A Comprehensive Wellness Program for Veterinary Medical Education: Design and Implementation at North Carolina State University

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Abstract

Research in veterinary medical education has illustrated the challenges students face with respect to mental and emotional wellness, lack of attention to physical health, and limited opportunities to meaningfully engage with persons from different backgrounds. In response, the North Carolina State University College of Veterinary Medicine has adopted a comprehensive wellness program available to all members of the college community. The wellness program is based on a 'house system' learning community model and focuses on five broad outcome categories: intellectual growth; mental and emotional health; social distance reduction; cultural competence; and physical health. This case study paper describes the development and implementation of the model at this institution.

Keywords: Medical Education, Curriculum, Learning Environment, Community, Diversity, Wellness, Health

1. Background and Review of Selected Literature

Most students have a positive experience during matriculation through veterinary college; however, some face issues that put them at risk for emotional distress and/or academic failure. In recent years the topic of emotional wellness among veterinary medical students and graduates has gained considerable attention. The profession has organized four national veterinary student Wellness Summits and the 2015 AVMA Annual Report cites wellness (alongside economic concerns) as the greatest concern from its student members (AVMA, 2015).

Research has shown that compared to the general population, veterinary medical students are at risk for higher levels of anxiety, stress, depression, exhaustion, feelings of inadequacy, and suicide (Hafen et al, 2008; Siqueira Drake et al, 2012; Strand, Zaparanick & Brace, 2005; Zenner et al, 2005; Skipper & Williams, 2012; Siqueira Drake et al, 2014). Similar to studies in other medical fields, Schoenfeld and colleagues (2015) reported measures of empathy often decline upon matriculation to veterinary school, and Diulio and colleagues (2015) noted that some students turn to alcohol as a coping mechanism to regulate emotions. Some veterinary students may also face challenges in regard to social and cultural experiences. As a group, veterinary students tend to be more introverted than the general population and may experience anxiety during group projects and social interactions (Brown, Harvey & Stiles, 2011). Individuals can become socially isolated within their class peer group, impacting mental health and academic performance. Further, the veterinary profession is one of the least ethnically integrated, with 96.6% of the workforce being White (Thompson, 2016). Students from different cultural and ethnic backgrounds may be particularly at risk for social isolation (Royal, Cannedy & Dent, 2016). As the veterinary profession seeks to recruit underrepresented students, it is important to note that simply having a racially diverse student body is not enough to improve unlock the benefits of racial and ethnic diversity, (Chang, 2011; Milem, Chang & Antonio, 2005) and specific measures may be needed to improve inclusivity.

1.1 Issues

The issues facing students are multifactorial and likely relate at least partially to the rigor of the DVM program and characteristics of the elite individuals that choose to enter veterinary medicine. Faced with a rigorous curriculum and

a sometimes challenging social environment, some students find it difficult to implement the strategies they know will improve their overall wellness: social engagement, exercise, healthy meals and taking appropriate breaks from their studies. At our institution we have addressed student wellness by providing a dedicated psychologist, diversity training, faculty mentors, on-site exercise facility, cafeteria with healthy meal options, and support for college-wide events and social activities. We next sought to improve the veterinary student experience by implementing a more comprehensive program that is inclusive and designed to address student issues in five broad outcome categories: 1) intellectual; 2) mental/emotional; 3) physical; 4) social; and 5) cultural. Embedded within these categories, it was particularly important that the program vertically integrate students among the DVM classes and include faculty, staff and alumni. Finally, we wanted a program that could spark engagement, creativity and be fun.

1.2 Purpose

Thus, the purpose of this case study paper is to describe the development of a comprehensive wellness program using a house system learning community model at the North Carolina State University College of Veterinary Medicine (NCSU-CVM). The model is well-founded on a rich research literature in the fields of education, psychology and sociology and promises to be a tremendous success. While a formal evaluation of the merits of the initative likely will require several years of data, we want to share our model with others so as to help provide immediate solutions to very serious problems in education. It is our hope that the model presented in this paper will be of use to others and will serve as a blueprint for creating and implementing a similar program at one's own institution.

2. Methodology

2.1 Perspective

Upon reviewing various learning community education models, the 'house system' model was most appealing as it is arguably the only learning community model that has the potential to immediately impact each of the five broad outcome categories noted previously. House system models are common in the United Kingdom, with estimates in 2010 suggesting 58% of schools (equivalent to K-12 in the United States) in the UK employ this structure (PR Newswire, 2010). These models are also becoming increasingly common in K-12 programs in the United States and on college campuses in the form of living learning communities. In terms of house models specific to the medical professions in the United States, only the Vanderbilt School of Medicine and the Johns Hopkins University School of Medicine have published work indicating the existence of a house model at their institutions (Drolet & Rodgers, 2010; Stewart et al, 2007). The Vanderbilt model, launched in 2006, assigned all medical students to an 'Advisory College' and was largely focused on three key facets: advising/mentoring, student leadership, and personal growth. A more recent paper by Fleming and colleagues (2013) discusses the ongoing evolution of the Vanderbilt house model into an elaborate learning community. The Johns Hopkins model, touted as a program comparable to Hogwarts from the Harry Potter novels, focused largely of enhancing the educational experience for both students and physician-teachers. Inspired by these models, we set out to create our own house system model that embraces the unique tenets of veterinary medicine and the distinctive qualities of our institution. The goals of our model are to promote intellectual growth, mental and emotional wellness, social development, cultural competence and physical health.

2.2 A Focus on Five Key Outcomes

As noted previously, there are five broad outcome categories that pertain to student growth and development (See Figure 1). We present each outcome in a non-directional manner to illustrate that one outcome is no more or less important than another. Each outcome area also has the potential for harm/failure if ignored or unrealized. We began by identifying the role of each of the five outcomes and seeking solutions to the major challenges in each outcome area. Next, we brainstormed ways in which each solution could be implemented within our model. Below, we present some of the broad efforts we made to address each outcome. It should be noted that some issues are multidimensional in nature and do not fit neatly into a single category. For example, mentoring could conceivably fit into the intellectual, mental/emotional, social and cultural categories. However, for our purposes we assigned topics/issues based on our perceived best fit.

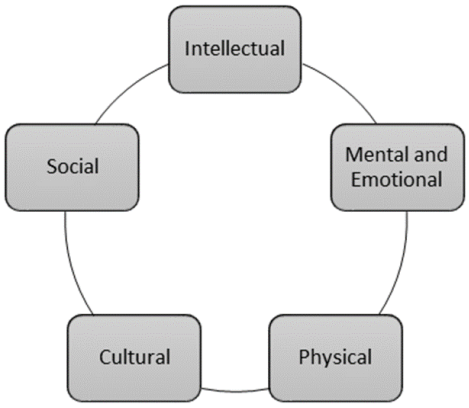

Figure 1. The five areas of wellness

Intellectual outcomes involve those intellectual issues that extend beyond the classroom. We emphasize the importance of recognizing that a DVM degree is only a starting point, as opposed to an end, as learning is a life-long endeavor and its mission is never complete. We emphasize the importance of advisors and mentors and the benefits of pursuing intellectual interests in a variety of areas.

Mental and emotional outcomes involve those of the mind. We emphasize prevention by explicitly making students aware of the risks they face as veterinary medical students. We dispel myths and negative stereotypes regarding mental and emotional issues and encourage proactive efforts to combat mental and emotional health problems and continually reference resources available to help students. We also encourage students to be empathetic and caring of others and try to understand others' points of view. Further, although NCSU is not affiliated with any particular religious or faith group, we do encourage students to seek opportunities for spiritual growth and maintenance as well.

Physical health outcomes remind students that adequate physical activity is necessary for good health. We remind students that sleep, proper nutrition, and rest are key to healthy physical and mental functioning.

Social outcomes involve reducing the social distance between all members of the CVM community. We continually reinforce the importance of developing interpersonal skills for both personal and professional relationships. We constantly remind students of the necessity to be able to work well with others and in teams. We also place great emphasis on establishing and maintaining strong social networks in which participants give at least as much as they take.

Cultural outcomes involve campus community climate, respect for diversity and inclusivity for all. We emphasize the importance of interacting with persons from a variety of demographic groups and cultural backgrounds and inform students how these interactions are key to unlocking a host of personal and professional benefits.

2.3 Structure of the House System Model

We recognize that our house model has the potential to serve as a conduit between all members of the CVM community and its prominent positioning could have a profound effect on individuals' personal and professional identities. To that end, we set out to create four houses to which all members of the CVM community will eventually belong. The members of the four Houses engage in healthy competition throughout the academic year cumulating in a House Cup competition. At this year-end ceremony, the House Cup is awarded and inscribed with the year and name of the winning house.

In order to establish the house model a House Charter was developed and designed to be both a foundational and living document. The House Charter proscribes how the houses are structured, the faculty and student executive positions within the house, and how the House Charter may be amended. The Charter also establishes the House Cabinet, an ad hoc committee composed of administrators appointed by Associate Dean of Academic Affairs, faculty house leaders and students in the President and Vice-President positions from each house. This Cabinet is the voting body for ratifying and amending the Charter. The Charter also tasks the House Cabinet with the development and modification of the Points Doctrine. The Points Doctrine describes how Houses accumulate points and how members may petition for activities to be included for points.

As described in the Charter, each house is headed by two faculty co-leaders. The initial group of co-leaders were nominated by students and then hand-selected based on their desire and ability to fulfil the obligations of the assigned role. In an effort to promote diversity and demonstrate faculty collegiality between the three departments

within the college, each house is headed by one man and one woman, each of whom is affiliated with different departments (e.g., a male faculty member from the Department of Clinical Sciences might co-lead a house with a female faculty member from the Molecular and Biomedical Sciences department). Faculty co-leaders participate purely on a voluntary basis with the understanding that most day-to-day work is managed by a house coordinator within the Student Services Offices who delegated a full-time staff member to coordinate the program. The coordinator disseminates information about upcoming events/activities, oversees the collection and tabulation of house points, makes the initial evaluation of proposals for events for inclusion in house points, and serves as the primary contact for the program.

Within the houses, there are many leadership roles for students to operate within each of the five realms of wellness described above. Students are also encouraged to create subcommittees within, and across, houses to focus on key elements of the program and ensure that the model continues its momentum and achieves its goals.

All incoming students are assigned to one of the four houses upon matriculation and will remain a member of that house for life. A stratified random sampling approach using key demographic variables is used as the criteria for sorting members. This sampling method is used to ensure each house is balanced in terms of demographic characteristics. Current students in program years 2, 3 and 4 are also offered the opportunity to participate, but purely on a voluntary basis. Additionally, all CVM faculty, post graduates, and staff are eligible to be assigned to a house if they wish to participate. Although there is a symbolic division of the CVM community into individual houses, much attention is devoted to collaboration across houses and recognition that the sum is greater than each of its parts.

With respect to competitions and earning house points, we designed our program to be both proactive and reactive. That is, we make deliberate efforts to offer activities, events, and services for areas in which we anticipate a need. However, we also reserved the flexibility to be reactive to any issues that arise. In particular, any member of the CVM community may petition the House Cabinet for an event/activity to be included at any time. The only requirements regarding these events/activities is that there is adequate opportunity to advertise the event to everyone, and that the event is equitable insofar as all members across houses have an equal opportunity for participation. Some events/activities are individual in nature, and students can earn points for their houses on an individual basis. Other events are group/team-focused, and students earn points as a collective house. These concepts and procedures are documented in the Points Doctrine. Table 1 provides a sample of some of the events and activities that students may compete to earn points for their houses.

Table 1. Sample of activities by outcome area

	Intellectual	Mental and Emotional	Social	Cultural	Physical
Meet one-on-one with assigned advisor (Fall)	I				
Attend the Career Fair	I				
Complete a CVM sponsored wellness activity		I			
Attend the Wolfpack Leadership Conference		I			
Attend the Dean's Social (Fall)			G		
Attend the SCAVMA Halloween Party			G		
Attend or submit a dish to the International Dish Cookoff				I	
Volunteer for CVM Open House				G	
Participate in/volunteer for the Dog Day 5K Run					G
Attend a physical health seminar (Sponsored by CVM or Main Campus)					I

*"I" denotes individual points available; "G" denotes group points available

2.4 Presentation of the House System Model

Perhaps equally important to the substance of the model is its exterior and how it is presented to the CVM community (and public). To that end, serious effort was devoted to creating houses, logos, and mottos that paid homage to the full diversity embodied within the field of veterinary medicine, both past and present. For example, our four houses are named after individuals who shaped the trajectory of veterinary medicine through innovative

theory and work. Each house boasts its own crest which contains an animal emblem inspired by the person for which the house was named. These animals represent anthropomorphized character qualities that reflect aspirational goals and ideals of the veterinary medical community. In addition, each house bears a Latin motto endorsing a foundational concept of medical ethics. The principal house colors represent the four humors of ancient and medieval medicine once thought to be the roots of all maladies. Finally, each house has a secondary color that is taken from one of the other houses representing solidarity among the houses. Photos of the house crests and descriptions of their significance can be found on the NCSU-CVM website.

2.5 Implementation of the House System Model

The idea to construct a house system model was presented to the Associate Dean of Academic Affairs in the fall of 2014. Upon generating some initial interest and support, other key individuals were recruited based on their unique skills and roles within the CVM. Once the germinal concept was designed, it was presented to a focus group of approximately 30 student leaders from the pre-clinical years (professional years 1-3). This group was convened for two purposes: 1) to gauge the interest of this house model, and 2) to ascertain if these students would prefer faculty or students to develop the program. Interestingly, while the student focus group was extremely enthusiastic about the house system model they preferred the house system be developed by faculty. The primary reason cited for this preference was a desire to avoid conflict within the student body.

Over the next several months, many individuals were presented the idea and many provided input and support. Funding to support the model was budgeted and staff support from the Student Services Office were allocated to oversee the management of the model. A leadership team consisting of key faculty leaders and personnel from the Office of Academic Affairs and the Student Services Office was assembled and the team met weekly to prepare for the launch in the fall of 2016.

Following launch in fall of 2016, news of the house system proliferated via a press release and Facebook approximately two weeks before the start of the fall semester. The response from current students and alumni was incredibly positive and immediately generated a great deal of excitement among incoming first-year students. Upon first year students' arrival and initial meeting during orientation, we unveiled the house system, discussed its purpose and goals, and inducted our first cohort of members into each house. Faculty house leaders were also present at the event and personally greeted each member of their respective house and provided each student with a t-shirt displaying the house name, crest and colors. Upon conclusion of the ceremony and dinner, students and faculty house leaders dispersed into different areas of the CVM and spent the next two hours getting to know one another via a program of 'ice-breaking' activities facilitated by professional improvisationalists.

In the following weeks, a series of presentations were made to various constituencies of the CVM community. The goal was both to inform other members of the CVM about the new wellness initiative and generate interest. The planning group developed a further implementation phase for other members of the community with the first major induction at the end of fall semester, with yearly opportunities for others to join thereafter. Individuals who express an interest in joining a house completed a survey providing their name and some demographic information (which is used to sort members via a stratified random sampling approach). At the end of the spring semester, a college-wide celebration day will occur. The event will feature a number of fun activities, friendly competitions, and the announcement of the winner of the "house cup" (a physical trophy prominently displayed in the CVM) for the academic year.

3. Results

3.1 Program Evaluation and Early Outcomes

Much of the spring 2017 semester will be devoted to evaluating the program to determine what is working well, and where there are areas for improvement. Evaluation efforts will focus on the five key outcomes underlying our model. A variety of methodological approaches (e.g., surveys for CVM community members, focus groups with various constituent groups, tracking of active participation in events, etc.) will be utilized to judge the program's effectiveness and short-term impact.

One very important early indicator of success is the number of current 2nd, 3rd, and 4th year students who volunteered to be a part of the program. Given current students who have been enrolled in the program for one to four years already have hardened impressions of the CVM community, we were concerned that it might be difficult to persuade current students to join the initative so as to create a new and improved culture. When the call to join the house system was made in October, 172 of the remaining 292 (58.6%) students signed up to join. The total student membership in the first semester of the program is 273, which is 69.5% of the entire student body. These voluntary

participation rates were very assuring. Membership for faculty, staff, and all other members of the CVM community will open in the spring of 2017.

Additional early indicators of success include participation rates for events that are eligible for house points. As of November, early evidence indicates students are taking the program seriously and participating in a wide variety of events, many of which are self-generated (e.g., volleyball tournaments, etc.). A current tabulation of house points is prominently displayed on televisions and monitors throughout the CVM buildings. Students and faculty alike routinely comment on house standings and are eager to see if standings change after each major event. Additionally, house points are available to students who participate in CVM-wide surveys (e.g., assessment, educational research projects, etc.). To date, response rates have been exceptionally high for students enrolled in the house system (approximately 80-95%) compared to current non-members (approximately 40-55%). These indicators present additional early evidence to support the effectiveness of the house system for engaging students and building community.

4. Discussion

4.1 Anticipated Benefits

The anticipated benefits of the house system model are substantial and will occur at both the college and individual person levels. The very act of launching a house system model is a demonstration to the college community (and beyond) that we recognize that education occurs well beyond the classroom and it involves all members of the college community. Research has long noted that relationships are the most critical issue regarding campus environments, student involvement, and sense of belonging (Kuh, Schuh, & Whitt, 1991). Thelin and Yankovich (1987) noted that while students might note the physical features of a college as among the most influential in creating first impressions of a college, it is the relationships that remain long after superficial impressions fade.

At the heart of our house model is the emphasis on relationships and community building. With respect to student development, perhaps most obvious is the role of faculty. A considerable body of research has repeatedly found the relationship between faculty and students to have a significant impact on students' learning, experiences, career goals, confidence, attitudes, and effort (Umbach & Wawrzynski, 2005; Komarraju, Musulkin, & Bhattacharya, 2010; Pascarella & Terenzini, 2005; Light, 2001). Where appropriate, CVM faculty will be encouraged to use the houses whenever they need to divide the class into sections so as to create a more intimate learning environment. Relatedly, it is often lost upon many institutions that research has also long noted that mentors and other influential people often emerge from a variety of roles, such as student affairs personnel, college administrators, college staff, peers, employers, and so on (Parks, 2000; Baker & Griffin, 2010; Martin, 2013; Martin & McGee, 2014). Our model seeks to provide students immediate access to a wide variety of individuals, each of whom may have a tremendous impact on the student.

Enhanced relationship opportunities also exists for faculty and staff. Research on higher education organization and faculty socialization has long acknowledged that faculty often know their peers at other institutions who are in the same specialized field/discipline better than they know faculty in other departments at their own campus (Ladd & Lipset, 1975; Alpert, 1985). We suspect a similar phenomenon also occurs with staff. Thus, we recognize that there remains a tendency for faculty and staff to work in silos and a need to ensure faculty and staff have opportunities to get to know one another as well.

A number of researchers have reported positive outcomes associated with the use of students as peer mentors (Nelson et al, 2013; Kassab et al, 2005; Taylor et al, 2013; Bene & Bergus, 2014). Researchers note the social congruence creates a safe environment for learners and promotes open exchanges of ideas (Nelson et al, 2013). Further, in a peer mentoring context, not only does the learner benefit from instruction, but so does the mentor (Gregory et al, 2011; Peets et al, 2009).

Of course, cross-racial interaction is also necessary for creating and sustaining a healthy campus climate (Hurtado et al, 2008). Cross-racial interactions have been shown to be positively associated with a variety of outcomes, such as leadership and teamwork skills (Antonio, 2011; Denson & Zhang, 2010; Luo & Jamieson-Drake, 2009), prejudice reduction (Gottfredson et al, 2009; Tropp & Pettigrew, 2005); reduced social distance between racial groups (Bowman, 2013; Odell, Korgen & Wang, 2005); comfortability with people from different races and ethnic groups (Engberg, 2007); respect for different ideas (Gottfredson et al, 2009); racial and cultural engagement and understanding (Antonio, 2001; Denson & Zhang, 2010); social engagement (Nelson Laird, Engberg & Hurtado, 2005); sense of belonging (Locks et al, 2008); and satisfaction with college (Luo & Jamieson-Drake, 2009; Bowman, 2013).

Relationships with alumni are also critical. While presidents, faculty, administration and staff come and go, alumni are a part of an institution for life (Feudo, 2010). Recognizing that alumni are the only permanent members of an institution, it is important to design a program that leaves a legacy and keeps them engaged. Research in the area of alumni affairs has found that many alumni want to connect with their alma mater through volunteerism (Feudo, 2010), and have a desire to provide advice and guidance to institutional leaders, offer career advice to students, mentor students, support student recruitment efforts, and make financial donations (CASE, 2016). Additionally, alumni can be incredibly important because the personal and professional networks they establish with others outside the institution can create opportunities for other gift prospects (e.g., corporate donations, foundational giving, etc.) and various sociopolitical allies (Weerts & Ronca, 2008).

Beyond a wide network of quality relationships, our model also provides an opportunity to help students (and others) sharpen their communication skills (Kedrowicz, Fish & Hammond, 2015) and make lifelong friends. Having the opportunity to connect with more individuals will increase awareness about community members' interests, and may result in a number of productive spillover effects (e.g., students identifying workout partners, fellow musicians, sports enthusiasts, etc.). Despite all the aforementioned scientific benefits, we ultimately want all members of the CVM community to have fun as well.

4.2 Potential Unintended Consequences

There are two potential issues we foresee that could result in unintended consequences. First, is the issue of competition. Some might be concerned that competition between houses might inadvertently pit students against one another. Further, if students take the competitions too seriously it may result in poor academic performance and/or a fragmented student body. While these concerns have merit, the good news is that there is no evidence that any program using a house system model in a higher education context has found this to be the case. In order to ensure we avoid this potential pitfall we will utilize two strategies. The leadership team that oversees the house system will use great discernment to ensure all events and activities are generally innocuous and very unlikely to yield a negative outcome. Also, we will rely on house leaders to temper the tone regarding the competitions. While house leaders will certainly make every effort to motivate and encourage students to participate, they will do so while modeling a collegial tone to ensure competitions occur with the right spirit in mind.

A second issue that we anticipate could result in unintended consequences involves students' comfortability with social activities (Gable & Gosnell, 2015). Individuals who view social relationships positively are likely to thrive in a house system model. However, individuals who view social relationships negatively (e.g., persons with social anxieties, motivated by social avoidance goals, etc.) may find the model to be stressful and a source of additional anxiety. Cognizant that each member of the community is an individual with varying interests and comfort levels, careful effort will be devoted to identifying events, activities and competitions that reduce avoidance goals. Recent research in psychology and behavioral science has found that individuals who engage in acts of kindness decrease social avoidance goals in individuals who suffer from social anxieties (Alden & Trew, 2013; Trew & Alden, 2015). To that end, there is great potential to neutralize perceived social threats and anxieties by redirecting students' thoughts and motives. That is, when students perform acts of kindness to the benefit of others it is likely to increase happiness, lead to positive interactions, and the development of a more positive worldview. Such experiences could in turn help students with social anxieties overcome these fears and trepidations and result in more satisfying and engaging lives. Creating events in which students can demonstrate kindness to others, albeit via volunteer activities, cultural engagement opportunities, and so on, will be a significant focus of our program.

5. Conclusion

We believe the launch of a house system (learning community) model at our institution will have an immediate impact on our educational and cultural environment. Because most every facet of our model is rooted in educational and psychological science we anticipate very positive results. Further, with meticulous planning and careful communication across the leadership team we were able to create a house model that leverages our existing resources and environmental (social and cultural) capital for a relatively nominal financial expense. Early outcomes indicators suggest students are excited about the initiative and eager to get involved. As with any effort to improve an institutional culture, it likely will take several years to see the full impact of this initiative on the college community. Nonetheless, we hope our efforts to describe our house system model and its rationale will resonate with educators, student affairs personnel, academic deans, program directors, and others and will be of value for establishing related models at other institutions.

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References

Alden, L. E., & Trew, J. L. (2013). If it makes you happy: Engaging in kind acts increases positive affect in socially anxious individuals. *Emotion*, *13*(1), 64–75. http://dx.doi:10.1037/a0027761

Alpert, D. (1985). Performance and paralysis: The organizational context American research university. *Journal of Higher Education*, *56*(3), 241-81. http://dx.doi.org/10.2307/1981734

American Veterinary Medical Association. (2015). Annual Report. Retrieved August 5, 2016. Available at: https://www.avma.org/About/Pages/annual-report.aspx

Antonio, A. L. (2001). The role of interracial interaction in the development of leadership skills and cultural knowledge and understanding. *Research in Higher Education, 42*, 593–617.

Baker, V. L., & Griffin, K. A. (2010). Beyond mentoring and advising: Toward understanding the role of faculty 'developers' in student success. *About Campus*, *14*(6), 2–8. http://dx.doi.org/10.1002/abc.20002

Ben è, K. L., & Bergus, G. (2014). When learners become teachers: a review of peer teaching in medical student education. *Family Medicine, 46*, 783–7.

Bowman, N. A. (2013). The conditional effects of interracial interactions on college student outcomes. *Journal of College Student Development*, *54*, 322–328. https://doi.org/10.1353/csd.2013.0026

Brown, C. C., Harvey, S. B., & Stiles, D. (2011). Using a natural abilities battery for academic and career guidance: A ten-year study. *Journal of Veterinary Medical Education, 38*(3), 270-277. http://dx.doi.org/10.3138/jvme.38.3.270

Chang, M. J. (2011). Quality matters: Achieving benefits associated with racial diversity. Kirwin Institute for the Study of Race and Ethnicity, 2011. Available at: http://kirwaninstitute.osu.edu/wp-content/uploads/2012/01/Mitchell-Chang_final_Nov.-1-2011_design_3-2.pdf

Council for Advancement and Support of Education (2016). http://www.case.org/About_CASE/About_Advancement.html. Retrieved August 21, 2016.

Denson, N., & Zhang, S. (2010). The impact of student experiences with diversity on developing graduate attributes. *Studies in Higher Education, 35*(5), 529–543. https://doi.org/10.1080/03075070903222658

Diulio, A. R., Dutta, N. M., Gauthier, J. M., Witte, T. K., Correia, C. J., & Angarano, D. (2015). Associations among depressive symptoms, drinking motives, and risk for alcohol-related problems in veterinary students. *Journal of Veterinary Medical Education, 42*(1), 11-17. http://dx.doi.org/10.3138/jvme.0914-093R

Drolet, B. C., & Rodgers, S. (2010). A comprehensive medical student wellness program—Design and implementation at Vanderbilt School of Medicine. *Academic Medicine, 85*(1), 103-110. https://doi.org/10.1097/acm.0b013e3181c46963

Engberg, M. (2007). Educating the workforce for the 21st century: A cross-disciplinary analysis of the impact of the undergraduate experience on students' development of a pluralistic orientation. *Research in Higher Education, 48*(3), 283–317. https://doi.org/10.1007/s11162-006-9027-2

Feudo, J. (2010). Alumni relations. A newcomers guide to success. Council for Advancement and Support of Education. Washington, DC.

Fleming, A., Cutrer, W., Moutsios, S., Heavrin, B., Pilla, M., Eichbaum, Q., & Rodgers, S. (2013). Building learning communities: Evolution of the Colleges at Vanderbilt University School of Medicine. *Academic Medicine, 88*(9), 1246-1251. https://doi.org/10.1097/acm.0b013e31829f8e2a

Gable, S. L., & Gosnell, C. L. (2013). Approach and avoidance behavior in interpersonal relationships. *Emotion Review*, *5*(3), 269–274. http://doi:10.1177/1754073913477513.

Gottfredson, N. C., Panter, A. T., Daye, C. E., Allen, W. F., & Wightman, L. F. (2009). The effects of educational diversity in a national sample of law students: Fitting multilevel latent variable models in data with categorical indicators. *Multivariate Behavorial Research, 44*(3), 305–331. https://doi.org/10.1080/00273170902949719

Gregory, A., Walker, I., Mclaughlin, K., & Peets, A. D. (2011). Both preparing to teach and teaching positively

impact learning outcomes for peer teachers. *Medical Teacher*, *33*(8), e417-e422. https://doi.org/10.3109/0142159x.2011.586747

Hafen, M., Reisbig, A. M. J., White, M. B., & Rush, B. R. (2008). The first-year veterinary student and mental health: The role of common stressors. *Journal of Veterinary Medical Education*, *35*(1), 102–9. http://dx.doi.org/10.3138/jvme.35.1.102.

Hurtado, S., Griffin, K. A., Arellano, L., & Cuellar, M. (2008). Assessing the value of climate assessments: Progress and future directions. *Journal of Diversity in Higher Education*, *1*(4), 204–221. https://doi.org/10.1037/a0014009

Kassab, S., Abu-Hijleh, M. F., Al-Shboul, Q., & Hamdy, H. (2005). Student-led tutorials in problem-based learning: educational outcomes and students' perceptions. *Medical Teacher*, 27(6), 521-6. https://doi.org/10.1080/01421590500156186

Kedrowicz, A. A., Fish, R. E., & Hammond, S. (2015). Relationship between anticipatory socialization experiences and first-year veterinary students' career interests. *Journal of Veterinary Medical Education*, *42*(1), 18-27. https://doi.org/10.3138/jvme.0814-083r

Komarraju, M., Musulkin, S., & Bhattacharya, G. (2010). Role of student–faculty interactions in developing college students' academic self-concept, motivation, and achievement. *Journal of College Student Development*, *51*(3), 332–342. https://doi.org/10.1353/csd.0.0137

Kuh, G., Schuh, J., & Whitt, E. (1991). Diversity & community: Some good news about campus life: How 'Involving Colleges' promote learning outside the classroom. *Change, 23*(5), 48-55. https://doi.org/10.1080/00091383.1991.9939880

Ladd, E. C., & Lipset, S. M. (1975). *Technical Report: 1975 Survey of the American professorate*. Storrs, CT: The University of Connecticut, Social Science Data Center.

Light, R. J. (2001). *Making the most of college*. Cambridge, MA: Harvard University Press.

Locks, A. M., Hurtado, S., Bowman, N. A., & Oseguera, L. (2008). Extending notions of campus climate and diversity to students' transition to college. *Review of Higher Education*, *31*(3), 257–285. https://doi.org/10.1353/rhe.2008.0011

Luo, J., & Jamieson-Drake, D. (2009). A retrospective assessment of the educational benefits of interaction across racial boundaries. *Journal of College Student Development, 50*(1), 67–86. https://doi.org/10.1353/csd.0.0052

Martin, G. L. (2013). Measuring the impact of student interaction with student affairs professionals on socially responsible leadership development in the first year of college. *Journal of College and Character*, *14*(4), 289–299. https://doi.org/10.1515/jcc-2013-0041

Martin, G. L., & McGee, M. (2014). The effects of student interactions with student affairs professionals on college outcomes. *New Directions in Student Services*, *147*, 49–57. http://doi.org/10.1002/ss.20100.

Milem, J. F., Chang, M. J., & Antonio, A. L. (2005). Making diversity work on campus: A research-based perspective. Washington, DC: Association of American Colleges and Universities.

Nelson, A. J., Nelson, S. V., Linn, A. M. J., Raw, L. E., Kildea, H. B., & Tonkin, A. L. (2013). Tomorrow's educators . . . today? Implementing near-peer teaching for medical students. *Medical Teacher*, *35*(2), 156-9. https://doi.org/10.3109/0142159x.2012.737961

Nelson Laird, T. F., Engberg, M. E., & Hurtado, S. (2005). Modeling accentuation effects: Enrolling in a diversity course and the importance of social engagement. *Journal of Higher Education*, *76*(4), 448–476. https://doi.org/10.1353/jhe.2005.0028

Odell, P., Korgen, K., & Wang, G. (2005). Cross-racial friendships and social distance between racial groups on a college campus. *Innovative Higher Education*, *29*(4), 291–305. https://doi.org/10.1007/s10755-005-2863-8

Parks, S. D. (2000). *Big questions, worthy dreams: Mentoring young adults in their search for meaning, purpose, and faith*. San Francisco: Jossey-Bass.

Pascarella, E. T., & Terenzini, P. T. (2005). *How College Affects Students.* San Francisco: Jossey-Bass.

Peets, A. D., Coderre, S., Wright, B., Jenkins, D., Burak, K., Leskosky, S., & McLaughlin, K. (2009). Involvement in teaching improves learning in medical students: a randomized cross-over study. *BMC Medical Education*, *9*(1), 55. https://doi.org/10.1186/1472-6920-9-55

PR Newswire Europe (2010). Most UK schools now have hogwarts-style 'houses'. Retrieved August 3, 2016. Available at: http://www.prnewswire.co.uk/news-releases/most-uk-schools-now-have-hogwarts-style-houses-152646175.html.

Royal, K. D., Cannedy, A., & Dent, G. A. (2016). More on diversity and inclusion in academic medicine: The isolation of Black females. *Academic Medicine, 91*(7), 896. http://doi:10.1097/ACM.0000000000001215

Schoenfeld-Tacher, R., Kogan, L. R., Meyer-Parsons, B., Royal, K. D., & Shaw, J. R. (2015). Educational research report: Changes in students' levels of empathy during the didactic portion of a veterinary program. *Journal of Veterinary Medical Education, 42*(3), 194-205. https://doi.org/10.3138/jvme.0115-007r

Siqueira Drake, A. A., Hafen, M., Rush, B. R., & Reisbig, A. M. (2012). Predictors of anxiety and depression in veterinary medicine students: a four-year cohort examination. *Journal of Veterinary Medical Education, 39*(4), 322–30. http://dx.doi.org/10.3138/jvme.0112-006R.

Siqueira Drake, A. S., Hafen, M., & Rush, B. (2014). Promoting well-being among veterinary medical students: Protocol and preliminary findings. *Journal of Veterinary Medical Education, 41*(3), 294-300. http://doi.org/10.3138/jvme.0214-026R

Skipper, G. E., & Williams, J. B. (2012). Failure to acknowledge high suicide risk among veterinarians. *Journal of Veterinary Medical Education, 39*(1), 79–82. http://dx.doi.org/10.3138/jvme.0311.034R.

Strand, E. B., Zaparanick, T. L., & Brace, J. J. (2005). Quality of life and stress factors for veterinary medical students. *Journal of Veterinary Medical Education, 32*(2), 182–92. https://doi.org/10.3138/jvme.32.2.182

Stewart, R. W., Barker, A. R., Shochet, R. B., & Wright, S. M. (2007). The new and improved learning community at Johns Hopkins University School of Medicine resembles that at Hogwarts School of Witchcraft and Wizardry. *Medical Teacher, 29*(4), 353-357. https://doi.org/10.1080/01421590701477423

Taylor, J. S., Faghri, S., Aggarwal, N., Zeller, K., Dollase, R., & Reis, S. P. (2013). Developing a peer-mentor program for medical students. *Teaching and Learning in Medicine, 25*(1), 97-102. https://doi.org/10.1080/10401334.2012.741544

Thelin, J. R., & Yankovich, J. (1987). Bricks and mortar: Architecture and the study of higher education, *3*, 57-83. In: Smart J, Higher education Handbook of theory and research, New York: Agathon.

Thompson, D. (2016). The 33 whitest jobs in America. The Atlantic. Retrieved on Aug. 1, 2016. Available at: http://www.theatlantic.com/business/archive/2013/11/the-33-whitest-jobs-in-america/281180/.

Trew, J. L., & Alden, L. E. (2015). Kindness reduces avoidance goals in socially anxious individuals. *Motivation and Emotion, 39*, 892-907. http://doi:10.1007/s11031-015-9499-5.

Tropp, L. R., & Pettigrew, T. F. (2005). Relationships between intergroup contact and prejudice among minority and majority status groups. *Psychological Science, 16*(12), 951–957. https://doi.org/10.1111/j.1467-9280.2005.01643.x

Umbach, P., & Wawrzynski, M. (2005). Faculty do matter: The role of college faculty in student learning and engagement. *Research in Higher Education, 46*(2), 153–184. https://doi.org/10.1007/s11162-004-1598-1

Weerts, D. J., & Ronca, J. M. (2008). Characteristics of alumni donors who volunteer at their alma mater. *Research in Higher Education*, *49*(3), 274-292. http://doi:10.1007/s11162-007-9077-0.

Zenner, D., Burns, G. A., Ruby, K. L., Debowes, R. M., & Stoll, S. (2005). Veterinary students as elite performers: preliminary insights. *Journal of Veterinary Medical Education, 32*(2), 242–8. https://doi.org/10.3138/jvme.32.2.242.