

Exploratory Research of Training and Practice in Horticultural Therapy

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Dedication

To my beloved parents who nurtured in me a disproportionate amount of tenacity,
always believed in my abilities, and taught me to live out the following:

“Do justice,
love kindness, and walk humbly with your God.”

Micah 6:6-8

Abstract

This study examined two areas: the composition of the American Horticultural Therapy Association (AHTA) membership, and the training that individual members receive to benefit their professional practice. A comprehensive survey of 40 questions was sent to all AHTA members with email addresses. Forty-percent or 249 members responded to the survey.

Demographic data indicated survey participants were most frequently white females between the ages of 46- 55 living within Eastern United States with a BA/BS in other specialized area, with 1-5 years experience as a therapist in a senior care center. She has received “a little” to “some” training mostly from workshops and is practicing “a little” to “some” in the role of a Horticultural Therapist.

Analysis of survey responses found a moderate positive relationship between training and practice ($R = .719$). The only two areas that indicate any significant differences between training and practice were in foundations and professional organization. That is, training in foundations was not being used in practice, and training in professional organization was inadequate for what is needed in practice.

Survey results also found two significant patterns of differences. First, there was significant difference between training and practice for those AHTA members who were registered compared to non-registered. Specifically, AHTA members who are registered had a higher overall mean level of training and practice when compared to AHTA members who are non-registered.

Second, there was significant difference between training and practice for those AHTA members who had 11 or more years of experience. Specifically, AHTA members who are had more years of experience had a higher overall mean level of training and practice when compared to AHTA members who had fewer years of experience.

The findings from this study will help to prepare for future HT training and employment needs. This study is a step towards the development of a competency-based evaluation of entry-level HT practitioners, part of the ongoing effort to protect the public interest and advance the field of HT.

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CHAPTER ONE

INTRODUCTION

Horticultural therapy (HT) and other adjunct medical professions have sought professional status as a means of ensuring practitioner service quality as well as societal recognition and acceptance as a profession. A number of tasks along the continuum of professionalization have yet to be undertaken in HT. One such task is to examine the composition of the American Horticultural Therapy Association (AHTA) membership. Another task is to explore how the member's training is related to their practice. Accomplishing these tasks will contribute to the development of a competency-based evaluation of entry-level HT practitioners, an important step in the overall effort to secure recognition and status as a profession.

Purpose:

This research study sought to:

- A. Examine the composition of American Horticultural Therapy Association (AHTA) membership
- B. Investigate how training within the following specific areas of professional HT competencies informs and guides professional practice:
 - 1. foundational knowledge of horticultural therapy
 - 2. understanding of population groups and diversity of users
 - 3. skills in assessment
 - 4. skills in program planning

5. skills in the intervention process
6. skills in evaluation
7. knowledge of program operations
8. knowledge of the AHTA professional organization

Statement of the Problem:

To determine the strength of the relationship between AHTA members level of training and their engagement in professional practice.

Limitations:

The study will only measure members of AHTA with email addresses ($N = 635$); total AHTA membership includes 850 members; 220 of which are registered HTs.

Delimitations:

This survey will be confined to members of AHTA with email addresses.

Definition of Terms:

1. Horticultural Therapy –HT is “a professionally conducted client-centered treatment modality that utilizes horticultural activities to meet specific therapeutic or rehabilitative goals of its participants. The focus is to maximize social, cognitive, physical and/or psychological functioning and/or to enhance general health and wellness” (Haller & Kramer, 2006, p.47).

2. American Horticultural Therapy Association – AHTA is a 501(c)(3) nonprofit organization with the mission to promote and advance the profession of horticultural therapy (AHTA, 2008).

3. Training – any AHTA sponsored and/or accredited instruction in the area of horticultural therapy.

4. Practice – to implement characteristic job functions necessary for the treatment intervention within horticultural therapy.

CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction:

Establishing a profession is a complicated process that may extend over a long period of time. A profession is born out of a societal need “to have available certain services that require specialized knowledge and skills” (Reynolds & O’Morrow, 1985, p.6). Horticultural therapy (HT) has its origin in the adjunct medical professions (e.g. occupational therapy and therapeutic recreation) during the social reforms of the early twentieth century (Davis, 2003). Sociologists have investigated the means by which occupations become established professions. Wilensky (1964) has suggested that although many occupations have sought professional status, few have attained the attributes and recognition ascribed to true professions like medicine and law. Horticultural therapy and other adjunct medical professions have sought professional status as a means of ensuring practitioner service quality as well as societal recognition and acceptance as a profession. A number of tasks along the continuum of professionalization have yet to be undertaken in HT. One such task is to empirically explore how the training in HT informs and guides the professional practice of HT. Accomplishing this task will contribute to the development of a competency-based evaluation of entry-level HT practitioners, an important step in the overall effort to secure recognition and status as a profession.

The purpose of this literature review was to build the theoretical framework for an exploratory survey into the training and practice of horticultural therapy. The first section explores HT in view of the attributes necessary for the development of a profession. The next section looks into the related profession of therapeutic recreation and its process toward building professional competencies, followed by the field of HT and its efforts to do the same. The last section will explore the additional steps HT must make toward empirically establishing the profession.

On Becoming a Profession:

As the application of horticultural therapy (HT) in the healing professions has evolved, more people are receiving this treatment modality from a wide range of practitioners who have academic degrees in related areas (Shoemaker, 2003). Horticultural therapy as a treatment approach has a limited body of research validating therapeutic benefits, with more needing to be done (Haller & Kramer, 2006). There are significant concerns about the effectiveness of horticultural therapy education and the resulting quality of care provided to clients (Haller & Kramer, 2006). Education in horticultural therapy is offered at a few Universities and botanic gardens but there is only a list of topic areas (AHTA, 2008) that HT certification programs are responsible to deliver. There has not been a systematic analysis of knowledge, skill or content areas required by the accredited programs (Fleming, 2005). Despite the fact that it has become commonplace to refer to this therapeutic modality as the “profession of horticultural therapy,” it lacks a

number of essential elements that are considered to be hallmarks of a full-fledged profession.

What exactly is the HT profession? Can the application of HT be called a *profession*? Or is the application of HT a *modality* used within other recognized professions? The term “profession” is difficult to define.

According to Wikipedia, (Profession, 2008) a profession is “an occupation, vocation or career where specialized knowledge of a subject, field, or science is applied. Professions are usually regulated by professional bodies that may set examinations of competence, act as a licensing authority for practitioners, and enforce adherence to an ethical code of practice” (p.1).

Contemporary understanding and usage of the term “profession” can be said to date from 1915 when Abraham Flexner (Flexner, 1915) suggested some criteria as the basis for determining whether or not social work might qualify as a profession. Flexner suggested that a profession is (Beck, 2004):

- Intellectual and carried with it personal responsibility for the exercise of choice and judgment
- Learned because its exercise was based on a substantial body of knowledge that could be passed on from generation to generation from practitioners to students
- Practical in that its corpus of knowledge is put to a practical use of benefits to others
- Organized into associations of practitioners
- Characterized by idealism which in theory, if not practice, puts the aim and practice of the profession above mere money making

Over time, Flexner was followed by many others using the “traits” and/or “attributes” method of defining a profession, such as Carr-Saunders and Wilson (1933), Parsons and Shils (1959), Millerson (1964), Moore (1970), Bledstein (1976), Stumbo (1989), Sessoms and Henderson (1994), Carter (1998), Coyle, Boyd, Kinney and Shank (1998). Stumbo and Hess (2001), Carter, VanAndel and Robb (2003). Together the attributes they have put forth could be summarized as follows:

1. Possessing a corpus of professional knowledge comprising theories and techniques/skills, preferably of a multidisciplinary nature.
2. Formal system of education and training, sufficiently long to enable the mastery of theories and techniques. This system should incorporate continuing education programs and emphasize research and publication.
3. Testing of competence is done before one is accepted into membership of a professional body, there is usually a requirement to pass. prescribed skills and knowledge necessary to conduct the profession
4. Posses a service principle that places the welfare of society above personal gains.
5. Be governed/regulated by a Code of Ethics, to ensure accountability in the performance of duty.

6. Maintain standards in all aspects of professional activity (such as work standards, educational standards, personal integrity, etc.).
7. Be represented by a professional association.
8. Possessing legal and public recognition of professional status.

While some of these attributes have already been established in HT, or are well on the way to being so, many remain short of expectations. By contrast, a full-fledged profession is based upon a coherent structure and universal standards set forth by this list of attributes. Until the work is done to establish this foundation, horticultural therapy will not enjoy the full privileges and responsibilities afforded full professional status.

Lessons from Therapeutic Recreation:

Like AHTA, the National Council of Therapeutic Recreation Certification (NCTRC) has been wrestling with efforts to define itself professionally, specifically as it relates to entry-level competent practice for curriculum and training purposes. From as early as the 1960's (Carter, Van Andel, & Robb, 1995) there was a subgroup of professionals called the Recreation Education Accreditation Project team charged with the purpose of establishing criteria for undergraduate and graduate curriculum emphasis in therapeutic recreation (Ball, 1968).

In the 1970's and into the 1980's these criteria were revised by the Council on Accreditation and were used to review recreation curricula,

including the therapeutic recreation specialization. The NCTRC recommended periodic revision of the accreditation standards to maintain relevancy to professional practice. This has been done ever since the mid-1970's by the NCTRC with a review of the literature and a survey of existing programs (Peterson, Newmyer, & Connolly, 1978). This initiative has served to establish competencies that could be utilized to identify educational outcomes for entry-level practice and job analysis (Jordan, Dayton & Brill, 1978).

In 1987 the NCTRC signed a contract with the Educational Testing Services of Princeton, New Jersey to conduct a job analysis for Therapeutic Recreation (TR) professionals (NCTRC, 1998). The purpose of this job analysis was to determine entry-level, competent practice of professional practitioners. This job analysis provided detailed information about what the TR professional was doing in the workplace, and identified the knowledge and skills necessary for competent performance. The job analysis was also critical in the development of test specifications for the entry-level competency exam.

Building from this work, in the late 1990's the NCTRC had established a list of accreditation standards. A national job analysis by the Educational Testing Service was sponsored by the NCTRC to determine a list of job skills and knowledge areas that defined current entry-level practice in TR (see Appendix B). The results of the 1997 job analysis were a blueprint for the development of the national TR certification exam and profoundly influenced pre-professional curriculum design (Connolly & Riley, 1995).

The NCTRC has most recently completed its third comprehensive job analysis in 2007 (see Appendix C). The study had two primary questions to answer: “what are the important job tasks related to competent practice and what knowledge and skills are essential for competent practice?” (NCTRC, 2007). The answers to these questions were essential to the integrity of the NCTRC credentialing process and its associated exam program. The findings of the 2007 job analysis reflect the overall pattern consistent with the 1997 job analysis and other previously conducted studies regarding important aspects of TR. Although there were no substantial changes observed in the 2007 study, the analyses point to a well defined and consistent application of the profession to practice, thus verifying the validity of the NCTRC exam.

From the job analysis efforts by the NCTRC the outcome has focused on minimum knowledge and skills (see Appendix D). In addition to these initiatives, a number of TR professionals have taken into consideration the development of professional preparations at the college level. Kelly, Robb, Park and Halberg (1976) completed a three-stage Delphi Technique national study to identify entry-level competencies. The results included a list of 50 competences to develop a competency-based curriculum for two-year colleges (Kelly, Robb, Park, Halberg & Edwards, 1978). Jordan, Dayton and Brill (1978) identified 30 competencies based on functional elements of the role of therapeutic recreation practitioners, and included a survey of practitioners regarding the best setting to acquire specified knowledge and skills. The authors used the survey findings as a foundation for a competency-based

master's degree curriculum. Brasile (1992) survey results indicate that preparation of entry-level practitioners should be the focus of undergraduate degree programs while management and research should be the focus of graduate degree programs.

HT process towards establishing professional competencies:

The intention of this research study was to contribute to the empirical exploration into the entry-level training and competent practice as part of an effort to provide assistance to AHTA in moving HT toward professional maturation. Exploration of the identified knowledge, skills and attributes necessary for professional practice is an important step in building the HT profession. This will assist in establishing the groundwork for determining standards in education and practice (Rops, 2002).

The effort to identify the requisite knowledge and skills for HT began in 1968, when Rhea McCandliss, a horticultural therapist at the Menninger Foundation of Topeka, Kansas implemented the first survey to provide evidence of horticultural therapy programming in the United States (McCandliss, 1968). She sent her survey to 500 psychiatric hospital and health care facilities across the United States and discovered a noteworthy existence and interest in HT programming, but lack of qualified professionals to meet the growing demand (McCandliss, 1968).

In 1971, McCandliss along with Dr. Richard Mattson, Karl Menninger and other adjunct staff at the Menninger Clinic (a national psychiatric hospital) defined the job responsibilities of the horticultural therapy

occupation and the first bachelor's degree in horticultural therapy in the United States was developed (K-State Media Guide, 2009).

In 1972 the Menninger Clinic developed a cooperative educational agreement between its recreational therapy department and the horticulture department of Kansas State University. Through this agreement the first horticultural therapy curriculum in support of the mental health field was established in addition to a seven-month clinical internship at the Menninger Foundation. One year later, in 1973, the National Council for Therapy and Rehabilitation through Horticulture (NCTRH) was formed; later to be known as AHTA (Davis, 2003).

As horticultural therapy has evolved practitioners, educators, and the members of AHTA have been making concerted attempts to identify the entry-level knowledge and skills essential for competent service delivery. In 1978 Dr. Richard Mattson of Kansas State University developed an undergraduate survey of horticultural therapy jobs among graduates of the Kansas State University Horticultural Therapy program (Mattson, 1979). This survey examined factors such as job placement, starting salaries, length of employment, race and gender. Survey participants were most frequently from the central states, salaries competitive with other health care professionals, and slightly higher than other agricultural professions (Mattson, 1979).

In 1976, the NCTRH began registration of horticultural therapists. The registration process was started with the objective to protect the clients served by assuring HT practitioners have the necessary training and

qualifications to provide professional services. This process was revised in 1988 to make the procedure more comprehensive and objective. Three levels of registration were made available including: Horticultural Therapy Technician (HTT), Registered Horticultural Therapist (HTR) and Master of Horticultural Therapy (HTM).

These revisions came in part due to the leadership of Dr. Richard Mattson, Department of Horticultural Science at Kansas State University and a research grant awarded to him from the National Institute of Mental Health. The results of this research grant were published in 1982 by the members of the Kansas State University Horticultural Therapy Project (HTRP). A group of research assistants and Dr. Mattson wrote about the three areas of study: curriculum evaluation/revision; development of profiles in horticultural therapy; and descriptions of horticultural therapy processes.

One of the articles in this work entitled *Job Analysis of the Horticultural Therapy profession* by Kuhnert, Shoemaker and Mattson (1982), found the training of horticultural therapists must provide “practical skills in management of client behavior, written and oral communication, management of horticultural crops in a wide range of settings, definition of goals for clients, and the achievement of these through horticultural activities”(p.25). Overall, Kuhnert, Shoemaker and Mattson discovered the baccalaureate level of training in horticultural therapy is adequate at a practical skill level, but continued advancement will come from development and the institution of performance standards and certificate testing.

Murphy and Mattson (1982) focused on another project entitled *Development and evaluation of domain referenced items for professionals in Horticultural Therapy*. This research consisted of identifying essential educational skills required by the Horticultural Therapist in the areas of horticulture, horticultural therapy, and therapy skills. Twenty-five multiple choice test questions encompassing the three domains were written using test development procedures. The results indicated those with a degree in horticultural therapy scored higher on the horticulture and therapy skills than participants having degrees in horticulture and other fields. Registered Horticultural Therapists scored higher in all three domains compared with those who were not registered. Participants with 4 to 6 years work experience in the field of horticultural therapy achieved higher mean scores on all three domains when compared with those with more or less experience (Murphy & Mattson, 1982). Taken together, Kuhnert, Shoemaker and Mattson described what was done on the job, along with Murphy and Mattson described a list of competencies, the two studies presented the necessary data for developing test questions for a certifying exam.

In October, 1990 “*Competencies Defined*” was the title of the Horticultural Therapy Professional Development Symposium held at the Menninger Foundation in Topeka, Kansas. The purpose of the symposium was to define the domains of professional competencies required to practice horticultural therapy. The issue of certification testing came up when Mattson presented a panel discussion on the different processes for certification in the

related professions of occupational therapy and therapeutic recreation (Kelly, Bowen, Siek & Mattson, 1990). Bowen and Siek were experts in occupational therapy, while Kelly was an expert from therapeutic recreation. Upon conclusion, all speakers agreed the path to certification will take time and expense, but was worth the assurance to the public that professionals in the field have demonstrated entry level competency to provide therapeutic services.

At the same symposium, Haller and Beems (1990) gave a lecture entitled “AHTA Registration versus Certificate testing” that examined the options for professional recognition including: Accreditation; Certification; Licensure. They looked at the pros and cons of the AHTA registration system and concluded “developing professional recognition is difficult since members of AHTA come from a wide variety of backgrounds and there are few schools offering horticultural therapy curricula, along with the fact those practicing horticultural therapy have degrees in related fields and not necessarily HT” (p. 25). This lecture provided a comprehensive summary (Haller & Beems, 1990, p. 27 – 32) concerning the types of registration and certification testing used by other related health care and horticultural professionals.

Richard Mattson (1990b) gave the final lecture of the “*Competencies Defined*” Horticultural Therapy Professional Development symposium on the topic of “Developing Horticultural Therapy Certification Test Questions”. He explained how the professional registration of AHTA is based on experiences, academic training and other evidence of professionalism but it does not

evaluate on a competency-based system. He went on to describe AHTA as a “relatively small organization without the resources to spend to develop a national testing system. Horticultural therapists need to begin to develop a compilation of literature and research findings in the field. From this information, pilot test questions can be developed which describe the knowledge base. The process has been started, but we need to be moving faster” (p. 82).

In 1993 Mattson and Stober conducted a survey focused on horticultural therapy professional issues such as occupational parameters and factors necessary to advance the profession. Specifically, participants were asked to provide opinions on questions concerning professional advancement issues. The results from this survey indicated that in general academic training, internships and registration are important factors but certificate training is needed for optimal professional advancement.

Also in 1993, Mattson, Merkle, Parrett and Waliczek proposed horticultural therapy standards of practice that include the following conditions and performance essential for quality horticultural therapy services:

1. Scope of General Client Services
2. General Horticultural Program Administration
 - a) Organizational goals
 - b) Personal management
 - c) Financial management
 - d) Public and community relations

- e) Physical resource management

3. Specific Program Services

- a) Horticultural Therapy Activities
- b) Horticultural Educational Services
- c) Horticultural Rehabilitation Services
- d) Individual Treatment Plans
- e) Documentation
- f) Scheduling Services
- g) Ethical Practices

In 2002, Candice Shoemaker compared horticultural therapy to the fields of art therapy, music therapy, therapeutic recreation, and occupational therapy in an effort to highlight the similarities between professions as well as the differences. Shoemaker stated her purpose was to generate dialogue between the professions in an effort to clearly define what it means to be a professional in horticultural therapy and to communicate this effectively to all groups. She stated a “clear and comprehensive view” (p.81) concerning the range of membership and requirements of testing used by other stated allied therapists.

Shoemaker (2003) also conducted a survey of registered Horticultural Therapists to gain insight into the profession in relation to employment, educational activities, current professional issues and demographics. The findings determined over half of the respondents (53.8%) were practicing

horticultural therapy; 54% reported earnings between \$25,000 and \$50,000 annually; and 75% were between the ages of 40 and 59. Sixty-eight percent of the respondents who were registered as horticultural therapists have some additional education beyond their Bachelor's degree. The study found the most significant need for the profession was for health care and insurance companies to recognize the profession as a legitimate therapeutic modality, and through board certification or licensure, include better pay, job security, and healthcare reimbursement.

Shoemaker (2004) further indicated how the profession of horticultural therapy was struggling compared to other allied therapies. Shoemaker suggested the difference was due to the allied professions having clearly stated definitions of entry level skills (professional competencies) as well as independent credentialing boards.

In an effort to strengthen the standards for professional registration and education, AHTA organized a professional standards task force in 2005 to identify issues of competency standards and job analysis. On October 1, 2008 AHTA announced raising standards in professional registration to include: a four year college degree (BA or BS) and the completion of specific horticultural therapy course work (HT specific competencies), and the completion of field work in horticultural therapy supervised by an registered horticultural therapist (HTR) or person with a master's degree in horticultural therapy (HTM) (American Horticultural Therapy Association, 2008).

Specifically the 2008 changes include:

1. AHTA will only credential Horticultural Therapy Registration (HTR) – Horticultural Therapy Assistant (HTA) and Horticultural Therapy Technician (HTT) will no longer be granted.
2. In order to authorize Horticultural Therapy – Registered (HTR), the applicant is now required to have a BS or BA degree.
3. In addition to a degree, specific core coursework is now required:
 - a) The required core coursework would focus on the human sciences, horticulture and horticultural therapy (see Appendix A).
 - b) The required core coursework may be part of an established degree or taken as an addendum to a degree.
 - c) The required core coursework must include the most pertinent courses needed for an entry level Horticultural Therapist (HT). The core coursework will focus on course topics and not specific course titles (i.e. topics are more easily identified due to the shortage of HT coursework at the college level.
 - d) Individuals will be given the opportunity to take their HT core coursework at either a college/university

setting or through an HT Certificate program - (i.e. a rehabilitation institution or botanical garden).

4. In addition to a degree and core coursework specific supervised HT fieldwork/internship (at a minimum of 480 hours) is also required.

Presently the number of institutions offering entry-level horticultural therapy training is steadily growing (see Table 1). There are two University sponsored degree programs in horticultural therapy and there are six certificate programs in horticultural therapy located at various university and botanic gardens offering courses in horticultural therapy. Most education programs are based in horticulture or plant-science departments of colleges, universities and/or public gardens. Seldom are the courses found in human science or health care facilities. Haller and Kramer (2006) note “more health service and social science courses will be necessary to reflect the interdisciplinary competencies required of HT’s who wish to practice in health care or social service areas” (p.3). Efforts such as these therefore must continue in order to increase the professional standards for entry-level horticultural therapy competencies in today’s rapidly evolving health care industry.

Table 1
Entry-level horticultural therapy training

Horticultural Therapy Degrees – Bachelor, Master’s and Ph.D’s

Kansas State University – Manhattan
Department of Horticulture, Forestry and Recreation
Resources
Rutgers University –School of Environmental & Biological
Sciences
Department of Plant Biology

U.S. Horticultural Therapy Certificate Programs AHTA - Accredited

Temple University – Ambler, Pennsylvania
Horticultural Therapy Institute - Denver, Colorado
University of Minnesota Landscape Arboretum
New York Botanic Garden
University of Cincinnati - Clermont College
Rutgers University – School of Environmental &
Biological Sciences

Road Map to Professional Competencies in HT:

Professional competence is the integration of knowledge, skills and performance. The ability to transform learning into effective and appropriate action is evidence of competence (MacNeil, Teague, & Cipriano, 1989). The path to achieving a level of professional competency in HT may be best achieved by following the example of other related professions that have successfully gone before.

The National Commission for Certifying Agencies, an accreditation arm of the National Organization for Competency Assurance (NOCA) has been a leader in setting quality standards for credentialing organizations since 1977. NOCA is a clearinghouse for information on the latest trends and issues of concern to organizations focused on certification, licensure, and human

resource departments (National Organization for Competency Assurance, 2008). The term *certification* refers to a non-statutory process whereby an accrediting body grants recognition to an individual for having met predetermined professional qualifications (CBMT, 2008). NOCA (2008) has been the certifying arm for such occupations as Music Therapy (Certifying Board – Music Therapy, 2008); Occupational Therapy (National Board Certifying – Occupation Therapy, 2008); and Therapeutic Recreation (National Council Therapeutic Recreation Certification, 2008).

NOCA has published a certification handbook (2008) identifying the steps necessary for certification. In the NOCA handbook, the second chapter specifically focuses on the need for job analysis and an overview of the process. NOCA requires any certified occupation to complete a job analysis every five years to insure continued competency of current practice as the field continues to grow and new clinical applications develop. This five year review of competencies means an outside accountability exists to prevent the practice of unqualified persons from outside the field, and increases the proof of continued competency by professionals within the field (CBMT, 2008).

This research project begins to explore a systematic and in-depth job analysis (completed three times for TR) done only once in HT (Kuhnert, Shoemake & Mattson, 1982) by using the formula set forth by NOCA. In the NOCA handbook, Henderson (2008) explains that a job analysis is a very detailed job description. Henderson (2008) goes on to say how “the profession is broken down into performance domains that broadly define the profession.

Each performance domain is then broken down into tasks which will help define each performance domain. In turn each task is delineated thoroughly and completely” (p.42). The outcome is thus precisely defined tasks organized within major domains as the foundation of knowledge and skills required for competent practice.

Henderson (2008) indicates there are two phases to the process:

1. Obtaining and describing job information
2. Validating the job description

The first phase involves the objective cataloging of job descriptors and/or tasks. The catalog of tasks capture the things people do on the job, in the effort to identify the needed knowledge and skills a practitioner uses to complete the job successfully. Obtaining this information about the job and organizing this information to describe the tasks performed can be done with written documentation, interviews, observations, questionnaires, and use of expert judgment (Henderson, 2008). This process takes the form of an outline or list of tasks in which the statements are phrased as clearly as possible for targeted tasks. Each task must be distinguishable from all others along with a set of related knowledge and skills for ease in interpretation for the respondents of the study (see Figure1).

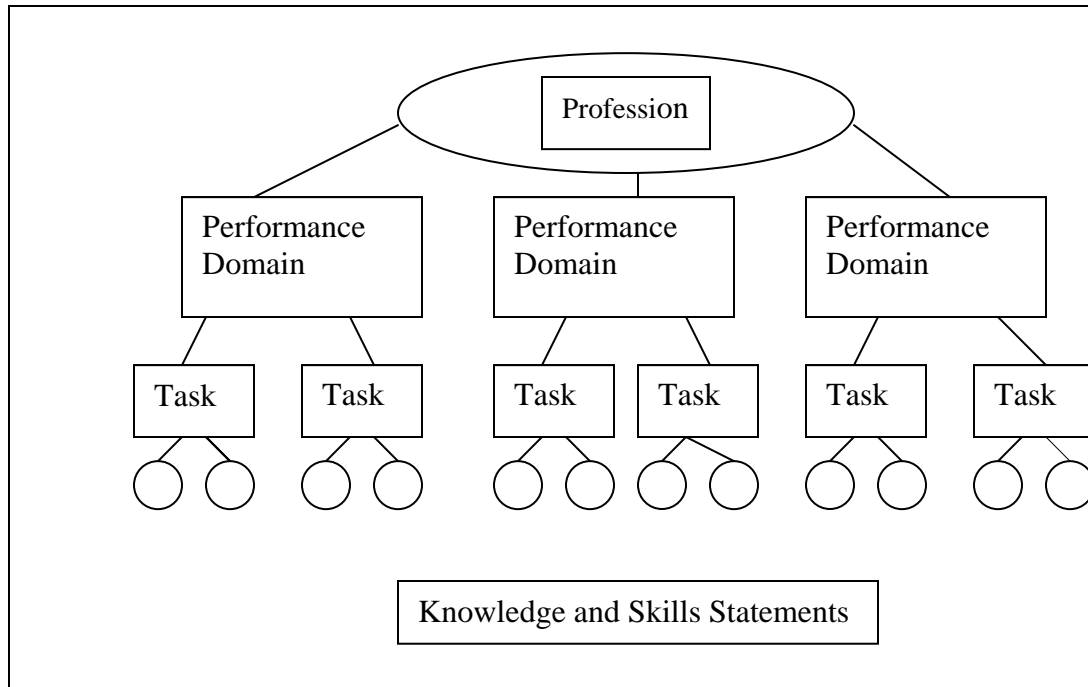


Figure 1. What is a job analysis? (Henderson, 2008).

Overall, the purpose of the task list is to serve as a description of the profession as it is, not as it might be at some future date or as it was in the past. The task list is a pulse of the present state within the field of study (Henderson, 2008).

The second phase, validating the job description, typically involves surveying current practitioners, a process that can be referred to as “a validation study” (Henderson, 2008, p.54). Henderson (2008) suggests the validation study consist of tasks, knowledge and/or skills in a logical order with scales for collecting respondent’s opinion about how important each task is to the successful performance of the job. Henderson (2008) indicates the directions to respondents “must make clear the target audience and

professional level intended” (p.54). He goes on to say the directions “must be comprehensive and clear, with enough detail to enable respondents to understand the procedures required for completing the survey” (p.56). Henderson also suggests allowing for respondent comments at specified intervals in the study as well as the opportunity to add feedback as to deficiencies of the study. Allowing for comments and feedback are helpful for refining the final language for as many settings as possible.

Preparation of membership for the validation study includes some form of announcement in the association newsletter or other relevant publication. Also helpful is sending a letter from key organization leaders informing the members of the project and soliciting their participation. These steps create an awareness of the validation study and encourage participation (Henderson, 2008).

Pilot testing the survey will yield many benefits, including: whether or not respondents understood the task listing or knowledge and skill statements and whether the respondents understood how to record their evaluations. Henderson (2008) says, “with these data and the information on directions, clarity, and time, revisions can be made to improve the full-scale survey project”(p.59). In addition, pilot testing is a trial run of the survey procedure to determine length of time respondents need to complete the survey.

Once a survey is completed and the results are analyzed, the association will want to have information about outcomes (Henderson, 2008). Descriptive statistics are used to learn about the demographics of participants

responses and comparisons to various questions in the validation study.

Henderson (2008) suggests percentages be included “because they place the different frequencies on the same scale which is important to know who have a certain amount of experience or if there are differences in how they rated the importance and frequency of each task” (p.61). Henderson (2008) goes on to say other descriptive statistics used would be measures of central tendency: mean, standard deviation, and range of scores information.

Outcomes from the final report need to document the study and the linkage between the survey content and job itself. A report that is informative, clear yet comprehensive and faithful to the analysis should be developed for the benefit of individuals involved in the test and the trainers/educators. Henderson (2008) suggests the final report include the following (p.63-64):

- The purpose of the project, who provided leadership for it, and background that explains such matters as timing and design.
- A detailed description of the process used in the first phase of the job analysis to define the knowledge statements so that the reader can appreciate how the list or outline was developed, and understand the influences that helped form the document.
- Documentation of the design of the validation study, with explanations of the essential questions, development of the task inventory, and data collection and analytic procedures.

- Description of participants in the study, using appropriate statistical tables, graphs, and diagrams to summarize and present the information in a meaningful manner.
- Various items in the task inventory, including overall statistics for importance and relevance and group-specific statistics.
- Conclusions summarizing which items in the catalog of task and knowledge statements were supported by the validation data and which were not, along with the decisions made for future implications such as testing, examinations, or otherwise.

Henderson (2008) goes on to suggest the report be made public so that it can be used to design curricula for educational and training programs and inform users of the nature of the agency and the content of the study. This would include dissemination of the report as a booklet to be downloaded or mailed from the agency website.

In summary, Henderson (2008) says, the validation study when conducted effectively will be useful in future decision-making, training and research, and possibly the basis for credentialing testing programs. To date HT has only completed the first phase of what Henderson (2008) recommends (i.e. obtaining and describing job information). This study begins the exploration into phase two of Henderson's (2008) recommendation. Although, this study will add to the professionalization of HT, further research will be needed to explore professional competencies for contemporary entry-level practice and training of therapeutic horticulture professionals. In the future, a

validation study will help to confirm the knowledge and skills necessary for competent HT practice which is essential to core curriculum development, design of continuing education opportunities, and the selection of qualified therapeutic horticulture professionals.

CHAPTER THREE

METHODOLOGY

Introduction:

The purpose of this research study was to investigate how academic training in horticultural therapy (HT) informs and guides professional practice in HT. The field of HT is relatively young and in need of empirical exploration into the training of professional competencies that will reliably support professional practice. A limited amount of research has studied the links between training for horticultural therapists with the applied therapeutic practice. The intention of this study was to survey practicing registered horticultural therapists by asking an identified list of HT professional competency training requirements and to measure the extent to which these requirements are applied in professional practice.

Procedures:

Instrumentation. An on-line survey (see Appendix E) was used to collect data from AHTA horticultural therapists regarding their experiences of training and practice. An on-line survey was determined the best way of collecting data since members have access to the internet. A web-based survey also allowed for tailoring the questions to each respondent based on their answers to key demographic questions.

The survey was adapted and modified according to the Job Analysis structure published by the National Council for Therapeutic Recreation Certification (NCTRC) after its second Job Analysis study results were published

(Appendix B). The essentials for this survey tool were revised and modified over a period of three years, beginning in 2005 as part of a graduate course assignment and first disseminated as a hand written questionnaire. This first version was sent out only to members of an AHTA professional subgroup and overall feedback suggested it was too long and needed to be refined.

The second version was developed during a graduate survey design course in two phases. The first phase was a revised version of the original survey for “think alouds” otherwise known as concurrent cognitive interviews (Dillman, 2007). Dillman’s (2007) “Item writing guidelines” and “Sensitivity Review” were used to assure accurate response. Seven professionals within the Twin Cities Metro area conducting horticultural therapy programs took the survey while being asked to verbalize their thought process as they responded to the survey. The author took notes on each participant’s reactions to the survey’s content, format, and ease of understanding. After completion, the author and participant discussed how the survey could be improved. Changes were made accordingly and included revising confusing wording, changing the format, and adding different instructions.

The second phase included all the revisions made to the survey and returned to the original participants to take a second time. Upon completion, the participants were asked for their feedback and the author made appropriate changes, this time only a few relating to clarity of wording and format comprehension.

IRB Process. The author submitted an application for Independent Review Board (IRB) approval before any implementation of survey/data collection. The IRB application was accepted with exemption from full IRB review (Study number: 0801E25541).

Expert opinion. Over the course of 10 months the author worked with the assistance of the University of Minnesota Educational Psychology professor Dr. Michael Rodriguez and (then) teaching assistant, Dr. Lija Greenseid, both of whom are regarded as experts in survey design. In March 2008 the survey draft was sent as a pilot to a broader group of experts in the field. The AHTA board of directors, an AHTA professional subgroup in professional standards, and a group of professionals in the Twin Cities area. Of these 36 individuals, 33 people responded to the survey. Each participant sent detailed reactions and minor suggestions. These suggestions were then integrated into the final survey design including questions added to the training and practice areas and to the demographics section.

Primary Population. Participants for this research survey were the membership of the AHTA. Members of AHTA were chosen because they most closely resembled the primary population of interest – i.e. Registered Horticultural Therapy Professionals practicing in the field. The AHTA registration process is the only system available for professional recognition of horticultural therapists. This is a voluntary registration process conducted as a peer review of academic and professional training, work experience, professional activities, and other accomplishments. At the time of the study the AHTA

membership included 850 members of which 635 had email addresses of which 220 were registered as HT.

Recruitment Procedures. The primary population list was attained by contacting AHTA with the request to obtain all members in the AHTA population with no duplication.

Survey Administration. AHTA presented the members email addresses in an Excel Document which was then transferred into the Survey Monkey system (www.surveymonkey.com). A notification announcing the survey was published in the AHTA newsletter June/July 2008 issue as well as an email pre-notification letter/announcement was sent July 21, 2008 to all participants via the email addresses. The survey was sent electronically to AHTA members on July 29, 2008 to a total of 668 participants. A copy of the survey was sent to the president of the AHTA Board of Directors (see Appendix E).

Of the 668 initial participants, 635 received the survey with the difference of 33 participants either opting out of the survey or email being undeliverable. After the initial posting of the survey was completed, a follow-up note was sent on September 5th to non-respondents in an effort to maximize the number of respondents (see examples for each of these in the Appendix F, G, H). The method of administering the survey (i.e., Survey Monkey.com) kept the data secure all the way through the downloading process for analysis.

Limitations and potential sources of error:

Dillman (2007, p.11) identifies four types of errors common in survey research:

- A. Coverage Error – A result of not allowing all members of the survey to have an equal or known chance of being sampled for participation in the survey.
- B. Sampling Error – A result of surveying only some, not all elements of the survey population.
- C. Measurement Error – A result of poor question wording or questions being presented in such a way that inaccurate or un-interpretable answers are obtained.
- D. Non-response Error – A result of people who responded to a survey being different from those who did not respond, in ways relevant to the study.

This study has addressed Dillman’s (2007) four common sources of survey error in the following ways:

1. Coverage error. To reduce coverage error this study determined that the AHTA membership list was the best for this analysis. The difference of the AHTA membership from the entire HT population was minor since AHTA was the only recognized means to becoming a registered horticultural therapy practitioner. The official, unduplicated list of members who represented the HT population was used.
2. Sampling error. Sampling error was minimized because the survey included the entire AHTA membership, except for those without a valid email. Therefore, this study did not use any sampling techniques to choose a subset of the population; instead this study surveyed as many of the population as possible within the AHTA membership list.
3. Measurement error. This potential problem was reduced in this study because of carefully chosen wording within the survey, following Dillman’s (2007) “Item writing guidelines” and “Sensitivity Review” to

maximize accurate response. This survey carefully pre-tested using Dillman's "Think Aloud" process to assure questions are easy to understand and to eliminate translation error. The survey was piloted to a variety of sub-groups (see Appendix I) in preliminary construction. This study used a validated on-line survey format from which followed accepted formatting guidelines that are accessible and include a legible lay-out (font, color of background, etc.). "Survey Monkey.com" was also equipped with "skip patterns" which allows for an exact tailoring to needs of the respondent. This survey was reviewed by experts in the field of survey research and includes revisions based on their opinions, comments, or suggestions (Dr. Michael Rodriguez Ph.D. and Dr. Lija Greenesid Ph.D., University of Minnesota department of Educational Psychology).

4. Non-response error. To reduce non-response error this study secured AHTA sponsorship of the survey. Prior to sending out the survey the author wrote a brief article for the membership in the AHTA newsletter explaining the intention for the survey and call for participation. The study used the AHTA logo on the survey along with good design principles to assure the survey was professional in appearance. The survey choose carefully the timing to send out the survey (i.e. avoiding holidays and the push of spring planting or fall harvest). This survey included alternative formats to make sure everyone had a chance to participate. This survey sent out a pre-notification letter. This survey also provided the capability to opt-out of the survey within all emails and

notices. AHTA sent out a reminder to complete the survey in the August/September newsletter. The survey followed-up with a reminder email and sent notes of appreciation to all participants who responded for their assistance in completing the survey.

Data Analysis Process:

Step One. A descriptive analysis on the demographic variables provided initial information about the survey respondents through means, standard deviation, and range of scores information. These questions are organized in Table 2.

Table 2
Descriptive Analysis of AHTA Members.

Research Question	Whom in sample	Survey Questions	Data Analysis	Hypothesis
What are the demographic characteristics of AHTA members?	All respondents	Demographics – 31, 32, 33, 34, 35, 36, 37, 38,39, 40	Descriptive – percentages, graphical display on key findings	n/a

Step Two. Mean scores were created for each of the eight professional competency areas in training and of the corresponding eight areas of practice for each individual respondent. These questions are organized in Table 3.

Table 3
 Mean Level Analysis to determine the overall characteristics of training and practice for AHTA members

Research Question	Whom in sample	Survey Questions	Data Analysis	Hypothesis
a. What percentage of AHTA members has training?	All respondents	Training – 1, 2	Descriptive – percentages, graphical display on key findings	n/a
b. What percentage of AHTA members is practicing?	All respondents	Practice – 15, 16, 17	Descriptive – percentages, graphical display on key findings	n/a
c. What is the average level of training for those AHTA members with training?	Respondents with training	Training – 1, 2, 7,8,9,10,11,12,13,14	Descriptive – Means, standard deviation, range of scores	n/a
d. What is the average level of practice for those AHTA members who are practicing?	Respondents who are practicing	Practice – 15, 16,17, 18, 19, 20, 21, 22, 23, 24, 25	Descriptive – Means, standard deviation, range of scores	n/a

Step Three. The relationship between mean levels of training and practice were measured and correlated. This question is organized in Table 4 with $\mu_1 = 0$ and $\mu_2 = 0$.

Table 4
Correlation Analysis of training and practice

Research Question	Whom in sample	Survey Questions	Data Analysis	Hypothesis
What are the relationships between average levels of training and average levels of practice among AHTA members?	All respondents	Training – 7,8,9,10,11,12,13,14 Practice – 18, 19, 20, 21, 22, 23, 24, 25	Step one: calculate a training score using Mean –(Step two: Test both training and practice with Bivariate Correlation	$\mu_1 = 0$ $\mu_2 = 0$ $\mu_1 \neq 0$ $\mu_2 \neq 0$

Step Four. The differences between the extent of training and the extent of practice scores were tested statistically using matched t-tests. This question is organized in Table 5.

Table 5
Differences Analysis between training and practice

Research Question	Whom in sample	Survey Questions	Data Analysis	Hypothesis
In which of the eight areas are there significant differences between levels of training and practice? Area 1 – Foundational Knowledge Area 2 – Population/Diversity Area 3 – Assessment Area 4 – Program Planning Area 5 – Intervention Area 6 – Evaluation Area 7 – Program Operations Area 8 – Professional Organization	Any respondent reporting both training and practice within one of the eight areas	Training – 7,8,9,10,11,12,13,14 Practice – 18, 19, 20, 21, 22, 23, 24, 25	Paired t-test	H ₀ : There is no relationship between training and practice H ₁ : There is a relationship between training and practice

Step Five. The relationships between demographic sub-group variables to the mean of training and practice were explored. These questions are organized in Table 6 with H₀: $\mu_1 - \mu_2 = 0$ and H₁: $\mu_1 - \mu_2 \neq 0$.

Table 6
 Relationship Analysis between identified groups training and practice.

Research Question	Whom in sample	Survey Questions	Data Analysis	Hypothesis
Are patterns of training and practice significantly different within AHTA members when compared to identified sub-groups: a. Certified/Non-certified b. Registered/Non-registered c. Education d. Professional e. Years of Experience Within these above stated specific groups, the research questions were: Is there a significant difference between groups for levels of training? levels of practice? levels of training and practice?	Respondents with training and practice	Training – 7,8,9,10,11,12,13,14 Practice – 18, 19, 20, 21, 22, 23, 24, 25 Certificate – 3 Registered - 5 Level of Education – 35 Professional identification – 17 Professional Location – 32 Years of experience - 31	Two-sample t-test or ANOVA (depending on group size)	H ₀ : $\mu_1 - \mu_2 = 0$ H ₁ : $\mu_1 - \mu_2 \neq 0$ Or H ₀ : $\mu_1 = \mu_2 = \mu_3 = \mu_4$ H ₁ : $\mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4$

Step Six. Summary data analysis will be shared at the annual AHTA conference (October, 2009), in an article for the *Journal of Therapeutic Horticulture*, and the on-line AHTA newsletter.

CHAPTER FOUR

RESULTS

Introduction:

This research study was designed to examine AHTA members training and practice in Horticultural Therapy (HT) from five perspectives: a) specific demographic characteristics b) overall characteristics of training and practice c) relationship between mean level of training and practice d) differences between mean levels of training and practice e) training and practice differences for member subgroups.

Respondent information:

Overall, this study yielded an above average response rate (Dillman, 2007). Of 635 people sent the link to participant in the survey, 249 responded (40% response rate). One reminder was sent to survey non-respondents. A follow-up mailing was sent to the survey respondents thanking them for their participation along with a one page summary of the preliminary results.

Data Analysis: Research Question 1

The first series of Tables report findings to demographic questions concerning AHTA members. In Table 7-a, AHTA members were asked to report how many years of professional experience they have. Overall, the information in Table 7-a demonstrates the AHTA members are relatively new to the field and just starting in their work experience with a high percentage of inexperienced people in the field. Nearly 13% of the AHTA members reported having no professional experience while 8.1% of the AHTA members report having less

than one year experience. Nearly 31% of AHTA members reported having 1-5 years of experience while 19.9% of AHTA members report having 6-10 years experience. Over 9% of AHTA members report having 11 - 15 year experience while 19.1% of AHTA members report having over 15 years of experience. In summary, 51.7% have less than 5 years experience while 28.4% have 11 or more years of experience.

Table 7-a
Demographic characteristics of AHTA members: Years of Experience

How many years experience do you have?	N	%
None	30	12.7%
Less than one year	19	8.1%
1-5 years	73	30.9%
6-10 years	47	19.9%
11-15 years	22	9.3%
Over 15 years	45	19.1%
Total	236	100.0%

AHTA members were asked to report which area or areas best describe where they work. Because respondents were allowed to select more than one area the percentages add up to more than 100%. As shown in Table 7-b, about one-third of AHTA members reported that they work in long term care centers with

another almost 30% report working in rehabilitation centers and 21% of members report working in hospitals. Outside of healthcare settings, there was a strong percentage, 26% that work in education. A good proportion of members also work in the areas of landscape design, community gardens, and botanic gardens or arboreta (between 14-20%). Fewer members, 7.7%, reported working in the areas of farm/horticultural business, 7.3% in corrections, 5% in parks and recreation and 4% in hospice. About 30% of members also selected “other” as among those they worked demonstrating the wide-variety of areas in which AHTA members work.

Table 7-b
Demographic characteristics of AHTA members: Area of Work

Which of the following best describes the area in which you work?	N	%
Care Center – Long term care	78	33.3%
Healthcare - Rehabilitation	68	29.1%
Education	61	26.1%
Healthcare - Hospitals	49	20.9%
Vocational Training	47	20.1%
Landscape Design	46	19.7%
Community Gardens	38	16.2%
Botanic and/or Arboreta	33	14.1%
Farm/Horticulture business	18	7.7%
Corrections	17	7.3%
Parks and Recreation	12	5.1%
Hospice	10	4.3%
Other (e.g. self employed)	71	30.3%
Total	234	na

AHTA members were asked to report which population they primarily serve. Because respondents were allowed to select more than one area the percentages add up to more than 100%. This data revealed the wide-variety of people which AHTA members serve. As shown in Table 7-c, nearly half (47.8%)

of the AHTA membership report they primarily serve people who are elderly/senior while 39.1% of AHTA members report serving people with developmental disabilities. Another 37.8% of the respondents indicate they serve a youth population. Over thirty-five percent of the AHTA membership report serving people with Alzheimer's disease or dementia, while 34.3% of the AHTA membership report serving people with psychiatric disorders, and 26.5% of the AHTA membership serves the general public. The data also indicated that 21.3% of the AHTA membership report serving people with traumatic brain injury. An equal percentage of AHTA members report working with people who are homeless (16.1% of AHTA members) and the blind/visually impaired (16.1%). Fifteen percent report serving people who are victims of abuse while 10% serve Veterans. Nine percent of AHTA membership report serving prospective or current HT practitioners while 7.0% of the AHTA membership report working with people in corrections. Lastly, 4.8% of the AHTA membership report serving people with HIV/AIDS.

Table 7-c
Demographic characteristics of AHTA members: Population Served

Which populations do you primarily serve?	N	%
Seniors – elders	110	47.8%
Developmentally disabled	90	39.1%
Youth	87	37.8%
Alzheimer’s and/or dementia	82	35.7%
Psychiatric disorders	79	34.3%
General population	61	26.5%
Brain Injured	49	21.3%
Other (e.g. homeless)	37	16.1%
Blind and/or visually impaired	37	16.1%
Victims of abuse	35	15.2%
Veterans	23	10%
Prospective and/or current HT practitioners	20	8.7%
Corrections – prisoners	16	7.0%
HIV/AIDS	11	4.8%
Total	230	na

AHTA members were asked to report their primary professional role. Because respondents were allowed to select more than one area the percentages add up to more than 100%. As seen in Table 7-d the primary role of an AHTA member is that of a therapist 58.2%. Nearly 36% of AHTA members report their primary role to be educator, 27.6% of AHTA members report their role as “other”, and 18.5% of the membership reporting their primary role to be that of administrator.

Table 7-d
Demographic characteristics of AHTA members: Professional Role

What is your primary professional role?	N	%
Therapist	135	58.2%
Educator	83	35.8%
Other role	64	27.6%
Administrator	43	18.5%
Total	232	na

AHTA members were asked to report their highest level of education. As seen in Table 7-e, 12.7% of AHTA members report to have a high school diploma/GED certificate while 8.1% of the AHTA membership report to have an Associate of Arts degree, with 30.9% of the AHTA membership reporting a Bachelor of Arts/Bachelor of Science degree, 19.9% of the AHTA membership

reporting a graduate degree at the Masters of Arts/Masters of Science level, and 8.5% of the AHTA membership report to have a Doctoral degree.

Table 7-e
Demographic characteristics of AHTA members: Level of Education

What is your highest level of education?	N	%
High School/GED	13	12.7%
AA	26	8.1%
BA/BS	107	30.9%
MA/MS	68	19.9%
Ph.D.	20	8.5%
Total	234	100.0%

AHTA members were asked if their education was in any particular specialized area. Because respondents were allowed to select more than one area, the percentages add up to more than 100%. Generally speaking, the data indicate the AHTA membership has specialized education from a wide variety of areas. As shown in Table 7-f, 43.6% of AHTA members reported their specialized education was in “other” specialized area with 41.9% of the membership indicating their specialized education was in horticultural therapy, 17.4% of the AHTA members indicate their specialized area of education was in landscape architecture/design and 16.9% of the membership reporting “none of the above”. A portion of AHTA members report specialized area of education in social work

(9.7%), occupational therapy (6.8%), therapeutic recreation (6.4%). Fewer members report their specialized education in “other adjunct therapies” (4.7%) and in nursing (3.4%). Even fewer reported their specialized area of education in vocational therapy (1.7%), physical therapy (1.3%), clergy (0.8%), and medicine (0.4%).

Table 7-f
Demographic characteristics of AHTA members: Specialized Education

Was your education in any of the following specialized areas?	N	%
Other specialized area	103	43.6%
Horticultural Therapy	99	41.9%
Landscape Architect/Designer	41	17.4%
None of the above	40	16.9%
Social Work	23	9.7%
Occupational Therapy	16	6.8%
Therapeutic Recreation	15	6.4%
Other adjunct therapies	11	4.7%
Nursing	8	3.4%
Vocational Rehabilitation	4	1.7%
Physical Therapy	3	1.3%
Clergy/Spiritual Counselor	2	0.8%
Physician	1	0.4%
Total	236	na

AHTA members were asked to report their age. The data suggests the average member of AHTA is between 46 and 55 years of age. As seen in Table 7-g, very few of the AHTA members report being under the age of 25 years (0.4%) with 11% of AHTA members report being between 25 and 35 years of age, 18.1% of AHTA membership report being between 36 and 45 years of age, 38.8% of the AHTA members report being between 46 and 55 years of age, 25.7% of the membership report being between 56 and 64 years of age, 5.9% of the AHTA membership reporting over 64 years of age.

Table 7-g
Demographic characteristics of AHTA members: Age

What is your age?	N	%
Under 25 years	1	0.4%
25-35	26	11.0%
36-45	43	18.1%
46-55	92	38.8%
56-64	61	25.7%
65 or older	14	5.9%
Total	237	100.0%

AHTA members were asked their gender. As seen in Table 7-h the majority of AHTA members (83.3%) consist of females with only 16.7% males.

This indicates a prevalent female profession.

Table 7-h
Demographic characteristics of AHTA members: Gender

What is your gender?	N	%
Female	195	83.3%
Male	39	16.7%
Total	234	100.0%

AHTA members were asked to report on their racial/cultural background. As Table 7-i indicates, the majority of AHTA members are White (89.7%). Far fewer members identified as Asian/Asian-American (3.8%), Hispanic/Mexican-American (3.0%), Multi-racial/Multi-ethnic (1.7%), African/African-American (1.3%), and Native American/Alaskan-American (0.4%). The data suggests the AHTA membership is largely white.

Table 7-i
Demographic characteristics of AHTA members: Racial/Ethnic Background

Please describe your racial/ethnic background?	N	%
White (non-Hispanic)	210	89.7%
Asian, Asian American or Pacific Islander	9	3.8%
Hispanic, Mexican-American, Latino, Chicano, Puerto Rican	7	3.0%
Multi-racial/Multi-ethnic	4	1.7%
Black or African American	3	1.3%
Native American/Alaskan Native	1	0.4%
Total	234	100.0%

Finally, AHTA members were asked to report on their state/territory/country which they reside. As shown in Table 7-j nearly half (46%) of AHTA members report to live somewhere in the Eastern portion of the United States. A good proportion of members (26%) report to live in the Western portion of the United States. A fraction (16%) of AHTA members live in the Mid-west; even fewer numbers report living in Canada (5%) and internationally (7%). AHTA members live predominantly within the United States.

Table 7-j
 Demographic characteristics of AHTA members: State/Country

In what US state, Canadian territory and/or Country do you reside?	N	%
Eastern part of US	108	46%
Western part of US	60	26%
Mid-west portion of US	37	16%
International	16	7%
Canada	12	5%
Total	233	100.0%

Data Analysis: Research Question 2

The second series of data analysis address the question “What are the overall characteristics of training and practice for AHTA members?” with data shown in Tables 8-12.

AHTA members were asked “Have you received any training in horticultural therapy (HT)?” As seen in Table 8, 83.5% of AHTA members report to having training while 16.5% of members report no training. This verifies that a majority of AHTA members come into the organization with training in HT.

Table 8
Characteristics of *training* for AHTA members

Have you received any training in HT?	N	%
Training	208	83.5%
No Training	41	16.5%

Total	249	100.0%
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AHTA members that reported receiving some training in HT were asked to define the type of training. Because respondents were allowed to select more than one area of training, the percentages add up to more than 100%. The data indicate that workshops are the primary method for training AHTA members. As seen in Table 9, 30.6% of the membership report training from community education while 61.2% of the training comes from conferences. Over half the membership (65%) indicated training comes from workshops, 45.1% reported

training from professional meetings and 32.5% reported receiving Master Gardener training. Twenty-one percent of the membership reported training came from community college and 48.5% from universities.

Table 9
Locations for *training* of AHTA members

Which of the following types of training in HT have you received?	N	%
Conference	126	61.2%
Workshop	134	65.0%
Professional Meeting	93	45.1%
Master Gardener	67	32.5%
Community Education	63	30.6%
Community College	43	20.9%
University	100	48.5%
Total	206	na

AHTA members were asked if they were practicing HT. As seen in Table 10, the majority (66.5%) of AHTA members report they are practicing HT while 33.5% of reported that they are not practicing HT. However, more AHTA members are receiving training in HT than are practicing in HT.

Table 10
 Characteristics of *practice* for AHTA members

Are you currently practicing HT?	N	%
Practicing	161	66.5%
Not Practicing	81	33.5%
Total	242	100.0%

As shown in Table 11, of the respondents who are currently *not practicing* (recall Table 10), the largest group, 50.6%, report they have never practiced HT. A large number (28.9%) indicate they have practiced “in the past 1-5 years”. The responses decrease to 10.8% for those indicating they have practiced 6-10 years ago.

Table 11
 Characteristics of AHTA members who are currently *not practicing*

Have you practiced HT in the past?	N	%
I have never practiced HT	42	50.6%
Yes, 1-5 years ago	24	28.9%
Yes, 6-10 years ago	9	10.8%
Yes, more than 10 years ago	8	9.6%
Total	83	100.0%

As seen in Table 12, the majority (53.2%) of AHTA members identify themselves as horticultural therapist. Nearly 17% of the AHTA membership selected “other” as how they would identify themselves. Over nine percent identify themselves as educators with 3.2% of members selecting administrator as their title. AHTA members report healthcare related fields at a low level: 3.8% identify as therapeutic recreation specialist, 2.5% as occupational therapists, 2.5% as recreational leader, 2.5% as occupational therapy assistant, 1.9% as recreational therapist, 1.3% as social worker, 1.3% as psychologist. A very small group reported as a landscape architect (1.9%). This demonstrates that while over half of the AHTA membership identifies as a horticultural therapist, there are a wide variety of identities found within those practicing HT.

Table 12
 Identification of AHTA members who are currently *practicing*

How would you identify yourself in your current practice?	N	%
Horticultural Therapy	84	53.2%
Other	26	16.5%
Educator	15	9.5%
Therapeutic Recreation Specialist	6	3.8%
Administrator	5	3.2%
Recreation Leader/Programmer	4	2.5%
Occupational Therapy	4	2.5%
Occupational Therapy Assistant	4	2.5%
Landscape Architect/Designer	3	1.9%
Recreational Therapist	3	1.9%
Social Worker	2	1.3%
Psychologist	2	1.3%
Total	158	100.0%

Table 13 shows the overall mean level of training for all areas is 2.83 (using the scale of 1-4*) for those AHTA members with training.

Table 13
Mean levels of Training

Training Area	N	Mean*	SD	Questions used to calculate mean
Foundational knowledge	141	3.4	.63	Q7 – history; theories; definition; program types
Populations	138	2.9	.85	Q8 – etiology; symptomology; prognosis; treatment; secondary complications; medical terminology
Assessment	138	3.0	.84	Q9 – purpose; domains; procedures; instrument; implementation; interpretation
Program Planning	137	3.1	.82	Q10 – design; considerations; interventions
Intervention	137	3.1	.75	Q11 – goals; objectives; plans; adapt activities; adapt tools; accessible gardens
Evaluation	135	2.7	.96	Q12 – documentation; interpreting; recommendations
Program Operations	137	2.7	.84	Q13 – strategic planning; compliance; personnel; management; budget; grant; marketing; volunteers; support services
Professional Organization	136	2.3	.85	Q14 – certification; ethical standards; research; staff development; internships; guidelines
Overall Mean		2.83		

*Scale 1=none, 2=a little; 3=some; 4=a lot

Table 14 shows the mean level of practice for AHTA members is 2.73 (using the scale of 1-4*) for those AHTA members who are practicing.

Table 14
Mean Level of Practice

Practice Area	N	Mean*	SD	Questions used to calculate mean
Foundational knowledge	141	3.0	.70	Q18 – history; theories; definition; program types
Populations	138	3.0	.88	Q19– etiology; symptomology; prognosis; treatment; secondary complications; medical terminology
Assessment	138	2.8	.92	Q20 – purpose; domains; procedures; instrument; implementation; interpretation
Program Planning	137	3.1	.90	Q21 – design; considerations; interventions
Intervention	137	3.0	.75	Q22 – goals; objectives; plans; adapt activities; adapt tools; accessible gardens
Evaluation	135	2.7	1.0	Q23 – documentation; interpreting; recommendations
Program Operations	137	2.7	.74	Q24 – strategic planning; compliance; personnel; management; budget; grant; marketing; volunteers; support services
Professional Organization	136	2.0	.77	Q25 – certification; ethical standards; research; staff development; internships; guidelines
Overall mean		2.73		

*Scale 1=none, 2=a little; 3=some; 4=a lot

Data Analysis: Research Question 3

The third series of data analysis addressed the question “What are the relationships between mean levels of training and mean levels of practice among AHTA members?” The data in Table 15 indicates a moderate positive correlation between mean training and mean practice with Pearson’s $R = .719$ and $p < .001$. This information (as seen in scatter plot Figure 2) shows AHTA members that report higher levels of training also report they are practicing more in those same areas. Participants with low levels of training also report that they are practicing at a low level.

Table 15
Correlation between training and practice

	Overall Mean Training	Overall Mean Practice
Overall Mean Training		
Pearson Correlation	1	.719**
Sig. (2-tailed)		.001
N	204	141
Overall Mean Practice		
Pearson Correlation	.719**	1
Sig. (2-tailed)	.001	
N	141	160

**Correlation is significant at the 0.01 level (2-tailed)

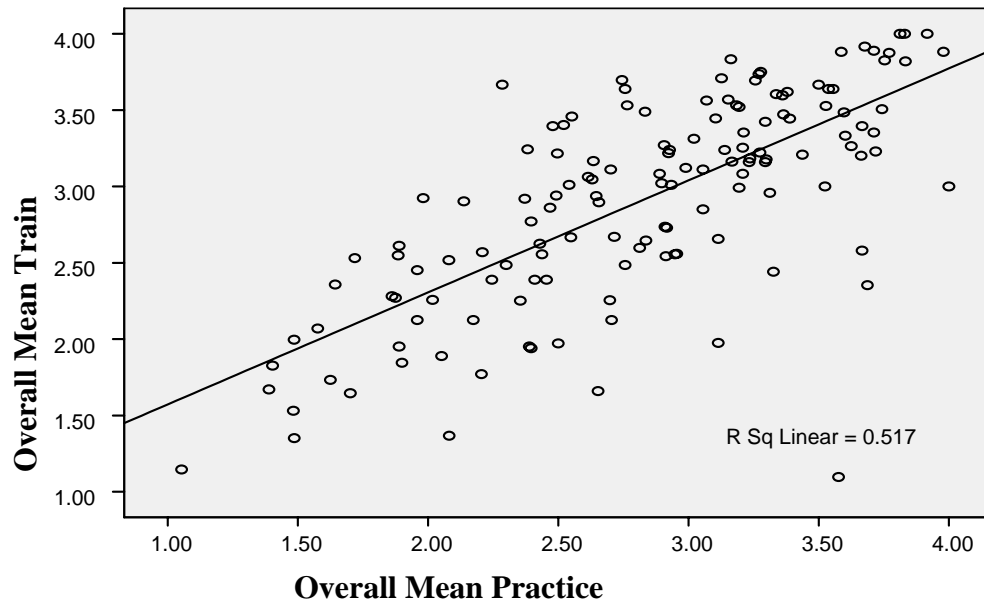


Figure 2. Scatter plot of Overall Mean Training and Practice

Data Analysis: Research Question 4

The fourth series of data addressed the question “In which of the eight identified areas of professional competencies are there significant differences between AHTA member’s levels of training and practice?” The data (Table 16) indicate only two statistically significant relationships (alpha level of .05 was used for statistical test) exist between the mean eight areas of training and practice.

These two significantly different areas are:

- Mean Training Foundation and Mean Practice Foundation ($M = .318$, $SD = .740$, $t(140) = 5.11$, $p = .001$, Effect Size = .4)
- Mean Training Professional Organization and Mean Practice Professional Organization ($M = .251$, $SD = .742$, $t(135) = 3.95$, $p = .001$, Effect Size = .3)

In these two areas there is a disparity between levels of training and practice. AHTA members reported they received higher levels of training in foundations (i.e. history, theories, definitions, types of programs) than they are applying or using in their current work or practice. The opposite holds true for professional organizations (i.e. requirements needed for certification, standards of practice, research projects, staff development, internships) where members reported lower levels of training in professional organizations than they are applying or using in their current jobs or practice.

Table 16
Paired T-test on Mean level Training and Mean level Practice

Paired variables	Mean difference	t(df)	Significance (2-tailed test)
Foundational Training to Practice	.31856	5.11(140)	.001***
Population Training to Practice	-.09034	-1.63(137)	.108
Assessment Training to Practice	.11884	1.717(137)	.088
Planning Training to Practice	-.04380	-.689(136)	.492
Intervention Training to Practice	.06144	1.110(136)	.269
Evaluation Training to Practice	.07037	.883(134)	.379
Operations Training to Practice	.04309	.680(136)	.498
Professional Organization Training to Practice	.25196	3.95(135)	.001***

***significant difference

Data Analysis: Research Question 5

The fifth, and final, series of data analysis addressed the question “Are the patterns of training and practice significantly different among specific sub-groups of AHTA members?” Each specific or identified group had its own set of data analysis: 1. certified/non-certified 2. registered/non-registered 3. education 4. professional identification 5. years of experience. Each group was analyzed for a. level of training, and b. level of practice.

Research Question 5_{1a}. “Is there a significant difference between certified/non-certified members in their level of training?”

The statistical data (see Table 17) indicates there was no significant difference between training levels for certified and non-certified members ($t=.663$, $df=202$, $p=.508$). Table 18 indicates the certified AHTA members had an overall mean level of training of 2.85 while non-certified members had an overall mean level of training of 2.79.

Table 17
Independent Samples Test for Training of Certified/Non-certified AHTA members

Variable	<i>t</i>	<i>df</i>	<i>p</i>
Overall Mean Training Certified/Non-Certified	.663	202	.508

Table 18
Levels of Training for AHTA members with or without HT certificate

Variable	<i>N</i>	<i>Mean</i>
Certified	118	2.85
Non-Certified	86	2.79

Research Question 5_{1b}. “Is there a significant difference between certified/non-certified members in their level of practice?”

The statistical data (see Table19) indicates there was no significant difference between practice levels of certified and non-certified members ($t=-1.304$, $df=139$, $p=.195$). Table 20 indicates the certified AHTA members had an overall mean level of practice of 2.73 while non-certified members had an overall mean level of practice of 2.87.

Table 19
Independent Samples Test for Practice of Certified/Non-certified AHTA members

Variable	<i>t</i>	<i>df</i>	<i>p</i>
Overall Mean Practice Certified/Non-Certified	-1.304	139	.195

Table 20
Levels of Practice for AHTA members with or without HT certificate

Variable	<i>N</i>	<i>Mean</i>
Certified	118	2.73
Non-Certified	86	2.87

Research Question 5_{2a}. “Is there a significant difference between registered/non-registered members when comparing their level of training?”

The statistical data (see Table 21) indicate there was a significant difference between training levels for registered/non-registered members ($t = -2.465$, $df = 202$, $p = .015$). Table 22 indicates the registered AHTA members had an overall mean level of training of 2.94 (out of 4.0) while non-registered members had a significantly lower overall mean level of training of 2.71.

Table 21
Independent Samples Test for Training of Registered/Non-registered AHTA members

Variable	<i>t</i>	<i>df</i>	<i>p</i>
Overall Mean Training Registered/Non-registered	-2.465	202	.015

Table 22
Levels of Training for AHTA members with or without HT registration

Variable	<i>N</i>	<i>Mean</i>
Registered	97	2.94
Non-registered	107	2.71

Research Question 5_{2b}. “Is there a significant difference between registered/non-registered members for their current level of practice?”

The statistical data (see Table 23) indicates there was a significant difference between practicing levels for registered/non-registered members ($t = -2.896$, $df = 139$, $p = .004$). Table 24 indicates the registered AHTA members had a 2.93 (out of 4.0) overall mean level of practice while non-registered members had a significantly lower overall mean level of practice of 2.62.

Table 23
Independent Samples Test for Practice of Registered/Non-registered AHTA members

Variable	<i>t</i>	<i>df</i>	<i>p</i>
Overall Mean Practice Registered/Non-registered	-2.896	139	.004

Table 24
Levels of Practice for AHTA members with or without HT registration

Variable	<i>N</i>	<i>Mean</i>
Registered	72	2.93
Non-registered	69	2.62

Research Question 5_{3a}. “Is there a significant difference between education (Level 1 – HS/GED, AA; Level 2 – BA/BS; Level 3 – MA/MS, Ph.D.) and level of training?”

The statistical data (see Table 25) indicates there were no significant differences between levels of education for the overall mean training ($F=.478$, $df=2$, $p=.621$). Table 26 indicates the AHTA members with HS/GED (level one) had an overall mean level of training of 2.87, AHTA members with BA/BS (level two) had an overall mean level of training of 2.85, while members with MA/MS, Ph.D (level three) had lower overall mean level of training of 2.76.

Table 25
Analysis of Variance between three levels of education and training

Variable	<i>F</i>	<i>df</i>	<i>p</i>
Overall Mean Training Education	.478	2	.621

Table 26
Levels of Training between three levels of education

Variable	<i>N</i>	<i>Mean</i>
Level One	27	2.87
Level Two	92	2.85
Level Three	74	2.76

Research Question 5_{3b}. “Is there a significant difference between education (Level 1 – HS/GED, AA; Level 2 – BA/BS; Level 3 – MA/MS, Ph.D.) and level of practice?”

The statistical data (see Table 27) indicates there were no significant differences between levels of Education for the overall mean practice ($F=.607$, $df=2$, $p=.546$). Table 28 indicates the AHTA members in Level One had an overall mean level of practice of 2.62, AHTA members in Level Two had an overall mean level of practice of 2.75, while members in Level three had lower overall mean level of practice of 2.79.

Table 27
Analysis of Variance between three levels of education and practice

Variable	<i>F</i>	<i>df</i>	<i>p</i>
Overall Mean Practice Education	.607	2	.546

Table 28
Levels of Practice between three levels of education

Variable	<i>N</i>	<i>Mean</i>
Level One	32	2.62
Level Two	69	2.75
Level Three	52	2.79

Research Question 5_{4a}. “Is there a significant difference between Professional Identification (Level 1 – horticultural therapist; Level 2 – PT, PTA, OT, OTA, TRS, RT; Level 3 - social workers, psychologist, health coach, integrative medicine practitioner; Level 4 – rec. leader/programmer, clergy/spiritual counselor, landscape architect/designer) and level of training?”

The statistical data (see Table 29) indicates there were no significant differences between levels of professional identification and overall mean training ($F=1.086$, $df=3$, $p=.358$). Table 30 indicates the AHTA members in Level One had an overall mean level of training of 2.87, members in Level Two had an overall mean level of training of 3.13, members in Level Three had lower overall mean level of training of 2.71, while members in Level Four had an overall mean level of training of 2.78 .

Table 29
 Analysis of Variance between four levels of professional identification and training

Variable	<i>F</i>	<i>df</i>	<i>p</i>
Overall Mean Training Professional Identification	1.086	3	.358

Table 30
 Levels of Training between four levels of Professional Identification

Variable	<i>N</i>	<i>Mean</i>
Level One	78	2.87
Level Two	18	3.13
Level Three	4	2.71
Level Four	19	2.78

Research Question 5_{4b}. “Is there a significant difference between Professional Identification (Level 1 – horticultural therapist; Level 2 – PT, PTA, OT, OTA, TRS, RT; Level 3 - social workers, psychologist, health coach, integrative medicine practitioner; Level 4 – rec. leader/programmer, clergy/spiritual counselor, landscape architect/designer) and level of practice?”

The statistical data (see Table 31) indicates there were no significant differences between levels of professional identity for the overall mean practice ($F=.637$, $df=3$, $p=.593$). Table 32 indicates the AHTA members in Level One had an overall mean level of practice of 2.70, members in Level Two had an overall mean level of practice of 2.88, members in Level Three had lower overall mean level of practice of 2.45, while members in Level Four had an overall mean level of practice of 2.75 .

Table 31
Analysis of Variance between four levels of professional identification and practice

Variable	<i>F</i>	<i>df</i>	<i>p</i>
Overall Mean Practice Professional Identification	.637	3	.593

Table 32
Levels of Practice between four levels of Professional Identification

Variable	<i>N</i>	<i>Mean</i>
Level One	84	2.70
Level Two	21	2.88
Level Three	4	2.45
Level Four	23	2.75

Research Question 5_{5a}. “Is there a difference between years of experience (Level 1 – none to less than one year; Level 2 – 1-5 years, 6-10 years; Level 3 – 11-15 years, over 15 years) and levels of training?”

The statistical data (see Table 33) indicates there were significant positive differences between years of experience and the overall mean training ($F=8.233$, $df=2$, $p=.001$). Table 34 indicates the AHTA members in Level One had an overall mean level of training of 2.61, AHTA members in Level Two had an overall mean level of training of 2.74, while members in Level three had higher overall mean level of training of 3.10. In summary, the more years of experience the higher the mean level of training.

Table 33
 Analysis of Variance between three levels of years of experience and training

Variable	<i>F</i>	<i>df</i>	<i>p</i>
Overall Mean Training Years of Experience	8.233	2	.001

Table 34
 Levels of Training between three levels of years experience

Variable	<i>N</i>	<i>Mean</i>
Level One	30	2.61
Level Two	107	2.74
Level Three	59	3.10

Research Question 5_{5b}. “Is there a significant difference between years of experience (Level 1 – none to less than one year; Level 2 – 1-5 years, 6-10 years; Level 3 – 11-15 years, over 15 years) and levels of practice?”

The statistical data (see Table 35) indicates there were significant positive differences between years of experience for the overall mean practice ($F=7.740$, $df=2$, $p=.001$). Table 36 indicates the AHTA members in Level One had an overall mean level of practice of 2.60, AHTA members in Level Two had an overall mean level of practice of 2.58, while members in Level three had lower

overall mean level of practice of 3.01. In summary, the more years of experience the higher overall mean level of practice.

Table 35
Analysis of Variance between three levels of years of experience and practice

Variable	<i>F</i>	<i>df</i>	<i>p</i>
Overall Mean Practice Years of Experience	7.740	2	.001

Table 36
Levels of Practice between three levels of years experience

Variable	<i>N</i>	<i>Mean</i>
Level One	12	2.60
Level Two	88	2.58
Level Three	56	3.01

Summary of the Evidence:

Table 37 presents the cumulative information determined from the study. The data shows a representative AHTA member is a white female between the ages of 46- 55 living somewhere in the eastern part of the United States with a BA/BS in other specialized area. She has 1-5 years experience as a therapist in a care center serving seniors.

Overall, from the subjects surveyed, most have received training from workshops and are practicing as a horticultural therapist. Within the categories of training, most indicate they have between “a little” and “some”; whereas within the categories of practice, most report “a little” and “some” application of training to practice.

There is a moderate positive relationship between the AHTA members who reported higher level of training also reported they are practicing in those same areas at a high level; while those with low levels of training reported they are practicing in those same areas at a lower level. The only two areas that indicate any significant differences between overall training and practice were found in foundations and professional organization. That is, the study found higher levels of training in foundations but low levels of practice. Also, lower levels of training were reported in professional organization but higher levels actually used in practice.

Differences were found within training and practice for specific identified groups (i.e. certified/non-certified, registered/non-registered, education, professional identification, years of experience), two significant differences were

found. AHTA members who are registered have a higher level of training and practice than do non-registered members. AHTA members with 11 or more years of experience indicated they have a higher level of training and practice.

Table 37
Summary of Survey Findings

Research Question	Evidence
1. What are the demographic characteristics of AHTA members?	<ul style="list-style-type: none"> • White • Female • Between age of 46 – 55 • Living in the eastern part of United States • BA/BS in “other” specialized area • 1-5 years experience • Therapist • Care Center • Serving Elders/Seniors
2. What are the overall characteristics of training and practice for AHTA members?	<ul style="list-style-type: none"> • Primary training comes from workshops • Primarily practicing as Horticultural Therapist • Most AHTA members have “a little” or “some” level of training • Most AHTA members are applying “a little” or “some” of their training into practice
3. What are the relationships between mean level of training and mean levels of practice among AHTA members?	<ul style="list-style-type: none"> • Most AHTA members who report higher levels of training are also practicing in those same areas at a high level • Most AHTA members who report low levels of training report they are practicing in those same areas at a low level
4. Which of the eight identified areas of professional competencies are there significant differences between AHTA member’s level of training and levels of practice?	<ul style="list-style-type: none"> • Higher levels of training in foundations – lower levels in practice • Lower levels of training in professional organization – higher levels in practice
5. Are patterns of training and practice significantly different among certain groups of AHTA members?	<ul style="list-style-type: none"> • AHTA members who are registered have a higher level of training and practice • AHTA members who have 11-15+ years of experience have a higher level of training and practice

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

The purpose of the “Survey of Training and Practice in Horticultural Therapy” was to advance the profession of Horticultural Therapy (HT) by exploring how training in HT of AHTA members is related to practice. This chapter will discuss the findings, implications, limitations and suggestions for future research.

Investigating the Composition of the American Horticultural Therapy Association membership

The data from this study show the typical AHTA member is a white female between the ages of 46- 55 living somewhere in the eastern part of the United States with a BA/BS in “other specialized area”. She has 1-5 years experience as a therapist in a care center serving seniors, has received most of her training in HT from workshops and identifies herself as a horticultural therapist.

Comparing this study to the two most recent and related empirical studies (Mattson, R., & Stober, P. 1993; Shoemaker, 2003), several factors distinguish how the composition of the AHTA membership has grown and/or shifted over the last 15 years.

Mattson & Stober (1993) sampled 214 Kansas State University (KSU) horticultural therapy program graduates and 204 non-KSU AHTA members, with participants in the study identifying as registered/non-registered. The study focused on specific demographic questions (i.e. geographic location, gender, age,

racial/ethnic status, marital status, disability status) as well as topics related to HT professional status (i.e., registered/non-registered, salary, education).

The Shoemaker (2003) study sampled 50 KSU alumni of the undergraduate horticultural therapy program. The study was conducted to gather insight into the characteristics and working life of the registered horticultural therapist.

Both of these studies explored horticultural therapy demographics, and were in part the source for the present study's demographic inquiries. The present study expanded the demographic portion of the survey to include more explanatory variables. For example, past surveys asked participants if they were practicing HT. In the present study, respondents were asked if they were practicing HT and in addition, how many years they have been practicing and in what capacity they have been practicing. The reason for this expansion of inquiry was to broaden the empirical reach of the study.

As seen in Table 38 a comparison between past and present surveys indicate a relative shift over time in age, registered/non-registered, practicing/non-practicing, professional identification, professional setting and professional training. For example, in 1993 Mattson & Stober found 17.3% of the respondents between the age of 41 – 50 years, and 5.6% of the respondents between the ages of 51 – 60 years (or combined 22.9% for those reported between the ages of 41 – 60 years). In 2003 the Shoemaker study found 75% of the respondents between the ages of 40 – 59 years.

The present study, 38.8% of AHTA members reported between 46 – 55 years and those between the ages of 56 – 64 years were reported at 25.7% (combined 64.5% for those reported between the ages of 46 – 64 years). Over the course of these three studies there seemed to be a shift to higher percentage in the 46 – 64 years of age range.

In 1993, Mattson & Stober found 80.8% HT providers being females and the rest reported as males. In the present study, similarly, 83.3% reported as females and the rest reported as males. This was also the case in 1993 when Mattson & Stober found 95.6% respondents to be white, where in the present study, 89.7% AHTA members reported they were white. Shoemaker (2003) had a comments section asking the respondents about their training and found workshops and conferences reported most often. In the present study of AHTA members, there were specific questions pertaining to methods of training where 61.2% reported conferences, 65% reported workshops, and 45.1% reported professional meetings. Taken together these studies indicate that the respondent's gender, racial/ethnic background and training of HT's has been similar over time.

Comparison of these surveys indicate the percentage of registered HT's has decreased over time. In 1993 Mattson & Stober found 68% of the respondents reported as registered, while in the present study 47.6% of AHTA members report they are registered. A decrease is also true concerning professional identification, 62% identify as horticultural therapists in 2003, 53.2% of the AHTA members in the present study.

Two factors appear to have increased in time, the percentage of practicing HT's and the location of practice. In 2003, Shoemaker found 53.8% of the respondents to be practicing HT while in the present study, 66.5% of the AHTA members report they are practicing HT. An increase is also true for location of practice. In 2003 14.5% of the respondents report practicing in care centers while in the present study, 33.3% of the AHTA member's report they are practicing in care centers.

All told the information found in these three studies over time indicates the HT practitioner is an educated individual who is committed to the training and practice of horticultural therapy.

Table 38
Comparison between survey's in HT from past to present

Topic	Mattson & Stober, 1993	Shoemaker, 2003	Present study
Age	41 – 50 = 17.3% 51 – 60 = 5.6%	40 – 59 = 75%	46 - 55 = 38.8% 56 – 64 = 25.7%
Gender	Female = 80.8% Male = 19.2%	n/a	Female = 83.3% Male = 16.7%
Racial	White = 95.6%	n/a	White = 89.7%
Registered	Registered = 68%	n/a	Registered = 47.6%
Practicing	n/a	Practicing = 53.8%	Practicing = 66.5%
Professional Identification	n/a	HT = 62%	HT = 53.2%
Primary Professional Setting	n/a	Care Center = 14.5%	Care Center = 33.3%
Primary Professional Training	n/a	Highest rated were Workshops/Conferences (comments section)	Conferences = 61.2% Workshops = 65% Professional Meetings = 45.1%

Exploring how training in HT is related to practice

The present study is unique because no other empirical research has been conducted to specifically explore the mean level of training and practice of AHTA members, and as such may serve as a foundation for further exploration into the training and practice of HT.

The findings from this study interestingly indicate that those AHTA members who report being registered and have 11 or more years of experience have significantly higher levels of training and practice. Several factors may contribute to this finding including the requirements for registration stipulated by the AHTA professional organization being a solid foundation for training. In addition, those who become registered horticultural therapists show a greater commitment to the field in their pursuit of registration. Also, 11 or more years of experience has much to do with professionals continuing their education to keep up in the latest skill development and competencies of HT practice.

Two statistically significant findings warrant consideration in how core curricula apply to current practice. The survey used in this study was based on eight categories with sub-groups (eight categories being: foundations, populations, assessment, program planning, intervention, evaluation, program operations, professional organization). With that clarification, respondents reported higher level of training in foundations (sub-groups being: history, theories, definitions, program types) than they were applying to current practice, and reported lower levels of training in professional organization (sub-groups

being: requirements for certification, standards of practice, ethics, research, staff development, internships, supervisory guidelines) than needed for practice.

The first of these might imply that training in foundational aspects of HT may not be directly useful in the application to practice. Are the foundations of the field are only necessary to understand the field and would one not expect to use this knowledge in practice? This may also reflect a lack of connecting the relevance of how foundational knowledge informs all aspects of planning and implementation of HT practice.

The latter of these seems to suggest that AHTA members need more training in professional organizations. The specific areas of professional organization (i.e. standards of practice, professional ethics, and the fundamentals of internships, etc.) HT practitioners want help with were not targeted in this present study and need further investigation. However, it was clear there is a need for training in professional organizations and educators in the field need to take this into consideration for future core competencies and curriculum development and implications for leadership.

The findings of this study indicate AHTA members who are registered have higher levels of training and practice than those who are not registered. The factors that contribute to this finding may again be found in the AHTA professional registration requirements. The AHTA voluntary requirements for becoming a registered horticultural therapist are a rigorous set of qualifications that prepares the student for practice (see Appendix A).

The present study found that AHTA members with higher degrees (MA/MS, Ph.D.) do not necessarily have higher levels of training in HT. Is this because the higher level of education is not in HT? That is most likely to be true since there is only one graduate level training in HT at the Kansas State University – Manhattan. Perhaps, like this author, others are seeking their graduate training in adjunct therapies such as Occupational Therapy, Physical Therapy or Therapeutic Recreation out of necessity until HT becomes fully recognized and reimbursable.

A similar finding was that certified AHTA members do not have higher levels of training and practice than non-certified AHTA members. This is likely due to the distinction that obtaining a certificate from an AHTA accredited program simply means the person will earn a pre-established point value that applies toward voluntary professional registration, not that the member is now certified to practice HT. NOTE: The term *certification* refers to a non-statutory process whereby an accrediting body grants recognition to an individual for having met predetermined professional qualifications (CBMT, 2008).

Limitations:

Despite efforts to invite as many of the AHTA membership to participate in the survey, 60% of possible participants did not respond. A limitation of this study was the lack of a “non-respondent” study to determine if differences exist in the non-reported group. The author of the study did contact Gaye Horton (Manager) of AHTA to inquire as to any documented demographics for the membership however this data does not exist.

Another limitation of the study was the inability to measure if professional location significantly varied with differences in training and practice.

Implications:

Overall, the results from this study imply a need for further empirical research into the training and practice of Horticultural Therapy. Findings in this study imply:

1.) In general, training of AHTA members is adequately preparing them for what they are currently using in practice. However, two important exceptions were found. Training in foundations was not being used in practice, and training in professional organization was inadequate for what is needed in practice. This finding is important to note for those responsible for the education and training of future HT practitioners.

2.) AHTA members who are registered horticultural therapists were found to have significantly more training and practice as compared to non-registered members. On the other hand, AHTA members who possess a certificate in horticultural therapy did not differ in training and practice from those who were not certified.

A preliminary analysis was conducted comparing registered/non-registered AHTA members to certified/non-certified AHTA members. The statistical data (see Table 39) from this preliminary analysis indicates there are significant differences between registered participants for overall mean training ($F=2.67$, $df=3$, $p=.048$). Table 40 shows the overall mean level of training for AHTA members who are registered/certified of 2.90, for members who are

certified only an overall mean level of training of 2.78, for members who are registered only an overall mean level of training of 3.0. This information (as seen in Figure 3) shows AHTA registered members reporting higher levels of training than AHTA certified members.

Table 39
 Analysis of Variance between certified and registered with training

Variable	<i>F</i>	<i>df</i>	<i>p</i>
Overall Mean Training Between Groups	2.67	3	.048

Table 40
 Levels of Training between registered/certified AHTA members

Variable	<i>N</i>	<i>Mean</i>
Registered/Certified	71	2.90
Certified only	47	2.78
Registered only	26	3.06

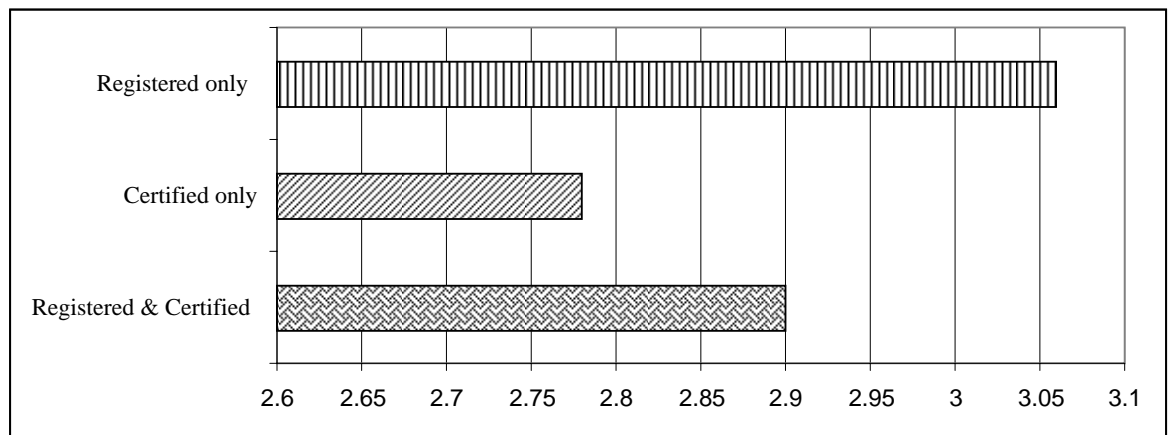


Figure 3. Bar graph of overall mean training when comparing Certified and Registered AHTA members

The statistical data (see Table 41) from this preliminary analysis indicates there is also a significant difference between registered and overall mean practice ($F=4.350$, $df=3$, $p=.006$). Table 42 shows the overall mean level of practice for AHTA members who are registered/certified of 2.90, for members who are certified only an overall mean level of practice of 2.48, for members who are registered only an overall mean level of practice of 3.03. This information (as seen in Figure 4) shows AHTA registered members reporting higher levels of practice than AHTA certified members.

Table 41
Analysis of Variance between certified and registered with practice

Variable	<i>F</i>	<i>df</i>	<i>p</i>
Overall Mean Practice Between Groups	4.350	3	.006

Table 42
Levels of Practice between registered/certified AHTA members

Variable	<i>N</i>	<i>Mean</i>
Registered/Certified	52	2.90
Certified only	36	2.48
Registered only	20	3.03

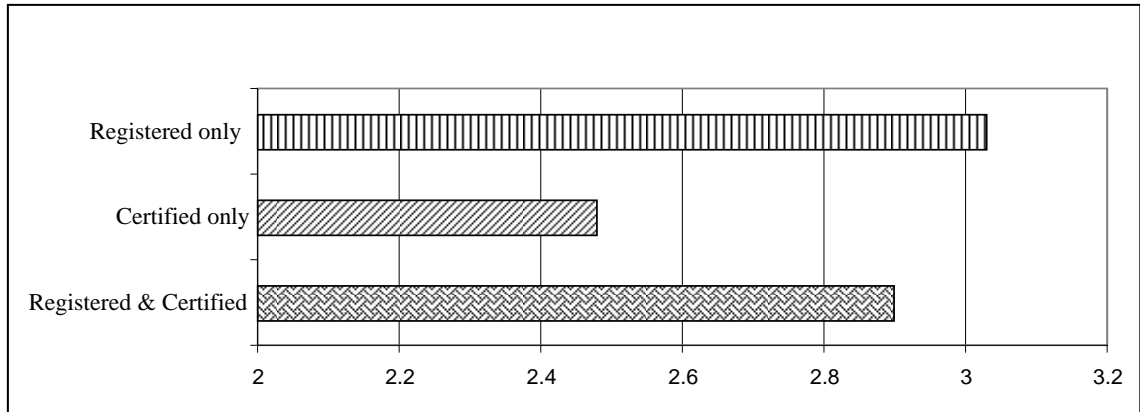


Figure 4. Bar graph of overall mean practice when comparing Certified and Registered AHTA members

Implications of this preliminary finding suggest the qualification of “certificate” is redundant while the qualification of “registration” is essential to prepare future HT professions for their jobs to practice. This preliminary finding is important to note for those responsible in the instruction of future HT practitioners and a prospective competency examination.

Future Research:

As stated earlier, the path to achieving professionalization in HT is most likely similar to other related professions that have successfully gone before such as Music Therapy, and Therapeutic Recreation.

The National Commission for Certifying Agencies, an accreditation arm of the National Organization for Competency Assurance (NOCA) has published a certification handbook (Henderson, 2008) identifying the steps necessary for certification credentialing. To date HT has only completed the first phase of what Henderson (2008) recommends which is obtaining and describing job information.

This study will add to the professionalization of HT, however further research is needed to explore professional competencies for contemporary entry-level practice and training of therapeutic horticulture professionals. As addressed in Chapter 2, this study began the exploration into phase two (i.e. validating the job description) of Henderson's (2008) recommendation. In the future, a validation study consisting of tasks, knowledge and/or skills in a logical order with scales for collecting respondent's opinion about how important each task is to the successful performance of the job will help to confirm what are essential to core curriculum development, design of continuing education opportunities, and the selection of qualified therapeutic horticulture professionals.

Conclusion:

HT and other adjunct medical professions have sought professional status as a means of ensuring practitioner service quality as well as societal recognition and acceptance as a profession. To best prepare for future HT training and employment needs, it is imperative to have an empirically based understanding of current trends of professional competencies of the HT practitioner. This study examined the composition of AHTA membership and explored how member training relates to practice. This is a step towards the development of a competency-based evaluation of entry-level HT practitioners, part of the ongoing effort to protect the public interest and advance the field of HT.

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APPENDIX A

AHTA registration requirements

APPENDIX A:

AHTA voluntary registration requirements include:

I. Education

A Bachelor's Degree in Horticultural Therapy

OR

A Bachelor's Degree in another field and the following coursework if not part of an existing degree. All coursework must be for college credit and must be documented through college transcripts.

a. 12 semester hours in the human science field from the following;

- Developmental Psychology
- Abnormal Psychology
- Human Growth and Development
- Adult Development and Aging
- Aspects of Disabilities and Illnesses
- Group Dynamics
- Principles of Therapy
- Human Anatomy/Physiology
- Medical and Psychiatric Terminology
- Professional Ethics
- Assistive Technology

b. 12 semester hours of horticulture coursework from the following;

- Introduction to Horticulture

- Plant Materials
- General Plant Pathology
- Pest and Disease Management
- Plant Propagation
- Floral Design
- Greenhouse or Nursery Production/Management
- Landscape Design

c. 9 semester hours of horticultural therapy coursework from the following;

- Overview of the profession to include: the definition of HT, the history of HT, and program types.
- HT Populations to include: physical disabilities, developmental disabilities, and mental/psychological disabilities.
- HT Programming and techniques to include: goals and objectives for HT programs; client assessment, evaluation and documentation tools; HT programming activities; adapting programming activities to meet diverse client needs; adaptive tools and devices.
- Program Management to include: preparing proposals for HT programs, developing a program budget, grant writing overview and research overview.

II. Field Work A minimum of 480 hours of field work supervised by a registered horticultural therapist at the HTR or HTM level. Field work may be divided among multiple settings. Field work may also be distance supervised following the guidelines as stated in the policy and procedures for internships.

APPENDIX B

1997 NCTRC Job Analysis Report

APPENDIX B

THERAPEUTIC RECREATION PROFESSIONAL COMPETENCIES: 1997 Job Analysis Skills and Knowledge

A minimally acceptable, entry level Therapeutic Recreation Specialist (TRS) must:

1. possess knowledge of the theories and concepts of therapeutic recreation, leisure studies, social psychology, and human development as related to the nature and scope of human service delivery systems and the ability to integrate these in a variety of settings.
2. possess an essential knowledge of the diversity of the populations including cultural and diagnostic groups served within the therapeutic recreation process, including etiology, symptomatology (cognitive, physical, social, sensory and communication, and psychiatric impairments), prognosis, treatment of conditions and related secondary complications. Have a basic command of medical terminology.
3. have a thorough understanding of the assessment process utilized within therapeutic recreation practice including, but not limited to, purpose of assessment, assessment domain (including cognitive, social, physical, emotional, leisure, background information), assessment procedures (including behavioral observation, interview, functional skills testing, a general understanding of current TR/leisure assessment instruments, inventories and questionnaires and other sources of commonly used multidisciplinary assessment data), selection of instrumentation, general procedures for implementation and the interpretation of findings.
4. have a basic understanding of the published standards of practice for the profession of therapeutic recreation and the influence that such standards have on the program planning process.
5. possess detailed knowledge of the intervention planning process, including program or treatment plan design and development, programming considerations, types of programs, nature and scope of interventions, selection of programs to achieve the assessed needs and desired outcomes of the person served, and the impact of social issues on programming.
6. possess basic knowledge related to the implementation of an individual intervention plan, including theory and application of facilitation styles, intervention techniques, and methods for behavioral change.
7. have a fundamental knowledge of the processes of documentation and evaluation as incorporated in all phases of the intervention process.
8. possess a broad understanding of organizing and managing therapeutic recreation services including, but not limited to, the development of a written plan of operation and knowledge of external regulations, personnel practices, and components of quality improvement.

9. be able to identify and understand the components of professional competency within the realm of therapeutic recreation practice, including requirements for certification, ethical practice, public relations, and the general advancement of the profession.

Job Tasks: Agency and TR Service Plan

1. Identify and analyze agency mission.
2. Identify and analyze the population served.
3. Identify and analyze agency standards.
4. Identify and analyze resources for services.
5. Develop statement of purpose and goals.
6. Develop specific programs.
7. Identify and analyze funding sources.
8. Prepare written plan of operation.

Job Tasks: Assessment for TR Intervention

1. Request and secure referrals.
2. Obtain and review pertinent background information about the person served, as available from records or charts, from other professional staff, and from relevant others.
3. Select assessment instruments and procedures based on needs of the person served.
4. Interview the person served and relevant others to assess physical, social, emotional, cognitive, leisure, and lifestyle needs and functioning.
5. Administer instruments to assess physical, social, emotional, cognitive and lifestyle needs and functioning.
6. Observe behavior of the person served to assess physical, social, emotional, cognitive and lifestyle functioning.
7. Analyze and interpret results from assessment procedures.
8. Integrate the information collected for use in planning services for the person served and report results to the treatment team.

Job Tasks: Individualized Intervention Planning

1. Discuss results of assessment and involve the person served or relevant others in the design of an individualized intervention plan.
2. Develop and document individualized intervention goals and plan based on assessment, consistent with legal requirements and professional guidelines.
3. Develop and document discharge/transition plan consistent with legal requirements and professional guidelines.

Job Tasks: Implementation of TR Services

1. Implement individualized intervention plan.
2. Establish and maintain therapeutic relationship with person served.
3. Create and maintain a safe and therapeutic environment.
4. Collect and document significant information regarding the treatment process.

5. Act as an educator, therapist, leader, facilitator and resource in the delivery of TR services.

Job Tasks: Evaluation of Individualized Intervention Plan

1. Evaluate functioning and progress of the person served.
2. Monitor and determine effectiveness of individualized intervention plan.
3. Revise individualized intervention plan as necessary with input from the person served, relevant others, and treatment/service team.

Job Tasks: Documentation

1. Record progress, functioning, and intervention outcomes of the person served.
2. Document unusual occurrences, accidents and incidents relating to risk management.
3. Maintain fund allocation and expense records.
4. Write summary reports of TR Services
5. Prepare and report quality improvement data.

Job Tasks: Treatment/Service Teams

1. Provide information to team members concerning the range of available TR services.
 2. Coordinate or integrate intervention plan with other disciplines for the person served.
3. Convey information regarding person served to team members in timely and appropriate manner.
4. Develop and provide collaborative services with other team members as necessary.

Job Tasks: Organizing and Managing Services

1. Comply with governmental, accreditation, professional, and agency standards and regulations.
2. Recruit, train, supervise, and evaluate staff.
3. Develop TR internship program.
4. Provide mentorship to TR staff and interns.
5. Prepare TR service fiscal plan.
6. Participate in comprehensive quality improvement process.
7. Respond to concerns of the person served, relevant others, staff and community.
8. Participate on TR related committees.
9. Maintain equipment and supply inventory.
 10. Participate in the TR research process.

Job Tasks: Outreach, Advocacy and Public Relations

1. Establish and maintain network with advocates and personnel in community agencies, universities, and allied health professions.
2. Advocate for rights to accessible quality health and leisure services.
3. Advocate for services of inclusion.
4. Provide support and education to the person served and relevant others.
5. Promote the agency, TR Services, and the profession through marketing and public relations activities.

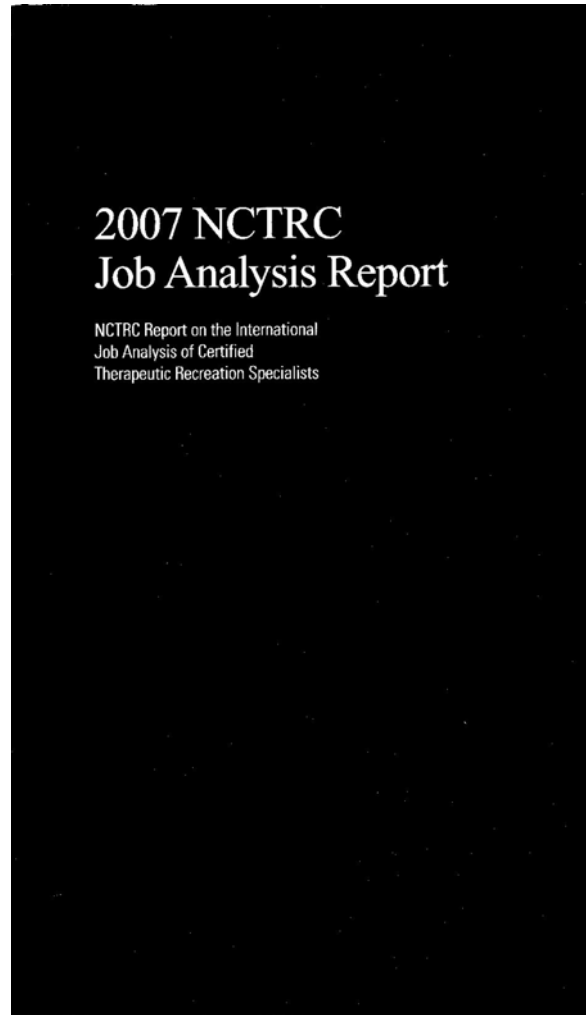
Job Tasks: Professional Development

1. Maintain and expand professional competence and credentials.
2. Participate in the planning and implementation of agency/TR in-service training and staff development programs.
3. Maintain knowledge of current TR trends, techniques, methods, issues, and professional and legal standards

APPENDIX C

2007 NCTRC Job Analysis Report

<http://nctrc.org/documents/NCTRCJARReport07.pdf>
<http://nctrc.org/documents/NCTRCJARReport07.pdf>



2007 JA Report

APPENDIX D

Required knowledge and skills in TR

APPENDIX D

Required Knowledge Areas for the Therapeutic Recreation Specialist

Background

1. Human growth and development throughout the lifespan
2. Theories of human behavior change
3. Diversity factors (e.g., social, cultural, educational, language, spiritual, financial, age, attitude, geographics)
4. Leisure theories and concepts
5. Leisure models of service delivery
6. Leisure social psychological aspects
7. Leisure throughout the lifespan
8. Leisure lifestyle development
9. Therapeutic Recreation concepts (e.g., holistic approach, recreative experience)
10. Therapeutic Recreation models of service delivery (e.g., special recreation, leisure ability/TR Service model, activity therapy, Health & Wellness model)
11. Therapeutic Recreation historical development
12. Therapeutic Recreation practice settings
13. Health care service systems
14. Leisure service systems
15. Education and human services systems
16. Models of health care and human services (e.g., medical model, community model, education model, psychosocial rehabilitation model, health and wellness model, person-centered model)

Diagnostic Groupings and Populations Served (Etiology, symptomatology, prognosis and treatment of conditions, disabilities and related secondary complications)

17. Cognitive impairments (e.g., dementia, traumatic brain injury, developmental/learning disabilities)
18. Physical impairments (e.g., impairments in musculoskeletal system, nervous system, circulatory system, respiratory system; endocrine and metabolic disorders; infectious diseases)
19. Sensory and communication impairments (visual, hearing, and speech)
20. Psychiatric impairments (e.g., psychoses, affective disorders, personality disorders, polysubstance dependence, alcohol dependence, eating disorders,)
21. Behavioral impairments (e.g., victims and/or perpetrators of violence, abuses or neglect)
22. Addictions (e.g., substance abuse, eating disorders, gambling)

Assessment

23. Assessment procedures: Behavioral observations
24. Assessment procedures: Interview

25. Assessment procedures: Functional Skills testing
26. Assessment procedures: Current assessment instruments (TR or other allied profession)
27. Assessment procedures: Other inventories and questionnaires
28. Assessment process: Other sources of assessment data (e.g., records, other professionals)
29. Assessment process: Selection (e.g., reliability, validity, practicality, availability)
30. Assessment process: Implementation
31. Assessment process: Interpretation
32. Sensory domains of assessment (e.g., vision, hearing, tactile)
33. Cognitive domains of assessment (e.g., memory, problem solving, attention span, orientation, safety awareness)
34. Social domains assessment (e.g., communication/ interactive skills, relationships)
35. Physical domains of assessment (e.g., fitness, motor skills function)
36. Emotional domains of assessment (e.g., attitude toward self, expression)

Planning the Intervention

38. Impact of impairment on the person served
39. Normalization, inclusion, and least restrictive environment
40. Architectural barriers and accessibility
41. Societal attitudes (e.g., stereotypes)
42. Legislation (e.g., Americans with Disabilities Act, Individuals with Disabilities Education Act, Older Americans Act)
43. Standards of practice for the TR profession
44. Code of ethics in the TR field and accepted ethical practices with respect to cultural, social, spiritual, and ethnic differences
45. Nature and diversity of recreation and leisure activities
46. Purpose and techniques of activity analysis
47. Relevant guidelines and standards (e.g., federal and state regulatory agencies, accrediting agencies, payment systems)
48. Leisure education (e.g., knowledge, resources, skills)
49. Selection of programs, activities and interventions to achieve the assessed needs of the person served
50. Assistive techniques, technology and adaptive de-vices
51. Methods of writing measurable goals and behavioral objectives
52. Role and function of other health and human ser-vice professionals and of interdisciplinary approaches
53. Use of quality improvement guidelines in program planning and implementation

Implementing the Individualized Intervention Plan

54. Principles of group interaction and leadership
55. Principles of behavioral change (e.g., self-efficacy theory, experiential learning model)
56. Related intervention techniques Behavior management techniques (e.g., behavior modification, self-regulation, coping skills)

57. Stress management (e.g., relaxation techniques)
58. Assertiveness training
59. Remotivation
60. Reality orientation
61. Cognitive retraining
62. Counseling techniques
63. Sensory stimulation
64. Methods for educating and incorporating families and relevant others
65. Validation and values clarification
66. Social skills training

Documentation and Evaluation

67. Methods of documenting assessment, pro-gress/functional status, discharge/transition plan of the person served
68. Documentation procedures for program account-ability, and payment for services
69. Methods for interpretation of progress notes, observations, and assessment results of the person served
70. Methods for evaluating agency/TR Service pro-gram
71. Methods for quality improvement

Organizing and Managing Services

72. Components of agency/TR Service plan of operation
73. Personnel, intern, and volunteer supervision and management
74. Budgeting and fiscal responsibility for service de-livery
75. Area and facility management
76. Quality improvement (e.g., utilization review, risk management, peer review, outcome monitoring)
77. Payment systems (e.g., managed care, PPO, private contract, Medicare, Medicaid)
78. Accreditation standards and regulations (e.g., JCAHO, CARF, HCFA)

Advancement of the Profession

79. Professionalism: Guidelines for the development of the profession
80. Requirements for TR certification/recertification
81. Advocacy for persons served
82. Legislation and regulations pertaining to TR
83. Professional standards and ethical guidelines pertaining to TR
84. Public relations, promotion and marketing of the TR profession
85. Methods, resources and references for maintaining and upgrading professional competencies
86. Knowledge of professional associations and organizations
87. Interactive process among pre-service, in-service, and direct service for the advancement of the TR profession (e.g., internships, collaborative research, presentations)

APPENDIX E

Survey

APPENDIX E: AHTA Survey of Training and Practice in Horticultural Therapy

Survey of Training and Practice in Horticultural Therapy

1. Welcome to the Survey of Training and Practice in Horticultural Therapy

Thank you for agreeing to participate in this survey.

In an effort to advance the Horticultural Therapy (HT) profession, we are requesting your help to determine the composition of AHTA membership and how your training in horticultural therapy is applied to professional practice.

Thank you for your careful consideration of these questions. We value your input.

The next page will provide you with more detailed information about the survey and will ask for your consent to participate.

2. Consent page

Online Survey Consent Form

You are invited to be in a research study of the training and practice in horticultural therapy. You were selected as a possible participant because you are a member of the American Horticultural Therapy Association. Please take a moment to read this form and ask any questions you may have before proceeding on with the survey. This study is being conducted by: Jean M. Larson, School of Kinesiology, Department of Recreation, Parks and Leisure Studies, at the University of Minnesota.

Background Information: The purpose of this study is to understand how to learn 1) about the composition of the AHTA membership and 2) how the training in horticultural therapy is applied to professional practice.

Procedures: By starting the survey below you are consenting to have your answers to this survey analyzed. If you agree to participate, you will be asked to complete a short web-based survey. The survey should take about 20 minutes.

Risks and Benefits of being in the Study: The study has no physical risks and no direct benefit to your participation in this study. The only benefit of the study is your help to bring new understanding to the field of horticultural therapy.

Confidentiality: The records of this study will be kept private. In any sort of report that is to be published will not include any information that will make it possible to identify you as a specific subject. Research records will be kept in a password accessed (locked) computer file; only the researcher will have access to the records.

Voluntary Nature of the Study: Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota, with AHTA, or with your practice in horticultural therapy. If you decide to participate, you are free to withdraw at any time without affecting those relationships.

Contacts and Questions: The researcher conducting this study is Jean M. Larson. If you have questions, you may contact her at 952-443-1421 or larso095@umn.edu. If you have any questions or concerns regarding the study and would like to talk to someone other than the researcher, contact Research Subjects' Advocate line, D528 Mayo, 420 Delaware Street S.E., Minneapolis, Minnesota 55455; telephone (612) 625-1650. Please print this page to keep for your records. This research is approved by the University of Minnesota Institutional Review Board, study #0801E25541.

Statement of Consent: I have read the above information. By clicking on the "next" button below I am consenting to participate in this study.

3. Background and General Information

*** 1. Have you received any training in Horticultural Therapy?**

Yes

No

4. Description of Training

Survey of Training and Practice in Horticultural Therapy

*** 2. Which of the following types of training in Horticultural Therapy have you received?**

- Community education training
- Conference training
- Workshop training
- Professional meeting training
- Master Gardener training
- Community College coursework
- University coursework

Other (please specify) _____

5. HT Certificate

*** 3. Do you have a certificate in HT?**

- Yes
- No

6. Certification details

4. For how long have you held a certificate in HT?

- Less than 1 year
- 1-3 years
- 4-6 years
- 7-9 years
- Over 10 years

7. Registered HT

*** 5. Are you a registered Horticultural Therapist?**

- Yes
- No

8. Registration details

6. For how long have you been a registered Horticultural Therapist?

- Less than 1 year
- 1-3 years
- 4-6 years
- 7-9 years
- Over 10 years

9. HT Training Details

Survey of Training and Practice in Horticultural Therapy

7. How much training have you received in foundational knowledge?

	No training	A little training	Some training	A lot of training
History of horticultural therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Theories of horticultural therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Definition of horticultural therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Program types of horticultural therapy (e.g. social, therapeutic, vocational)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. How much training have you received regarding diversity of populations?

	No training	A little training	Some training	A lot of training
Etiology of specific users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Symptomology of specific users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prognosis of specific users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treatment of specific users conditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Related secondary complications found in users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic command of medical terminology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. HT Training Details

9. How much training have you received in assessment?

	No training	A little training	Some training	A lot of training
Purpose of assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assessment domains (i.e. psychological, physical, social, cognitive)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assessment procedures (e.g. behavioral observations, interview, functional skill test)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Selection of assessment instrument	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General procedures for implementation of assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpretation of assessment findings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Survey of Training and Practice in Horticultural Therapy

10. How much training have you received in the program/treatment planning process?

	No training	A little training	Some training	A lot of training
Program/treatment plan design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Program/treatment planning considerations (e.g. risk management)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Types of program/treatment interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. HT Training Details

11. How much training have you received in intervention planning?

	No training	A little training	Some training	A lot of training
Techniques to write functional outcome goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to select appropriate treatment objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to construct strength-based program plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to adapt/modify horticultural therapy activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to adapt/modify garden tools/equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to design accessible garden spaces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. How much training have you received in evaluation?

	No training	A little training	Some training	A lot of training
System for documenting intervention process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
System for interpreting program interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
System to formulate recommendations for aftercare/follow-up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. HT Training Details

Survey of Training and Practice in Horticultural Therapy

13. How much training have you received in program operations?

	No training	A little training	Some training	A lot of training
Procedures in strategic planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in complying with facility standards (e.g. emergency, infection control)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in personnel policies/practices (i.e. hiring/firing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in management (e.g. scheduling appointments, time management, task prioritization)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in program budget management (e.g. expense records)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in writing/preparing grant proposals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in marketing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in managing volunteers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in managing support services (e.g. transportation, maintenance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. How much training have you received in professional organization?

	No training	A little training	Some training	A lot of training
AHTA requirements for certification	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA ethical standards of practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA support of research projects/programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA staff development opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA support of internships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA professional guidelines for internships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. HT Practice

* 15. Are you currently practicing Horticultural Therapy?

Yes
 No

Survey of Training and Practice in Horticultural Therapy

14. Last HT practice

16. Have you practiced Horticultural Therapy in the past?

- Yes, 1-5 years ago
 Yes, 6-10 years ago
 Yes, more than 10 years ago
 I have never practiced Horticultural Therapy

15. Practice area

17. In what capacity are you currently practicing horticultural therapy? (Please check the box that best describes your current practice)

- Horticultural Therapist
 Physical Therapist
 Physical Therapy Assistant
 Occupational Therapist
 Occupational Therapy Assistant
 Therapeutic Recreation Specialist
 Recreational Therapist
 Recreation Leader/Programmer
 Clergy/Spiritual Counselor
 Social Worker
 Psychologist
 Landscape Architect/Designer
 Community Garden Programmer
 Educator
 Administrator
 Health Coach
 Integrative Medicine Practitioner
 Other

Please specify:

16. HT Practice Details

18. In your current practice, to what extent do you apply the following foundational knowledge?

	None	A little	Some	A lot
History of horticultural therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Theories of horticultural therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Definition of horticultural therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Program types of horticultural therapy (e.g. social, therapeutic, vocational)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Survey of Training and Practice in Horticultural Therapy

19. In your current practice, to what extent do you apply knowledge about diversity of populations?

	None	A little	Some	A lot
Etiology of specific users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Symptomology of specific users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prognosis of specific users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treatment of specific users conditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Related secondary complications found in users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic command of medical terminology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. HT Practice Details

20. In your current practice, to what extent do you apply the assessment process?

	None	A little	Some	A lot
Purpose of assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assessment domains (i.e. psychological, physical, social, cognitive)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assessment procedures (e.g. behavioral observations, interview, functional skill test)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Selection of assessment instrument	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General procedures for implementation of assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpretation of assessment findings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. In your current practice, to what extent do you apply the program/treatment planning process?

	None	A little	Some	A lot
Program/treatment plan design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Program/treatment planning considerations (e.g. risk management)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Types of program/treatment interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. HT Practice Details

Survey of Training and Practice in Horticultural Therapy

22. In your current practice, to what extent do you apply the intervention planning process?

	None	A little	Some	A lot
Techniques to write functional outcome goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to select appropriate treatment objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to construct strength-based program plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to adapt/modify horticultural therapy activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to adapt/modify garden tools/equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques to design accessible garden spaces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. In your current practice, to what extent do you apply the evaluation process?

	None	A little	Some	A lot
System for documenting intervention process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
System for interpreting program interventions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
System to formulate recommendations for aftercare/follow-up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. HT Practice Details

Empty text area for providing details on horticultural therapy practice.

Survey of Training and Practice in Horticultural Therapy

24. In your current practice, to what extent do you apply program operation procedures?

	None	A little	Some	A lot
Procedures in strategic planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in complying with facility standards (e.g. emergency, infection control)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in personnel policies/practices (i.e. hiring/firing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in management (e.g. scheduling appointments, time management, task prioritization)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in program budget management (e.g. expense records)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in writing/preparing grant proposals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in marketing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in managing volunteers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Procedures in managing support services (e.g. transportation, maintenance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. In your current practice, to what extent do you use the AHTA professional organization?

	None	A little	Some	A lot
AHTA requirements for certification	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA ethical standards of practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA support of research projects/programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA staff development opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA support of internships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AHTA professional guidelines for internships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Other knowledge areas

Survey of Training and Practice in Horticultural Therapy

26. Please comment here if you think we have missed any knowledge areas and/or skills:

27. Do you believe there is a need for AHTA to require an examination in order to be registered as a Horticultural Therapist?

- Yes
 No

Comments

28. How do you expect your role in HT to change over the next five to ten years?

29. What additional skills/knowledge will be needed to meet the changing job demands?

21. Background Information

30. How many years of Horticultural Therapy experience do you have?

- None
 Less than one year
 1-5 years
 6-10 years
 11-15 years
 Over 15 years

31. Do you work in any of the following settings? (Please check all that apply.)

- Community-based Program
 Landscape/Nursery Industry
 Hospital/Healthcare
 Rehabilitation/Habilitation
 College/University
 Public Garden
 Other setting
 None of the above

Survey of Training and Practice in Horticultural Therapy

32. What is your primary professional role? (Please check all that apply.)

- Therapist
- Educator
- Administrator
- Other role

33. What is the highest level of education you have completed?

- High School/GED
- AA
- BA/BS
- MA/MS
- Ph.D.

34. Was your education in any of the following specialized areas? (Please check all that apply.)

- Horticultural therapy
- Occupational therapy
- Physical therapy
- Therapeutic recreation
- Vocational rehab
- Other adjunct therapies
- Nursing
- Physician
- Social work
- Clergy/spiritual counsel
- Landscape Architect/Designer
- Other specialized area
- None of the above

35. What is your age?

- Under 25
- 25 - 35
- 36 - 45
- 46 - 55
- 56 -64
- 65 or older

36. What is your gender?

- Female
- Male

Survey of Training and Practice in Horticultural Therapy

37. Please describe your racial and ethnic background:

- Asian, Asian American, or Pacific Islander
- Black or African American
- East Indian (Pakistani, Afghani, Indian)
- Hispanic, Mexican American, Latino, Chicano, or Puerto Rican
- Multi-racial/Multi-ethnic
- Native American/Alaskan Native
- White (Non-Hispanic)

38. In what US state, Canadian territory/ province, or Country do you reside?

.....

22. Thank you

Thank you for taking the time away from your schedule to complete this survey. Please let me know your thoughts and if you think I may have missed anything in the survey, you can contact me, Jean Larson, at: larso095@umn.edu or call me at: 952-443-1421.

Thank you very much for your time.

APPENDIX F

Survey Announcement

APPENDIX F:

AHTA pre-notification Announcement of Survey
ANNOUNCING: UPCOMING AHTA SPONSORED SURVEY
A Survey of Training and Practice in Horticultural Therapy

Greetings Members of AHTA:

Please consider participating in “*A Survey of Training and Practice in Horticultural Therapy.*” All members of AHTA are eligible and participation is critical in establishing who our membership is professionally; and how AHTA members are applying their training into practice.

As an AHTA member you will have a chance to let your voice be heard and tell us about yourself and what makes you a member. If you have received training in HT and are currently in practice, you will have a chance to tell us how your training is being applied into your practice.

Specifically the survey is looking for:

- 1) what is the current professional composition of the AHTA membership professional?
- 2) how is the AHTA training being applied to professional practice for all HTR’s?

This survey is being implemented for Jean Larson’s Ph.D. research study. Jean Larson is the Program Manager for the Center for Therapeutic Horticulture at the University of Minnesota. She currently is teaching three graduate level courses accredited by AHTA towards certification. She is interested in this survey research as a means to determine a widely accepted code of teaching standards and their relevance to practice.

This survey will be easy and won’t take much time. It is a web-based survey and takes about 20 minutes (maximum). We ask that all membership voices be heard to make this survey the most comprehensive and informative.

Please be on the look out for the note telling you about the survey; followed (about one week later) by an email with link to the survey.

All participation is voluntary. If you don’t want to participate – please notify Jean Larson immediately and she will remove your name from the list (larso095@umn.edu). If you have any questions at all, please feel free to contact Jean at: 952-443-1421.

Thanks – we look forward to your participation.

Jean M. Larson
Program Manager
University of Minnesota

Gaye Horton
Administrative Director
AHTA

This research is approved by the University of Minnesota Institutional Review Board, study #0801E25541

APPENDIX G

Pre-notification of survey

APPENDIX G:

Pre-notification letter sent as email

Greetings,

My name is Jean Larson. I am the Program Manager for the Center for Therapeutic Horticulture at the University of Minnesota. I am currently a Ph.D. student working on my final research project.

Hopefully by now you've had a chance to read the latest issue of the AHTA newsletter announcing my web-based research survey. If not, I am asking that you participate in the survey to tell me what you are doing professionally and how you are applying your training into practice.

Specifically the survey is looking for:

- 1) what is the current professional composition of the AHTA membership professional?
- 2) how is the AHTA training being applied to professional practice?

The survey is a web-based survey and will take about 20 minutes (maximum) of your time. The information gathered from the survey is critical to establishing the current professional trends and will help in future AHTA decisions with regard to credentialing process.

This email is to notify you in advance before the actual survey is sent to you. All participation is voluntary. If you don't want to participate – please notify me immediately and I will remove your name from the list (larso095@umn.edu).

If I don't hear from you now, then keep your eyes open for a web-based link to the survey coming to you in about one week's time. At that time, you will be able to participate in the survey.

I appreciate your help with my research. But more importantly, as a member, I appreciate you sharing your insight and making your voice heard to advance the field of horticultural therapy.

Thanks – I look forward to your participation.

Jean M. Larson
Program Manager
University of Minnesota

This research is approved by the University of Minnesota Institutional Review Board, study #0801E25541

APPENDIX H

Non-respondent letter

APPENDIX H:

Follow-up letter to non-respondents

Greetings,

This is a reminder to please take a moment to click on the link below to complete *“A Survey of Training and Practice in Horticultural Therapy”*.

ADD SURVEY MONKEY LINK HERE

As mentioned in past correspondence, your participation in the survey is critical to help us determine the composition of AHTA membership as well as analyze the trends in how the AHTA training is being applied in practice.

The survey will only be open for another week – it is important that all voices be heard from the AHTA membership. You are a voice that I have not heard from yet and I would like to know your thoughts.

If you do not wish to receive further emails from me, please click the link below and you will be automatically removed from the mailing list

ADD SURVEY MONKEY REMOVE LINK HERE

Thanks, in advance, for sharing a few minutes of your valuable time to complete the survey today. If you have any questions or concerns, please feel free to contact me at: 952-443-1421.

Sincerely,

Jean M. Larson
Program Coordinator
University of Minnesota

This research is approved by the University of Minnesota Institutional Review Board, study # 0801E25541

“Most things remain to be done,
Glorious future”

- Ingvar Kamprad