commented on their experience of compiling their portfolio through a semester program, "In the TREE semester, we were guided through the process. I'm sure my experience would have been much more challenging if I attempted to get certified on my own."

**Table 9.**

*Obstacle Variable Codes*

| Variable | Likert-Scaled Question |
|---|---|
| Obstacle1 | It took a lot of time and effort to complete the certification program. |
| Obstacle2 | The resources needed to acquire the certification made it challenging for me to do so. |
| Obstacle3 | I did not face many logistical obstacles when pursuing the certification process. |
| Obstacle4 | The certification fee was a financial burden |
| Obscatle5 | I did not have support from my employer. |
| Obsctale6 | The open-ended nature of the portfolio made it difficult to complete. |
| Obsctale7 | I did not have some of the requisite knowledge or skills. |

**Table 10.**

*Thematic Analysis: Obstacles to Achieving Certification*

| Theme | Code | Example Participant Quotation | n | % |
|---|---|---|---|---|
| No obstacles | No obstacles | "No real obstacles. It took me only two weeks of compiling things I had done before." | 3 | 1.5 |
| Commitment | Time | "My biggest obstacle was time." | 7 | 35.0 |
| | Effort | "Time is the biggest obstacle. But if you have time and determination to get certified in anything at all, you get it done. Finding funding is the easy part, doing the work is the hard part. | | |
| Open-ended nature of portfolio requirements | Confusion on rubric | "Understanding the rubric was a bit of a challenge before I was able to meet with Katie to discuss."<br>"There were times when I was confused on why the [portfolio items] were there." | 8 | 40.0 |
| | Vague Expectations | "I think it was just a little vague at times about what they truly wanted to see form environmental educators." | | |
| | No framework or reference for structure | "I needed to create a google drive folder with numerous files to create a "framework" for myself to organize and submit my portfolio. I've shared this framework with others who are seeking certification It's a beast of a project to figure out how to organize and submit."<br>"The open-ended nature of the portfolio was probably the biggest obstacle in the way, though CAEE provided access to resources. I know what I submitted, but I really have no idea what other portfolios looked like (how many pages, what the expectations really were, etc.) | | |
| Lack requisite skills | No previous experience | "I was not in charge of assessment and evaluation so didn't have tools to use as examples."<br>"Some of the science components were challenging to complete in the given time because I didn't have a lot of time to conduct research projects." | 2 | 1.0 |

**N=20

**Table 11.**

*Process Variable Codes*

| Variable | Likert-Scaled Question |
|---|---|
| Process1 | I felt well supported by CAEE when pursuing certification. |
| Process2 | I felt supported by my program/teachers when pursuing certification. |
| Process3 | I felt supported by my employer when pursuing certification. |
| Process4 | The CAEE communicated to me effectively about the expectations, logistics, and goals of the certification process. |
| Process5 | I already had adequate evidence of competencies to create a comprehensive portfolio. |
| Process6 | The suggested assessments clearly reflect the competencies. |
| Process7 | The suggested assessments (or choosing other evidence of competency) was made clear by rubrics. |
| Process8 | The competencies were an appropriate level of difficulty. |
| Process9 | The suggested assessments were an appropriate level of difficulty. |

**RQ3: What are the outcomes of participating in the certification process, and how might they differ throughout career progression?**

**Outcomes.** The sixth section of the survey included seven Likert-scaled questions that asked participants about specific outcomes of participating in the certification process and acquiring certification (Table 12).

This section of the survey provided a reliable scale (α= .88). All possible independent-sample t-tests (35) were conducted to compare the agreement scores in outcomes for age, type of educator, number of participants, experience in years as an environmental educator, and current certification. There was no significant difference in scores for the type of educator, number of participants, and current certification. There was a significant difference in agreement for young aged participants (M =4.71 SD=1.16) in Outcome6 and mature aged participants (M=5.33 SD=1.02; t(57) = -2.06, p= .044, two-tailed). The magnitude of the difference in the means (mean difference = -.623, 95% CI [.-1.208,-.037]) was a moderate effect (eta squared = .068). There was a significant difference in agreement scores for participants with little years of experience in environmental education in Outcome1 (M=4.09 SD=1.756) and participants with many years of experience in environmental education (M=5.07, SD=.958; t(51.36)= -2.64 p=.011, two-tailed). The magnitude of difference in the means (mean difference = -.948, 95% CI (-1.668, -.227]) was a small effect (eta squared =.001).

Participants were asked to answer a short-answer question on the online questionnaire describing any outcomes of acquiring certification. Four themes emerged as outcomes among the 53 responses: leader in the field, community, strengthening identity as an environmental educator, reflection, and no significant active outcomes (Table 13).

Among the 17 respondents who identified being a leader in the field as an outcome, 3 participants had little experience teaching environmental education, and 14 had a lot of experience teaching environmental education. Six participants were 0-34 years old, and 11 were 35-65. Eleven participants are master certified, and six are certified.

Among the 5 participants who identified community as an outcome of certification, two had some experience in environmental education, and three had a lot of experience in environmental education. Three participants were aged 0-35, and two were aged 35-65. One participant is master certified, and four are certified.

Among the 20 participants who identified strengthening their environmental educator identity as an outcome of certification, 15 had some experience in environmental education, and 5 had a lot of experience in environmental education. Sixteen participants were aged 0-35, and four were aged 35-65. Nine participants are master certified, and 11 are certified.

Among the eight participants who identified reflection as an outcome for certification, seven had a lot of experience in environmental education, and one had some experience in environmental education. Two participants were aged 0-35, and six were aged 35-65. Seven participants are master certified, and one is certified.

Lastly, among the three participants who did not identify a significant outcome of certification, all three had some experience in environmental education, two participants were aged 0-35 years old, and one was 35-65. One participant is master certified, and two are certified.

**Table 12.**

*Outcome Variable Codes*

| Variable | Likert-Scaled Question |
|---|---|
| Outcome1 | I have applied the skills and knowledge that I learned from certification in my current job. |
| Outcome2 | My professional network did not expand due to participating in certification. |
| Outcome3 | The certification made me more confident in my current job. |
| Outcome4 | I built a strong foundation of skills and knowledge through pursing certification. |
| Outcome5 | Compiling my portfolio was helpful for me to see my strengths as an environmental educator. |
| Outcome6 | Compiling my portfolio was helpful for me to see my areas for growth as an environmental educator. |
| Outcome7 | Compiling the portfolio helped me reflect on my role and identity as an environmental educator. |

**Table 13.**

*Thematic Analysis for Outcomes of Certification*

| Theme | Code | Example Quotation | n | % |
|---|---|---|---|---|
| Leader in Field | Trained to teach others | "I can now effectively teach others how to become professional environmental educators" | 17 | 32.1 |
| | Recognition for expertise | "Being able to claim the highest certification available in. my field to those from to other fields." | | |
| Community | Support | "The ability to learn from and be supported by some incredibly thoughtful and kind professors" | 5 | 9.4 |
| | Access | "Increased access to CAEE networks" | | |
| Strengthen EE Identity | More skills and knowledge in EE | "Broader understanding of the history of EE in the USA" "Creating and implementing EE lesson plans and curriculum was the most significant outcome" | 20 | 37.7 |
| | Confidence in self | "Having the validation of the certification helped grow my confidence of being an outdoor educator and holding leadership positions in the outdoor education world." | | |
| | Validation for work | "Receiving the certification and high praise in the feedback on the rubric was extremely validating." | | |
| Reflection | Reflect on Experience | "I felt self-reflection on my continued professional growth extremely valuable. I constantly continue to try to expand my skill level and knowledge base in this changing world." | 8 | 15.1 |
| | Solidify identity as educator | "The most important outcome was realizing I wanted to pursue education as a career in a greater way." | | |
| Not significant outcomes | Not using yet | "I haven't really had the opportunity to do anything with my certification yet." | 3 | 5.6 |
| | No significant outcomes | "It honestly hasn't been a real factor in my life." | | |

**N=53

**RQ 4: Which part of the CAEE portfolio is most beneficial, and what changes can be made to make the certification process more valuable?**

**Themes**. The last section of the survey asked participants about their opinions about the specific Themes that make up the portfolio needed for certification.

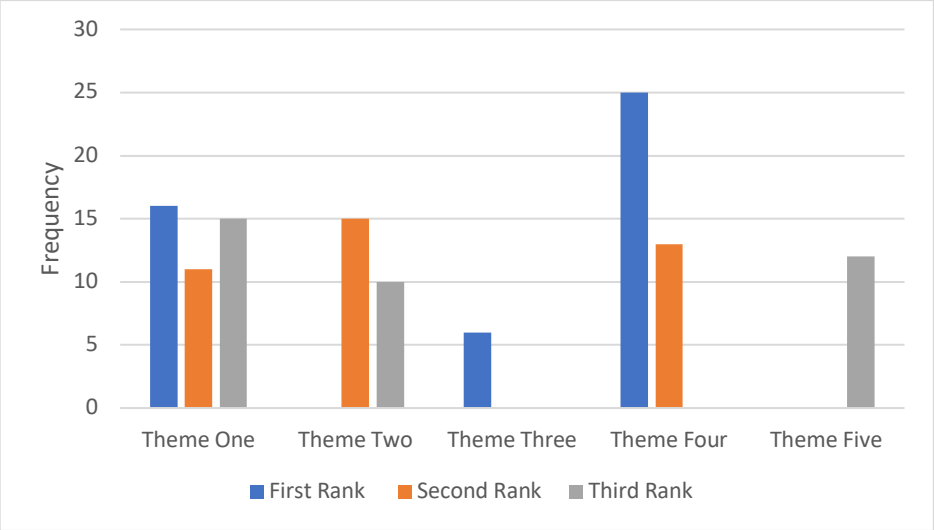
**Theme Describing Skills Used in Work**. Participants were asked to rank (1-5) in order of significance which Theme most describes their work skills (1=most used-5=least used) (Figure 1). Theme One was most commonly ranked overall (n=42), and Theme Four was ranked first as the most used Theme describing their work skills(n=25).

The online questionnaire asked participants to explain their ranks in a short answer question. The answers were sorted corresponding to which Theme the participant ranked as first. In the provided answers, each Theme was addressed in describing why its competencies are most useful in work (Table 14).

**Theme Participants Struggled with Most.** Participants were asked to rank (1-5) in order of which Theme they struggled with most to complete during the portfolio process (1 = most struggle- 5= least struggle) (Figure 2). Theme Five was most commonly ranked (n=34) and most frequently ranked as the theme participants struggled with most (n=26).

**Add or Delete a Theme.** The online questionnaire asked participants whether they would add or delete a Theme in the portfolio and why. Participants' most commonly listed suggestions included: No changes, adding a section about diversity, equity, and inclusion, incorporating a section explicitly about advocacy, clarifying the role of Theme Three, and other suggestions (Table 15).

**Figure 1.**

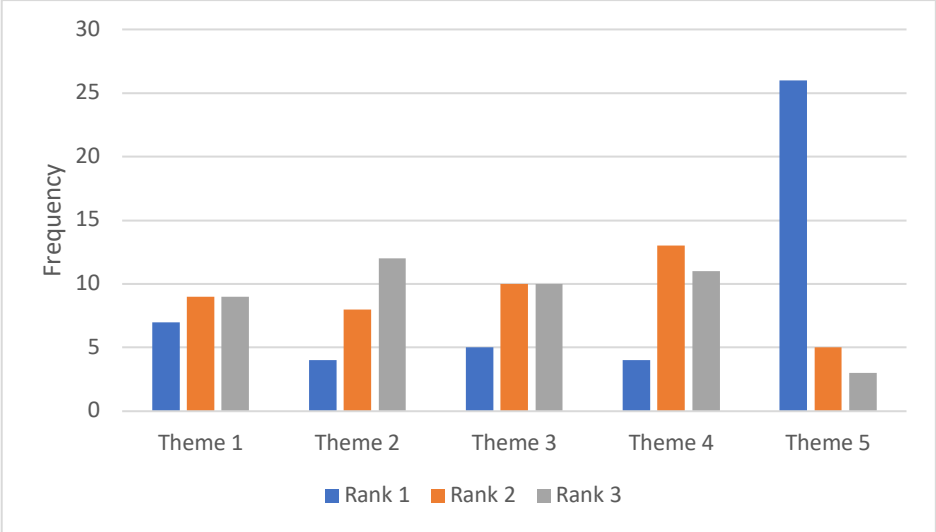



Frequency of Top Three Themes Ranked as Describing Skills Used in Work. This figure shows how frequently participants ranked each Theme within the top three ranks (1-3) in identifying themes that describe the most used work skills.

**Table 14.**
*Short Answer Descriptions Explaining Participant Choices in Ranking Themes: Most Used Skills in Work*

| Theme | Example Participant Quotation |
|---|---|
| Theme 1: Environmental Literacy | "Systems thinking and analytical skills are always relevant and things I apply everyday in my work and in academia at large. Although the topic is less relevant the general principle of systems thinking is something I apply and speak to often." |
| | "I believe environmental literacy is of the utmost importance as an environmental educator because you must have a fundamental understanding of the environment and how it works in order to be an effective educator." |
| | "Environmental Literacy is what it's all about for me. These are skills and knowledge one needs to be an informed and motivated citizen. This is critical and something I hope all my students aspire to, no matter where and in what capacity I teach." |
| Theme 2: Foundations of Environmental Education | "I think someone needs to have a solid foundation of the field that they are striving to be a professional in, and then they can do an excellent job planning and implementing the work." |
| | "Theme 2 was the most interesting to me, though I don't use it much in my work. Having knowledge of where the field has been and where it's going makes me feel more secure in my work and is purposes." |
| Theme 3: Professional Responsibilities of the Environmental Educators | "Viewing myself as a professional educator is in important in my current role as a ECE educator" |
| | "I ranked professional responsibilities and development second because as educators, it is important that we also recognize that there is always more to learn and we may not know the answers to all questions. Just as we encourage curiosity and investigation in our students, so too must we pursue that ourselves." |
| Theme Four: Planning and Implementing Environmental Education | "I teach almost every day and apply learning theories. I need to know how to assess my program." |
| | "Active EE in the field with kids requires planning and experience with different age groups" |
| | "I am working as a science teacher, so planning and implementing curricula and lessons is just what I do day to day, it was very useful." |
| | "That IS being an environmental educator." |
| | "I work with kindergarteners. They don't care about history and theory. They care about implementation and hands on learning." |
| | "I believe that theme four demonstrates the most important aspects of teaching. Demonstrating knowledge of teaching and how students learn is extremely important. Specifically in environmental education I think this holds a specific set of skills that every educator needs." |
| Theme 5: Assessment and Evaluation | "Learner outcome and assessment is so much of what we focus on in public education and is the focus of much of the coursework I'm engaged in. How can we know what they know, and how can we backwards-plan our units to build enduring understandings?" |
| | "My current position is not strictly one in the field of environmental education. I use assessment and evaluation on a daily basis whether or not the curriculum reflects EE. |
| | "That's how you know your outcomes" |

**Figure 2.**




Frequency of Top Three Themes Most Struggled with During Portfolio Process. This figure shows how frequently participants ranked each Theme within the top three ranks (1-3) in identifying which themes they struggled with most (1=most struggle).

**Table 15.**

*Participant Suggestions for Adding or Deleting Themes in the Portfolio.*

| Theme | Code | Example Participant Quotation | n | % |
|---|---|---|---|---|
| No Changes | No | "I wouldn't add or delete any one of them. The portfolio seems sufficient." | 19 | 57.6 |
| Add Equity and Diversity Section | Equity and Diversity | "I would add a section discussing equity and environmental education." | 5 | 9.0 |
| | Reflecting on inclusive EE | "I think as the field of EE continues to grow, there needs to be an increase focus on diversifying how we teach, what we consider to be EE, and who we teach to. The portfolio should have a focus on equity, diversity, and inclusion in the field of EE and emphasis on social justice when considering access and use of outdoor spaces." | 2 | 6.0 |
| | | "I think people could dig deeper into whether or not they are inclusive, team-oriented educators." | | |
| Incorporate Explicit Advocacy Section | Separate Advocacy Section | "I would split some of the themes up. I would put advocacy into its own category because it is quite different to learn about the environment vs go out and advocate for it." | 2 | 6.0 |
| | Incorporate Advocacy into Another Theme | "I would add a section to theme 3 on how to participate in taking action, advocating for EE at a policy level... so many educators are so scared to be advocates for EE" | 2 | 6.0 |
| Revisit/ Clarify Theme Three's Goals | Biased | "I would not delete any but theme 3 cannot look the same for each participant. It depends on the location one lives and the nature of the community as to how exemplary practice is carried out. Also, PD may be very difficult for some to access either because of distance, finance, or lack of technology. So theme 3 also seems more bias in how it is measured. | 2 | 6.0 |
| | Vague | "Theme 3 always seemed a bit vague to me, as almost anyone applying for certification should be doing some PD and the portfolio is PD." | 2 | 6.0 |
| Other additions to portfolio | Future EE | "If anything I would add a futurist perspective to Theme 2. What is EE for? would be an interesting thing for submitters to write about. Knowing history is important, but I feel history only goes as far as you try to use it." | 1 | 3.0 |
| | Economics | "Probably would add a section on program economics/logistics. How do you create a program from scratch?" | 1 | 3.0 |

**N=38

# Discussion

## Being Good, Feeling Good, Looking Good

Within Ryan and Deci's (2000) expanded framework of Self-Determination Theory, the authors described three driving motivations and outcomes of pursuing and participating in certification: "Being Good," "Looking Good," and "Feeling Good." A continuum of intrinsic and extrinsic motivation drives each of these outcomes.

The codes determined within the thematic analysis of motivations and outcomes for this study do not exactly resemble the codes found in Ryan and Deci's study; however, through using their definitions of "Being Good," "Looking Good," and "Feeling Good,' the codes that most aligned with each definition were sorted to discuss the findings within the framework provided by Ryan and Deci. The results section analyzed the data by comparing the different demographic groups. Because the most significant differences existed between the younger and older individuals and those with some experience in teaching EE (0-5 years) and with a lot of experience in teaching EE (6+ years), this section discusses the impact of experience in years as an EE educator to synthesize the differences and similarities of motivations and outcomes between people at different stages in their career.

## Motivations and Outcomes of CAEE Certification

**"Being Good."** "Being Good" is driven by extrinsic motivation; however, it is not entirely nonautonomous because an individual that seeks to "Be Good" has identified with the importance of the behavior (Ryan & Deci, 2000). The outcome of "Being Good" is increased competence in the profession.

Three codes from the thematic analysis of motivations in this study align with Ryan and Deci's definition of "Being Good:" networking opportunities, professionalization of the

environmental education field, and the portfolio process integrated into an academic program or work. Participants who identified professionalization of the field as a motivator had more experience in the field. This motivator is arguably less external than participating because it was integrated into an academic program. Participants who identified that the integration of the portfolio process in a semester program was a motivator had less experience in the field. Pursuing certification because of an academic program is an external motivator; however, the individuals aligned with the goals of the academic programs and acquired certification.

**"Feeling Good."** "Feeling Good" is driven by intrinsic motivation. Ryan and Deci define achievement and self-development as outcomes of "Being Good." Certification fulfills the internal need for achievement and self-development (Ryan & Deci, 2000).

Four codes from this study most align with Ryan and Deci's definition of "Feeling Good:" opportunity to reflect, desire to challenge/push self, advancing knowledge EE education, and the desire to solidify experience as an EE educator. Individuals who sought to reflect and solidify their experience as environmental educators, both internal motivations, had more years of experience in the field. The desire to challenge oneself and advance knowledge in EE education was present in participants with both some and a lot of experience in the field of EE.

**"Looking Good."** "Looking Good" is driven by extrinsic motivation. Pursuing certification to "Look Good" is for a desired outcome separate from the certification itself. Ryan and Deci (2000) define "Looking Good" as financial gain, increased status, power, and opportunities in work. Three codes from this study align with Ryan and Deci's definition of "Looking Good:" formal recognition of skills, employability, and accreditation from the best program available. Both individuals with less experience in EE and a lot of experience in EE identified motivating factors that reflect "Looking Good." However, people with less experience

in the field more commonly identified employability as a motivation, and people with more experience identified the formal recognition of skills.

Overall, codes that reflect "Looking Good" were most identified, closely followed by "Feeling Good" and the least identified motivator was "Being Good" (Table 6). Individuals were motivated for different reasons; however, people with more experience in the field were more internally motivated to participate in certification. This finding may be significant in understanding how certification affects one's teaching practice because individuals pursuing an activity for intrinsic motivation may be more likely to implement what they learned in their practice (Fertig et al., 2009).

**Outcomes of CAEE Certification**

Similarly, the codes discovered in the thematic analysis of the outcomes of certification reflect the more significant themes of "Being Good," "Feeling Good," and "Looking Good" (Ryan & Deci, 2000)

**"Being Good."** Three codes from this study most reflect the outcome of "Being Good" trained to teach others, support, access, and more skills and knowledge in EE.

**"Feeling Good."** Three codes from this study most reflect the outcome of "Feeling Good:" self-confidence, reflection on experience, and solidifying identity as an educator.

**"Looking Good."** Two codes from this study most reflect the outcome of "Looking Good:" validation for work and recognition for expertise.

"Being Good" was the most identified outcome among the responses that listed active certification outcomes (n=19, N=50). "Feeling Good" and "Looking Good" were similarly identified in frequencies for the outcome of CAEE certification. These results show that most participants identified a specific positive outcome of certification, while only three identified no

active outcome (Table 13). Furthermore, these results demonstrate that individuals at all stages in their career benefit from certification. The results suggest that there are different benefits throughout different career stages. Those with more significant environmental education experience specifically benefited through reflecting and solidifying their EE identity. Those with less EE experience benefited through gaining confidence as an educator and knowledge and skills in EE education.

Two participants provided descriptions of their certification outcomes, demonstrating the themes discovered of positive certification outcomes. One anonymous participant said:

> The most important outcome of becoming certified was that I became more knowledgeable of the background of environmental education, and this helped me feel more empowered teaching students and interacting with formal educators.

Another anonymous participant said:

> I just want to emphasize that the certification process built my confidence as an environmental educator immensely. As a young professional, I often questioned how truly qualified I was to serve as an educator working with impressionable 6th grade students, but the certification process helped me understand what I was teaching and how much better and receiving the certification and high praise in the feedback on the rubric was extremely validating.

Compared to Ryan and Deci's study, "Feeling Good" was not the highest identified outcome; however, as the quotations especially demonstrate, the overall outcomes of CAEE certification were positive in that it enabled many participants to feel, look, and be good as environmental educators.

These results had similar themes to both studies analyzing the outcomes of participating in the North Carolina Environmental Education Certification Program. This program comprises 200 hours of training rather than portfolio compilation, so the certification processes differ. However, participants in the CAEE certification program also identified similar outcomes of

increased confidence as an educator, opportunities to network, and self-achievement (Bennett & Matthews, 2005; Harrison et al., 2017).

**Suggestions for Colorado Alliance for Environmental Education Certification Program**

The three main obstacles to achieving certification identified among participant respondents were commitment, the open-ended nature of the portfolio requirements, and lacking the requisite skills (Table 10). Participants noted that having an example portfolio or other frame of reference to refer to was helpful in successfully acquiring certification. Participants also noted that having a mentor to guide them through the portfolio process was beneficial (to clarify rubric expectations). Those who compiled the portfolio in a structured environment, specifically through the summer course offered by the CAEE, had fewer obstacles in understanding the portfolio expectations and process.

Participants identified the themes they used most in their work and which were the most difficult. Theme Four (Planning and Implementing Environmental Education) was most frequently ranked highest in relation to work skills (Figure 1). These results demonstrate the importance of environmental educators learning explicit pedagogical skills to teach environmental education.

Theme Five was the most frequently highest-ranked theme in describing the most difficult theme (theme applicants struggled with most) (Figure 2). These results demonstrate that evaluation and assessment are often the most difficult to learn and implement (because of lack of experience or knowledge); however, many participants identified their importance in teaching and EE program success.

Many participants suggested adding a section on diversity, equity, and inclusion in environmental education to the portfolio. Furthermore, some participants suggested a section on

environmental advocacy, whether a different theme or integrated into an existing theme (Table 15). Some suggested clarifying or re-visiting the purpose of Theme Three to ensure it is not biased or vague.

Based on the results, a list of suggestions was developed for CAEE:

1. Ensure participants have access to example portfolios. This access can happen in various ways: giving online access to portfolios or a portion of portfolios when applicants are applying and facilitating online or in-person workshops where a portfolio reviewer shows an example portfolio and walks through its strengths and weaknesses.
2. Provide an option for applicants to be assigned to a "mentor" within the CAEE community, someone who has undergone the portfolio process and acquired certification. This mentor would be a volunteer who is well-versed in the certification process and can act as a "point person" to answer questions about the portfolio process.
3. Suggestions one and two can be accomplished by creating an online portal specifically for certification applicants. They can access example portfolios, resources, or videos that explain the rubric in detail and connect with a mentor if needed.
4. Add a designated section to the portfolio that explicitly integrates diversity, equity, and inclusion of environmental education and how to be an inclusive educator.
5. Add a section on environmental advocacy (separate or within a theme) to prepare individuals to be environmental advocates and understand the relationship between advocacy and education.
6. Clarify the expectations and purpose of Theme Three on the portfolio rubric.

## Limitations

Several limitations to this study exist. Firstly, no previously established survey instrument measures the value of environmental education certification; therefore, the online questionnaire was adapted from similar studies. The final online questionnaire used in this study was not previously used or validated in another study. Many of the Likert-scaled questions from the online questionnaire provided unreliable scales. Secondly, the qualitative data analysis was executed by only one person and is subject to bias. Although the codes and themes were coded in three cycles and attempted to be as objective as possible, I am a CAEE Master Certified Environmental Educator, and my experience in acquiring certification may have biased my thematic analysis. Lastly, when the codes were categorized into Ryan and Deci's Self-Determination Framework of motivations and outcomes in the discussion, the codes did not precisely fit the codes used in Ryan and Deci's framework, and their categorization is subject to my bias.

## Conclusions and Future Research

This study utilized a non-experimental, mixed method design to investigate the value of CAEE certification by identifying who participates in certification and why they participate, what aspects of the certification process participants deemed most beneficial, and the outcomes participants experienced upon acquiring certification.

Individuals from varying professions, ages, and experiences participate in CAEE certification; however, they all are involved with EE to some degree. Individuals pursue certification for various reasons, including personal, professional, and institutional motivations. Individuals with more experience in environmental education tended to be driven by more intrinsic motivations (such as reflection and solidifying their identity as environmental

educators). In contrast, those less experienced in the field tended to be motivated by more extrinsic motivations.

Almost all participants identified positive outcomes for acquiring the CAEE certification, and the certification enabled participants from both levels of experience to "feel," "be," and "look" good as environmental educators (Ryan & Deci, 2000). The career stage may impact what type of outcome an individual experiences throughout and upon certification. The positive outcomes of acquiring certification suggest that certification can prepare individuals to implement environmental education more effectively.

Lastly, many participants expressed the importance of learning how to teach and implement environmental education, which describes Theme Four's skills. Many participants struggled with assessment and evaluation (Theme Five). Participants provided various suggestions for improving the portfolio certification process and any changes within the portfolio itself, including adding a section on diversity, equity, and inclusion in environmental education.

This research indicates the importance of developing a reliable survey instrument that measures the value of environmental education certification. Furthermore, future research can investigate how and if individuals specifically implement the knowledge and skills they gained in certification, who is most likely to implement the skills and knowledge they learned in certification, and why. Lastly, interviews should be conducted with the individuals in this study who stated they would be willing to interview about the certification process to further understand their motivations, experiences, and suggestions for increasing the value of certification.

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# Appendix A

Appendix A includes the participant online questionnaire consent form that was at the beginning of the final questionnaire, and participants had to voluntarily consent to participate in the study.

Investigating the Value of the Colorado Alliance for Environmental Educator Certification: Obstacles, Benefits, and Motivations Consent Form

Anne Hennessy
Tina Valtierra
Colorado College Department of Education
8479777190
a_hennessy@coloradocollege.edu

Key information about this research study

The following is a short summary of this study to help you decide whether to be a part of the study. Additional information is provided later in the form.

You are invited to take part in a research study about the potential benefits and costs of becoming Certified or Master Certified by the Colorado Alliance for Environmental Education. Specifically, this study aims to examine any possible changes in individual professional development or pathways resulting from participating in the certification process and determine which certification factors were most influential in inciting those changes. Lastly, this study seeks to understand if and how the certification process helps participants become better environmental educators.

You are being asked to take part in this study because you have received a Certification or Master Certification of Environmental Education through the Colorado Alliance for Environmental Education (CAEE). You will be asked to share your motivations for participating and any costs and benefits of pursuing the certification. Lastly, you will be asked to share how this certification process has or has not influenced your teaching or professional development.

Participants will fill out an electronic survey via Qualtrics that will take fifteen minutes. The electronic survey will ask questions about the participant's experience in becoming certified and any potential costs and benefits of pursuing a certification through the CAEE. Participants will be asked at the end of the survey if they would like to provide their name and contact information to participate in a semi-structured, verbal interview to discuss their certification experience. Self-selecting for an interview is completely voluntary, and no participant is required to provide information about their identity.

This study seeks to provide helpful data to the Colorado Alliance for Environmental Education (CAEE) so that the organization can better understand the outcomes of pursuing certification and motivations for participating. This data will help the CAEE understand the audiences for their certification program and explore how to make the certification process more accessible to larger audiences. Lastly, this study will enhance the field of Environmental Education by exploring the potential importance and significance of certification programs and how they may impact the professionalization of the field and teachers' competencies and confidence.

We do not expect you to experience any kind of harm or discomfort if you participate in this study, beyond what you would experience in everyday life.

Taking part in this study is completely voluntary. You should only decide to participate in the study because you want to do so. If you choose to be in the study, you can withdraw at any time without consequences of any kind. All participants can choose to skip any question and to not participate in an interview. Participating in this study does not mean that you are giving up any of your legal rights.

The person in charge of this study is Anne Hennessy. You can contact Anne Hennessy at a_hennessy@coloradocollege.edu or (847)977-7190. If you have any questions about whether you have been treated in an illegal or unethical way, contact the Colorado College Institutional Research Board chair, Dr. Amanda Udis-Kessler at 719-227-8177 or audiskessler@coloradocollege.edu.

Additional information

All information collected in this study will be stored in a locked folder on a personal computer. Any report of this research that is made available to the public will not include your name or any other individual information by which you could be identified unless you have specifically permitted to be identified publicly.

Information from this study will be kept for future research and stored separately from other information. All information from this study will be kept in a locked folder on a personal computer. Research information from this study will be shared with the Colorado Alliance for Environmental Education. I may share your research information with other researchers without requesting your consent again, but it will not contain information that could directly identify you.

All information will be presented and shared with Colorado College audiences to share findings from the study. No identifying information about the participants will be included in the presentation of the findings.

There is no expected physical, psychological, or any other form of harm that could result from participating in this study. To minimize any risk of harm, participants will provide consent before participating in the online survey and verbal interview. Participants will be informed of the purpose of the study and their specific role in participating. If participants choose to be interviewed, participants will participate in an interview during a time that best fits their schedule. The research review board of Colorado College will confirm that each step of this research is ethical.

A participant should contact Anne Hennessy as soon as possible if they experience any harm resulting from participating in the study.

If problems occur during this study, participants may also contact Howard Drossman of the Education Department at Colorado College hdrossman@coloradocollege.edu and Tina Valtierra kvaltierra@coloradocollege.edu of the Education Department at Colorado College.

I have read the above information. Completing this survey indicates that I am 18 years of age or older and indicates my consent to participate in this research project.

I understand that I may print a copy of this form to keep for my records.

## Appendix B

Focus Group Protocol (CAEE, 2008) adapted to be included in the final questionnaire.

1. What is your interest in environmental education? Are you a formal or non-formal educator? In your opinion, how important is a professional certification program for environmental educators?
2. Why did you decide to participate in the certification program? What were your expectations for the process for certification?
3. What benefits have you experienced as a result of the certification program? In what ways, if any, have you changed or developed as an educator as a result of completing the certification process?
4. Think about your portfolio. The suggested responses were designed to show skill in each of the competencies. Did you use the suggested responses? What other assessments did you use to show competency? Did the suggested responses adequately reflect skill in each of the competencies? How would you change or revise the suggested Reponses?
5. What resources/tools do you think would have helped you with the certification process? Think about your co-workers or colleagues, what would help them move from the certified level to the certified master level?
6. Do you think there will be broad interest in the program? Do you think the program will be of interest to employers? What audiences should CAEE target for the program?
7. As a certified environmental educator, how can CAEE help you take advantage of this? Would you like to be able to network with other certified environmental educators? What other services/professional development could CAEE offer to benefit you?
8. What other programs or certifications have you participated in that have increased your understanding and professional development in the field of environmental education? Rate the certification program in relation to these other programs. How effective will the program be at recognizing quality in environmental education?
9. Would you be willing to share your experience? What can you share? Would you consider further involvement in the certification program?
10. Do you have any other comments or suggestions for improvement?

## Appendix C

Questions from the Certification Program Evaluation (CAEE, 2008) adapted for use in the final questionnaire.

1. Which level of certification did you apply for or intend to apply for?
2. Did you complete and turn in a portfolio?
3. If yes, how long did it take you to complete the certification portfolio?
4. If no, please share your reasons for not completing the portfolio.
5. Please describe how you are involved with environmental education.
6. What is your current profession?
7. Who do/will you teach?
8. Number of years you have been an environmental educator:
9. Number of students/participants you teach/reach per year:
10. The students /participants you primarily work with come from:
11. Others consider you to be an environmental education leader: Check all that apply:
12. Please select your race/ethnic affiliation (optional):

For each category, rank the program from one to four. One means the program does not demonstrate the c haracteristic and four means the program demonstrates the characteristic very well. Select N/A if you don' t know or if the question does not apply to your level of participation in the program.

Certification Process

1. The competencies are clearly explained.
2. The suggested assessments clearly reflect the competencies.
3. The suggested assessments or choosing other evidence of competency was made clear by ru brics
4. The competencies were an appropriate level of difficulty.
5. The suggested assessments were an appropriate level of difficulty.

Introduction, Goals, and Objectives

1. The certification process gave me a better understanding of environmental education.
2. The principles of environmental education as they relate to the portfolio assessments are clear.
3. The certification program addresses the following goal: The program provides a method for recognizing high quality environmental educators.
4. The certification program will professionalize the field of environmental education.
5. The certification program will broaden the community of environmental educators.
6. The certification program will foster professional development among environmental educators
7. The certification program will help employers identify high quality staff.
8. The certification program will develop common ground in a diverse and varied field.
9. The competencies provide an accurate baseline understanding for skills and knowledge expected of environmental educators.
10. The competencies reflect best practices in environmental education.
11. The suggested assessments effectively measure certified and master proficiency in environmental education.

12. The suggested assessments build strong foundations and consistency in skills and knowledge for environmental education providers.

How likely would you be to recommend certification to a friend, employee, or coworker?
What parts of the certification process were confusing or unclear?
What parts of the certification process would you change?
Which theme in the certification rubric describes the skills that are most important in your work?
What parts of the certification process were the most valuable?
Describe how the Environmental Educator Certification will be a benefit to you.

## Appendix D

Final questionnaire, including all potential answers, used to survey participants that was administered via Qualtrics.

**DEMOGRAPHICS**

1. What is your gender?
    A. Female
    B. Male
    C. Non-binary/third gender
    D. Prefer to self-describe
    E. Prefer not to say
    F. Transgender
    G. Cisgender
    H. Agender
    I. Genderqueer
    J. A gender not listed
2. **What is your race?**
    A. American Indian or Alaskan Native
    B. Asian
    C. Black or African America
    D. Native Hawaiian or Other Pacific Islander
    E. White
    F. Some other race, ethnicity, or origin
    G. Prefer to self-describe
    H. Prefer not to say
3. Are you of Hispanic, Latino/a/x, or of Spanish origin?
    A. No, not of Hispanic, Latino/x/, or Spanish origin
    B. Yes, Mexican, Mexican American, Chicano/a/x
    C. Yes, Puerto Rican
    D. Yes, Cuban
    E. Yes, Another Hispanic, Latino/a/x or Spanish origin
    F. Some other race, ethnicity, or origin
4. How old are you?
    A. Under 18
    B. 18-24
    C. 25-34
    D. 35-44
    E. 45-54
    F. 55-65
    G. 65-74
    H. 75-84
    I. 85 or older
5. Check how you are involved with environmental education. Please describe.
    A. Paid.
    B. Volunteer.
    C. Student.
6. What is your current profession?
    A. PreK-12 Teacher
        i. How many years have you been an educator?

    ii. List any education credentials you have, if applicable.
  B. Preservice Teacher
    i. List any education credentials you have, if applicable.
    ii. State your area(s) of study
  C. Non-Formal Educator
    i. How many years have you been an educator?
    ii. List any education credentials you have, if applicable.
  D. College University Instructor
    i. How many years have you been an educator?
    ii. List any education credentials you have, if applicable.
  E. Resource Developer
  F. Program Director
    i. List any education credentials you have, if applicable.
  G. Undergraduate Student
    i. State your area(s) of study.
  H. Graduate Student
    i. State your area(s) of study.
  I. Other (please specify)
7. Number of years you have been an environmental educator: (please state)
8. Who do/will you teach or direct? Check all that apply.
  A. Preschool
  B. K-2
  C. 3-5
  D. 6-8
  E. 9-12
  F. Teachers
  G. Preservice Teachers
  H. Other College/University Students
  I. Non-Formal Educators
  J. College/University Instructors
  K. Other (please specify)
9. Number of students/participants you teach/reach each year: (please state)
10. The students/participants you primarily work with come from: Check one.
  A. Urban
  B. Suburban
  C. Rural
  D. Tribal
  E. Mix of areas
11. Do you hold active membership in an environmental organization? List if applicable.
  A. Yes: List
  B. No.
12. Others consider you to be an environmental education leader: Check all that apply:
  A. In your K-12 school
  B. In academia
  C. In your organization
  D. In the community where you live
  E. In the state where you live
  F. At the federal level
  G. At the international level
  H. I participate actively but do not consider myself a leader (yet)
  I. Not applicable

**MOTIVATIONS**

13. I pursued the Colorado Alliance For Environmental Education Certification program… (strongly disagree – strongly agree)
    A. to gain skills and knowledge as an environmental educator.
    B. to increase my employability.
    C. to access a more extensive network of environmental educators.
    D. because my friend, colleague, mentor, or partner was doing it.
    E. because my school/program encouraged me to.
    F. because my job encouraged me to.
    G. to gain professional development opportunities.
    H. to reflect on my practice.
14. Are there any other reasons not mentioned above? Please list.

**CERTIFICATION**

15. Which year did you achieve certification?
16. Which certification did you apply for (in your first submission)?
    A. Certified Master
        i. Describe what motivated you to pursue Master Certification.
        i. Did your portfolio meet the criteria for Certified Master in your first submission?
            - Yes, my portfolio did meet the criteria for Certified Master.
                - Rank (1-5) which themes were most challenging to fulfill criteria for Master Certification.
                - Describe the most significant or important outcome of becoming Master Certified.
            - No, my portfolio did not meet the criteria for Certified Master.
                - Which theme(s) (1-5) did not meet criteria? Check all that apply and describe.
                - Did you or do you plan to re-submit your portfolio for Master Certification?
                    - Yes, I plan to or already have re-submitted my portfolio for Master Certification.
                        - Describe how much time it took you to re-submit for Master Certification
                        - Describe motivations for re-submitting for Master Certification.
                    - No, I do to plan to re-submit my portfolio for Master Certification.
                        - Describe why you don't plan to re-submit your portfolio for Master Certification.
                    - Unsure
                        - Describe why you are unsure in re-submitting your portfolio for Master Certification.
    B. Certified
        i. Describe your motivations for becoming Certified.
        ii. Describe your most significant or important outcome of becoming Certified.
        iii. Do you plan to pursue Master Certification?
            1. Yes, I plan to pursue Master Certification.

a. Describe why are pursuing or plan to pursue Master Certification.

2. No, I don't plan to pursue Master Certification.
    a. Describe why you don't plan to pursue Master Certification.
3. I am not sure.
    a. Describe why you are usure in pursuing Master Certification.

C. Apprentice
    i. Describe what motivated you to become Apprentice Certified
    ii. Describe your most significant or important outcome of becoming Apprentice Certified.

**OBSTACLES**

17. Certification Obstacles: Please read each statement and determine the extent to which you agree or disagree. (Strongly Disagree to Strongly Agree)
    A. It took a lot of time and effort to complete the certification program.
    B. The resources needed to acquire the certification made it challenging for me to do so.
    C. I did not face many logistical obstacles when pursuing the certification process.
    D. The certification fee was a financial burden.
    E. I did not have support from my employer.
    F. The open-ended nature of the portfolio made it difficult to complete.
    G. I did not have some of the requisite knowledge or skills.
        a. Please describe the requisite knowledge or skills
18. Are there are other obstacles not described above? Please list.

**PROCESS**

19. Certification Process: Please read each statement and determine the extent to which you agree or disagree. (Strongly Disagree to Strongly Agree)
    A. I felt well supported by CAEE when pursuing certification.
    B. I felt supported by my program/teachers when pursuing certification.
    C. I felt supported by my employer when pursuing certification.
    D. The CAEE communicated to me effectively about the expectations, logistics, and goals of the certification process.
    E. I already had adequate evidence of competencies to create a comprehensive portfolio.
    F. The suggested assessments clearly reflect the competencies.
    G. The suggested assessments (or choosing other evidence of competency) was made clear by rubrics.
    H. The competencies were an appropriate level of difficulty.
    I. The suggested assessments were an appropriate level of difficulty.

**OUTCOMES**

20. Certification Outcomes: Please read each statement and determine the extent to which you agree or disagree.

A. I have applied the skills and knowledge that I learned from certification in my current job.
B. My professional network did not expand due to participating in certification.
C. The certification made me more confident in my current job.
D. I built a strong foundation of skills and knowledge through pursing certification.
E. Compiling my portfolio was helpful for me to see my strengths as an environmental educator.
F. Compiling my portfolio was helpful for me to see my areas for growth as an environmental educator.

G. Compiling the portfolio helped me reflect on my role and identity as an environmental educator.

21. Are there any other positive or negative outcomes you experienced from the portfolio process not described above? Please list.

**THEMES**

22. Which theme in the certification rubric describes the skills that are most important in your work? Rank 1-5.
    - Theme 1: Environmental Literacy (Questioning, Analysis, and Interpretation, Knowledge of Environmental Processes and Systems, Addressing Environmental Issues)
    - Theme 2: Foundations of Environmental Education (Basic Understanding of the goals, theory, practice, and history of the field of EE)
    - Theme 3: Professional Responsibilities of the Environmental Educators (Exemplary Practice, Professional Development)
    - Theme 4: Planning and Implementing Environmental Education (Advocacy vs. Education, Knowledge of Learners and Teaching Methods, Appropriate Environment, Goals and objectives)
    - Theme 5: Assessment and Evaluation (Learner Outcomes and Assessment, Improving Instruction, Evaluating Programming)
23. Please describe why the top-rated skill(s) is most important.
24. If you could delete or add a theme to the portfolio what would it be and why?
25. Which theme in the certification rubric did you struggle with the most? Rank 1-5.
    - Theme 1: Environmental Literacy (Questioning, Analysis, and Interpretation, Knowledge of Environmental Processes and Systems, Addressing Environmental Issues)
    - Theme 2: Foundations of Environmental Education (Basic Understanding of the goals, theory, practice, and history of the field of EE)
    - Theme 3: Professional Responsibilities of the Environmental Educators (Exemplary Practice, Professional Development)
    - Theme 4: Planning and Implementing Environmental Education (Advocacy vs. Education, Knowledge of Learners and Teaching Methods, Appropriate Environment, Goals and objectives)
    - Theme 5: Assessment and Evaluation (Learner Outcomes and Assessment, Improving Instruction, Evaluating Programming)
26. Please describe why you struggled more with any of the themes.
27. What else could CAEE do to increase the value of certification?