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Introduction to Animal- and Nature-Assisted Therapies: A Service-Learning Model for Rural Social Work

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Abstract. This teaching note details the teaching philosophy and practices of an innovative university service-learning course in nature- and animal-assisted therapies. The course took place at a wildlife rehabilitation center, and students engaged as counselors, putting academic theories into action by facilitating an “animal camp” for 25 at-risk children. The course represented a “best practice” in rural social work given its intensive focus upon social work’s ecological and person-in-environment perspectives; multidisciplinary, collaborative community-based partnerships; and evocation of a rural schoolhouse model.

Keywords: rural social work, nature therapy, service-learning, animal-assisted therapy, nature-assisted therapy

For the past ten summers, a 22-acre homestead and wildlife rehabilitation center has provided the setting for an innovative university service-learning course entitled *Introduction to Animal- and Nature-Assisted Therapies*. The course takes place at the homestead of the second author, a former camp director, teacher and counselor, certified state wildlife rehabilitator, therapist, and university professor. Once a farm and hog lot, the acreage has been restored to natural prairie with a menagerie of rescued animals including a horse, several goats, dogs, cats, owls, and rabbits, along with itinerant rehabilitating foxes, fawns, birds, and raccoons. Many of these animals were discussed and cared for during the duration of the course.

Course Description

This four-week multidisciplinary course is unique in that students become engaged as scholars as well as counselors, putting academic theories into action by planning and implementing an “animal camp” for 25 at-risk children during the last two weeks of the course. Our course employed a type of experiential learning termed *service-learning*, which integrates academic and experiential elements through service that meets vital community needs. As Jeavons (1997) notes, service-learning entails a threefold engagement through “classroom preparation through explanation and analysis of theories and ideas; service activity that emerges from and informs classroom context; and structured reflection tying service experience back to specific learning goals” (p. 135). This teaching note explores the benefits of such a service-learning course for social work educators seeking innovative, collaborative approaches to rural social work teaching and practice.

Nature-assisted therapy (NAT) and *animal-assisted therapy* (AAT) may be incorporated under the broader term of *nature therapy* (Nebbe, 1995). As such, they refer to goal-directed interventions that intentionally integrate elements of the natural world to enhance human physical or psychosocial functioning. These interventions include practices and

techniques that are planned, monitored, and evaluated by licensed professionals within therapeutic contexts, in contrast to more informal nature- and animal-assisted *activities* conducted by volunteers or paraprofessionals (PetPartners, 2013; Nebbe, 1995).

We believe our course represents a “best practice” for rural social work given its: (a) intense focus upon social work’s ecological and person-in-environment perspectives (Germain, 1979; Germain & Bloom, 1991; Germain & Gitterman, 1987) through its exploration of nature- and animal-assisted interventions; (b) location at an acreage that doubled as a wildlife rehabilitation center; and (c) evocation of a rural schoolhouse model featuring non-hierarchical, cross-disciplinary patterns of teaching and learning which created new knowledge and resource exchanges (Coward, Healy, & Warnick, 2012). A new development this year involved enhanced collaboration with our university’s Biology Department, via a federal and state-funded grant from the Science, Technology, Engineering and Mathematics (STEM) program. STEM partners with educational institutions to implement K-12 programs that encourage the pursuit of careers in math and science (University of Northern Iowa, STEM, n.d.). Our role in the STEM initiative was to encourage a deepened appreciation and connection to the natural environment among campers and student-counselors.

Held in the farm’s pole barn, the class met three to four hours daily for four weeks. Our classroom instruction featured lectures and PowerPoint presentations, as well as discussions of assigned readings and short videos. We Skyped with the internationally-acclaimed director of Green Chimneys, a residential treatment center for children renowned for its implementation of animal-assisted therapy (Green Chimneys, 2013). Students also engaged in creative nature-based exercises, including scavenger hunts and arts and crafts, some of which they later re-created with their campers. Student homework included readings, multiple reflection papers, and activities related to planning and creating materials for the upcoming animal camp.

There are a myriad of useful ways to structure a similar course, depending on available resources, curricular expectations, and student or community expectations and needs. To help meet educational policy accreditation standards of the Council of Social Work Education (CSWE, 2008), Table 1 presents measurable practice behaviors stemming from our learning objectives. Indeed, these very behaviors may be integrated into a wide range of social work courses (CSWE, 2008; Hash, Chase, & Rishel, 2012).

Table 1

CSWE EPAS and Accompanying Practice Behaviors by Course

Educational Policy and Accreditation Standard (EPAS)	Accompanying Practice Behaviors/ Competencies	Relevant Social Work Courses
EPAS 2.1.3	Further develop critical thinking skills by conducting and analyzing qualitative interviews	research methods; field practica
EPAS 2.1.4, 2.17	Engage diversity and difference in practice	practice courses; HBSE; field practica
EPAS 2.1.9	Promote sustainable changes in service delivery and continuously discover, appraise, or attend to changing locales and populations	social administration courses that focus on leadership, program evaluation/grant writing
EPAS 2.1.10a, b, c, d	Develop and evaluate skills in individual, group, family and community engagement, assessment, intervention, and evaluation	

First Learning Objective: Grasping the Conceptual Framework

Table 2 presents our four broad course learning objectives. The first objective was met by introducing students to a conceptual framework for understanding nature therapy. We learned that although humans have throughout time found a deep sense of connection and enrichment with the natural world, it was only in the early 1970's that NAT/AAT as a field of therapy received widespread attention due in large part to the burgeoning ecological movement. The instructor detailed foundational field pioneers such as psychiatrist Boris Levinson's (1972) work in animal-assisted therapy. Students learned that nature therapy embraces the philosophy that "health and well-being among humans, animals, and the environment are inextricably linked" (Rouland, 2012), and that a deep emotional connection between humans and the natural world is needed to sustain and fulfill human life. This philosophy is underscored by Urie Bronfenbrenner's ecological framework for human development (Bronfenbrenner, 1979, 2005), and E.O. Wilson's biophilia hypothesis (Kellert & Wilson, 1993; Wilson, 1984). Further, it is found in broader movements in the natural and social sciences that include ecotherapy (Chalquist, 2009; Clinebell, 1996; Roszak, Gomes & Kanner, 1995). Wilson's hypothesis also finds a central place in ecosocial work (Besthorn, 2003; Molyneux, 2010), which expands social work's ecological and person-in-environment perspectives to suggest a further "interdependence and relatedness of all life, connectedness with nature and the importance of place" (Coates, Gray, & Hetherington, 2006, p. 8). Although not always explicitly acknowledged, instructors may wish to note that these movements are often deeply rooted in the world views of Buddhism, romanticism or transcendentalism (Buzzell & Chalquist, 2009).

Table 2

Course Learning Objectives

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- 1 To introduce students to a conceptual framework for understanding nature therapy, including its history and philosophy;
 - 2 To comprehend the benefits of nature therapy as well as the wide variety of its interventive approaches;
 - 3 To fathom some of the challenges involved in creating, implementing, and evaluating nature therapy programs in varied settings and with different client populations; and
 - 4 To allow opportunities for observation and subsequent practice of some NAT/AAT interventions within a service-learning format that integrates knowledge, skills, and community service.
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Nature therapy, alongside ecotherapy and ecosocial work, attempts to counter the trend of increasing alienation from natural environments (Bronfenbrenner, 2005; Louv, 2008) often attributed to the effects of widespread urbanization and industrialization (Durkheim, 1893/1997; Berger, 1967). Of particular interest to social work is the ecotherapeutic movement's emphasis on a collective mandate to promote social justice by building sustainable, resilient communities. This suggests that "[r]elationships of healing with nature, place, creatures, and earth require us to acknowledge our participation in industrial, governmental, or organizational actions that harm the environment and to seek alternative actions whenever possible" (Buzzell & Chalquist, 2009, para. 2). Ecosocial work also upholds the enriching value of diversity--whether "cultural, ecological, epistemological, [or] spiritual" (Buzzell & Chalquist, 2009, para. 7)--and resists trends that marginalize any community members. As Hunter (2006) notes, "Doors closed by language, discrimination, or disability can be opened by teaching youth and families that they are naturally an important part of the interconnection of all beings" (para. 2).

Our course drew upon the strengths and capacities of a vibrant community base, as we interacted with neighbors, parents and siblings of campers, educators, and professionals in a wide variety of fields. Biology and veterinary science interns also conducted their academic practica on site: wildlife conservation officers brought fawns orphaned by recent woodland flooding; and a European psychiatrist visited to compare notes about conducting animal-assisted therapeutic approaches. The sharing of knowledge that emerged naturally from our multidisciplinary roles and duties led to enhanced community-building and patterns of natural helping (Patterson, Memmott, Brennan, & Germain, 1992). This underscores Rhodes's (2012) observation that rural social work is highly "familiar with the needs and advantages of working in interdisciplinary partnerships" (p. 104).

Second Course Objective: Benefits of Nature Therapy

Students met our second course objective, comprehending nature therapy's benefits, by reflecting upon core human needs for belonging, independence, and generosity (Brendtro,

Brokenleg, & Van Bockern, 1990). A variety of natural environment experiences offered potential satisfaction of those needs through opportunities for connection, achievement, or self-discipline and altruistic behavior development (Brendtro, et al., 1990). Feeding domestic animals, for instance, encouraged nurture of another creature, alongside increasing positive attachment and a sense of mastery and generosity. Developing such competencies helps build client trust, respect for self and others, and self-esteem (Beck & Katcher, 1996; Fine, 2010). Recent studies augment these observations, offering statistically significant evidence of physical and psychological benefits of nature- and animal-assisted interventions, such as reduction of anxiety and greater immunity (HABRI Central, 2013). These results have captured the attention of the National Institutes of Health's Institute for Child Health and Human Development, which has published its findings of health benefits of AAT as a complementary intervention (McCardle, McCune, Griffin, Esposito, & Freund, 2011; McCardle, McCune, Griffin, & Maholmes, 2011). Promising new research in social and developmental neuroscience also considers human-animal interaction as it impacts emotional development, cognition, motivation, and social affiliation (Social Neuroscience of Human-Animal Interactions, 2011).

Third Learning Objective: Approaches, Applications, and Guidelines for Practice

The instructor addressed our third learning objective: to understand specific approaches and applications of nature therapy and general guidelines for practice. We focused on selection and care of various animals, as well as creating and implementing programs designed for populations as varied as autistic children, veterans, and elders. We also discussed settings in which NAT/AAT is employed, such as schools, hospitals, nursing homes, prisons, and residential treatment and rehabilitation facilities. The course then covered challenges posed in developing, managing, and supervising nature therapy programs, including issues of visitation, safety, and cost (Altschiller, 2011; Fine, 2010; Granger & Kogan, 2006; HABRI, 2013; Nebbe, 1995; PetPartners, n.d.). One breakout activity involved brainstorming about risk management where students listed potential problems that the upcoming animal camp might present. We broadly categorized these problems, formed focus groups to examine possible solutions, and then asked each group to report back with their suggestions.

It is vitally important to provide students with resources detailing interventions for various populations, as well as information about professional organizations and avenues for further inquiry. Via a course listserv, we sent out web links to local, national and international organizations. It is also helpful to place this information in the syllabus and course website. Included were the following links: (a) American Humane Association (2013); (b) Animals and Society Institute (2011); (c) HABRI Central's Study of the Human-Animal Bond (2013); (d) the International Association of Human-Animal Interaction Organizations (2013); (e) the International Society for Anthrozoology (2013); (f) the Latham Foundation (2013); and (g) PetPartners (2013).

University-based instruction in nature therapy tends to be interdisciplinary, and varies in length and breadth of instruction, rigor, opportunities for observation and practice, and research requirements. We found students eager for information about programs, courses, and certificate programs, and subsequently provided web links to this information. NAT programs tend to be found in environmental education and recreation therapy courses, while social work and counseling departments tend to focus on interventions involving animals. Some programs have

an online component, of great benefit to remote rural areas. Several exemplary university-based programs include the University of Denver's graduate level social work certificate programs (University of Denver Graduate School of Social Work, n.d.) and Arizona State University's animal-assisted social work certificates, including one focused upon animal abuse (Arizona State University, n.d.). Other significant programs are found at Michigan State University's School of Social Work, Veterinary Social Work Services (n.d.), the University of Missouri College of Veterinary Medicine and Nursing's Research Center for Human-Animal Interaction (n.d.), the University of Tennessee, College of Social Work's Veterinary Social Work Certificate Program (n.d.), and Virginia Commonwealth University School of Medicine, Center for Human-Animal Interaction (n.d.). Many of these programs focus on how to protect the welfare of both animals and human clients, therefore upholding the dignity and worth of all species.

Fourth Learning Objective: Service-Learning and "Animal Camp"

Conducting the animal camp itself met the final learning objective of our course: to allow opportunities for observation and subsequent practice of nature therapy within a service-learning format. Students creatively integrated academic theory and hands-on experience by becoming counselors. Camp goals were to offer youth deemed "at-risk" by school guidance counselors, an extended opportunity for one-on-one bonding experiences with a caring adult through nature activities and therapeutic interactions. Unlike other camps where the social community is primary, animal camp focuses on one-to-one personal relationships. The counselor and camper spend two weeks connecting to each other and to the environment, allowing each camper the autonomy to choose from a range of personally appealing activities.

The culture undergirding our animal camp was humanistic and person-centered, reflecting Carl Rogers's psychology: congruence (genuineness), unconditional positive regard (acceptance), and empathic understanding (an ability to deeply grasp another's subjective world) (Corey, 2009; Rogers, 1961). In such an environment, humans are most likely to reach their potential, "given their inherent capacity to move away from maladjustment and toward psychological health and growth" (Corey, 2009, p. 178). Camp rules were simply two: move and speak gently and quietly; and treat all other life in the way you want to be treated. The one-to-one ratio between camper and student-counselor allowed easy enforcement of these rules and redirected potentially problematic behaviors, many of which disappeared quickly as the camper acclimatized to the nurturing milieu. A pre-camp visit by the counselor to the camper's home also introduced the child and family to the camp's culture and expectations. At this meeting, the counselor asked the child to read and sign a contract detailing behavioral expectations at camp. If these were not met, the camper would be taken home, but could return the next day. In its many years of operation, the staff has never needed to enforce this option.

Service-learning requires thorough preparation and planning, clearly articulated expectations, and commitments by all parties through orientation, monitoring and evaluation (Honnet & Poulson, 1989). The fact that our course met at a 22-acre wildlife rehabilitation center facilitated many activities, including observations of a release of a rehabilitated bird and the feeding of orphan fawns. During periodic group activities in which camper and counselor remained together, we engaged in songs, arts and crafts, scavenger hunts, canoeing, and insect collecting and release (Nebbe, 1995). We also discussed the effect of pesticides upon trophic

levels, and constructed solar ovens out of cardboard and aluminum foil to demonstrate safer and more energy-efficient ways to cook food.

To integrate text- and classroom-based content, successful service-learning programs also require structured, ongoing student reflection upon their experience (Bringle & Hatcher, 1995; Jeavons, 1995; Kolb, 1984). We found that the best vehicles to encourage such reflection were daily journaling and progress reports. Qualitative pre- and post-interviews with campers and their families also provided opportunities for analysis and reflection, and served as evaluatory instruments. Interview questions focused upon student-counselor and camper learning experiences, changes in feelings, motivations, and attitudes, as well as observed modifications in camper behaviors. At the programmatic level of evaluation, we focused on performance- or outcomes-based analysis, and asked two types of questions of students, school counselors, and campers and their families: how well the program was carried out, and what was its impact (Gilbert & Terrell, 2005). The first question was formative and attempted to monitor the implementation process, while the second question was summative and focused on program outcomes. Overall, our evaluation approach was summative, given that the majority of our questions were asked after the course concluded. We asked students to consider why they believed our various interventions were effective, and asked for recommendations to improve the course content and activities. In a less compressed course offered over an entire semester, it would be helpful to also include mid-semester formative evaluations.

Finally, we wish to point out a promising but little studied phenomenon in evaluating service-learning courses: assessing affective outcomes. By identifying those learning or educational activities that incorporate feelings, values, motivations, and attitudes, Krathwohl's taxonomy of the affective domain (Krathwohl, 2002; Krathwohl, Bloom, & Masia, 1973) proved helpful in assessing how well students have met course objectives. Although this domain is often overlooked in the traditional academic classroom (Owen-Smith, 2004), we believe that encouraging and then assessing the deep connections between cognitive and affective dimensions is essential for integrating academic with experiential elements of service-learning. We believe our course in animal- and nature-assisted therapies was ultimately successful because of its ability to bridge this cognitive-affective divide. By so doing, it helped promote and sustain an enduring sense of healing and connection vital for rural social work teaching and practice.

References

- Altschiller, D. (2011). *Animal-assisted therapy*. Santa Barbara, CA: Greenwood.
- American Humane Association (2013). Animal-assisted therapy: Harnessing the healing power of the human-animal bond. Retrieved from <http://www.americanhumane.org/interaction/programs/animal-assisted-therapy/>
- Animals and Society Institute (2011). HAS courses in social work and counseling. Retrieved from <http://www.animalsandsociety.org/pages/has-courses-in-social-work-and-counseling>

- Arizona State University (2013). Graduate certificate program in treating animal abuse. Retrieved from <http://ssw.asu.edu/admissions-degrees/certificates/graduate-certificate-program-in-treating-animal-abuse/>
- Beck, A. M., & Katcher, A. (1996). *Between pets and people: The importance of animal companionship* (Rev. ed.). West Lafayette, IN: Purdue University Press. Retrieved from <http://www.thepress.purdue.edu/titles/format/9781557530776>
- Berger, P. L. (1967). *The sacred canopy: Elements of a sociological theory of religion*. New York, NY: Anchor Books.
- Besthorn, F. H. (Ed.) (2003). Radical ecologisms: Insights for educating social workers in ecological activism and social justice. *Critical Social Work* 4(1). Retrieved from <http://www.uwindsor.ca/criticalsocialwork/2003-volume-4-no-1>
- Brendtro, L. K., Brokenleg, M., & Van Bockern, S. (1990). *Reclaiming youth at risk: Our hope for the future*. Bloomington, IN: National Education Service.
- Bringle, R. G., & Hatcher, J. A. (1995). A service learning curriculum for faculty. *Michigan Journal of Community Service Learning*, 2, 112-122.
- Bronfenbrenner, U. (1980). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. (Ed.). (2005). *Making human beings human: Bioecological perspectives on human development*. Thousand Oaks, CA: Sage.
- Buzzell, L., & Chalquist, C. (2009). What is ecotherapy? Retrieved from [http://www. Ecotherapyheals.com/whatisecotherapy.html](http://www.Ecotherapyheals.com/whatisecotherapy.html)
- Chalquist, C. (2009). A look at the ecotherapy research evidence. *Ecopsychology* 1(2), 64-74.
- Clinebell, H. J. (1996). *Ecotherapy: Healing ourselves, healing the earth: A guide to ecologically grounded personality theory, spirituality, therapy, and education*. Minneapolis, MN: Fortress Press.
- Coates, J., Gray, M., & Hetherington, T. (2006). An 'ecospiritual' perspective: Finally, a place for indigenous approaches. *British Journal of Social Work*, 36(3), 381-399.
- Corey, G. (2009). *Theory and practice of counseling and psychotherapy* (8th ed.). Belmont, CA: Thomson Higher Education.
- Council on Social Work Education (CSWE). (2008). *2008 EPAS Handbook*. Retrieved from <http://www.cswe.org/Accreditation/2008EPASHandbook.aspx>
- Coward, A., Healy, P., & Warnick, A. (2012). On one room schoolhouse. *Quodlibetica Constellation* 18. Retrieved from <http://www.quodlibetica.com/?s=schoolhouse>

- Durkheim, E. (1997). *The division of labor in society* (W. D. Halls, Trans.). New York, NY: Free Press.
- Fine, A. H. (Ed.) (2010). *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (3rd ed) (pp. 385-414). San Diego, CA: Academic Press/Elsevier.
- Germain, C. B. (1979). Ecology and social work. In C. B. Germain (Ed.), *Social work practice: People and environments* (pp. 1-22). New York, NY: Columbia University Press.
- Germain, C. B., & Bloom, M. (1991). *Human behavior in the social environment: An ecological view*. New York, NY: Columbia University Press.
- Germain, C. B., & Gitterman, A. (1987). Ecological perspective. In A. Minahan (Ed.), *Encyclopedia of Social Work* (18th ed., Vol. 1, pp. 488-499). Silver Spring, MD: National Association of Social Workers.
- Green Chimneys (2013). Retrieved from <http://www.greenchimneys.org/>
- Gilbert, N., & Terrell, P. (2005). *Dimensions of social welfare policy* (6th ed.). Saddle River, NJ: Pearson.
- Granger, B. P., & Kogan, L. (2006). Characteristics of animal-assisted therapy/activity in specialized settings. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (2d ed., pp. 263-286). San Diego, CA: Academic Press/Elsevier.
- HABRI Central (2013). Resources for the study of the human-animal bond. Retrieved from <http://habricentral.org>
- Hash, K. M., Chase, P. A., & Rishel, C. W. (2012). Students discovering strengths and needs in small towns and rural areas. *Contemporary Rural Social Work* 4(1), 39-49.
- Honnet, E. P., & Poulsen, S. J. (1989). *Principles of good practice for combining service and learning. Wingspread Special Report*. Racine, WI: Johnson Foundation.
- Hunter, D. (2006). *Healing children, adolescents and families nature-ly*. Retrieved from <http://counselingoutfitters.com/Hunter.htm>
- International Association of Human-Animal Interaction Organizations (2013). Retrieved from <http://www.iahaio.org/new/>
- International Society for Anthrozoology (2013). Retrieved from <http://www.isaz.net>
- Jeavons, T. H. (1995). Service-learning and liberal learning: A marriage of convenience. *Michigan Journal of Community Service Learning* 2, 134-140.
- Kellert, S. R. & Wilson, E. O. (Eds.). (1993). *The biophilia hypothesis*. Washington, DC: Island Press/Shearwater Books.

- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Upper Saddle River, NJ: Prentice-Hall.
- Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory into practice* 41(4), 212-225.
- Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1964). *Taxonomy of educational objectives. The classification of educational goals, Handbook II: Affective domain*. New York, NY: David McKay. Retrieved from <http://serc.carleton.edu/resources/20681.html>
- Latham Foundation (2013). Research & resources. Retrieved from <http://www.latham.org/research-and-resources/>
- Levinson, B. M. (1972). *Pets and human development*. Springfield, IL: Thomas Books.
- Louv, R. (2008). *Last child in the woods: Saving our children from nature-deficit disorder* (Rev. ed.). Chapel Hill, NC: Algonquin.
- McCardle, P. D., McCune, S., Griffin, J. A., Esposito, L., & Freund, L. (Eds.). (2011). *Animals in our lives: Human-animal interaction in family, community, and therapeutic settings*. Baltimore, MD: Paul H. Brookes.
- McCardle, P., McCune, S., Griffin, J., & Maholmes, V. (Eds.). (2011). *How animals affect us: Examining the influence of human-animal interaction on child development and human health*. Washington, DC: American Psychological Association.
- Michigan State University School of Social Work (2013). *Veterinary social work services*. Retrieved from <http://socialwork.msu.edu/outreach/VeterinarySocialWorkServices.php>
- Molyneux, R. (2010). The practical realities of ecosocial work: A review of the literature. *Critical Social Work* 11(2), 61-69.
- National Institutes of Health, Institute for Child Health and Human Development (2008). *Directions in human-animal interaction (HAI) research: Child development, health, & therapeutic interventions*. Retrieved from <http://www.nichd.nih.gov/about/meetings/2008/Pages/100208.aspx>
- Nebbe, L. L. (1995). *Nature as a guide: Nature in counseling, therapy, and education* (2nd ed.). Minneapolis, MN: Educational Media Corp.
- Owen-Smith, P. (2004). What is cognitive-affective learning (CAL)? *Journal of Cognitive Affective Learning* 1(11). Retrieved from https://cndls.georgetown.edu/teachtoconnect/resources/What_is_CAL.pdf
- Patterson, S. L., Memmott, J. L., Brennan, E. M., & Germain, C. B. (1992). Patterns of natural helping in rural areas: Implications for social work research. *Social Work Research & Abstracts* 28(3), 22-28.

- PetPartners (n.d.). What are animal-assisted activities/therapy? Retrieved from <http://www.petpartners.org/document.doc?id=1102>
- Rhodes, B. E. (2012). Rural domestic violence: An interdisciplinary model for rural practice. *Contemporary Rural Social Work* 4, 101-109.
- Rogers, C. (1961). *On becoming a person*. New York, NY: Houghton Mifflin.
- Roszak, T., Gomes, M. E., & Kanner, A. D. (Eds.). (1995). *Ecopsychology: Restoring the earth, healing the mind*. San Francisco, CA: Sierra Club Books.
- Rouland, R. (Interviewer). (2012, April 2). "Dr. Elizabeth Strand: Veterinary social work: 'One health' in action {Audio podcast}. in SocialWork® Podcast Series, Episode 93. Retrieved from <http://www.socialwork.buffalo.edu/podcast/episode.asp?ep=93>
- Social Neuroscience of Human-Animal Interactions (2011). Satellite meeting of Society for Neuroscience. Retrieved from <http://haineuroconference2011.ezregister.com/>
- University of Denver Graduate School of Social Work (2013). Animal-assisted social work certificate. Retrieved from <http://du.edu/socialwork/programs/oncampus/twoyear/certificates/aaswcertificate.html>
- University of Missouri, College of Veterinary Medicine and School of Nursing. Research Center for Human-Animal Interaction (n.d.). Retrieved from <http://rechai.missouri.edu>
- University of Northern Iowa (n.d.). *We are STEM Education*. Retrieved from <http://www.uni.edu/stemed>
- University of Tennessee College of Social Work (n.d.). Veterinary social work certificate program. Retrieved from <http://www.csw.utk.edu/students/vsw/>
- Virginia Commonwealth University, School of Medicine, Center for Human-Animal Interaction (n.d.). Retrieved from <http://www.chai.vcu.edu/about/message.html>
- Wilson, E. O. (1984). *Biophilia*. Cambridge, MA: Harvard University Press.

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