

What to do when you don't have an Evolutionary Studies program... yet: Evolutionary Infusion into the Social Sciences and Humanities

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ABSTRACT

This paper provides insight into the challenge of creating a successful interdisciplinary Evolutionary Studies Program. There are several academic 'selection pressures' (e.g., resource scarcity, competition for resources, territoriality, predation) that a program must successfully avoid or address to thrive. Using a failed attempt to create a program as an example, these pressures and pitfalls will be discussed. If, as in this failed attempt, a given environment is not hospitable for a program, an effective strategy for carving out an evolutionary niche may be to infuse evolutionary principles into existing programs. Thinking beyond the traditional 'homes' of evolutionary theory (e.g., anthropology and biology) and migrating to the humanities and social sciences can create new theoretical models and practices for students who would not learn about evolutionary science otherwise (e.g., international studies, positive psychology, gender studies, health and wellness). Taking advantages of these new environments can create new academic opportunities for students and expand evolutionary disciplines.

KEYWORDS

Evolutionary Studies, Curricular Infusion, International Studies, Evolutionary Pedagogy

INTRODUCTION

Darwin's theory of evolution based on natural selection has radically and permanently changed our understanding of the world and our place in it. In spite of the shift in the sciences from skepticism toward acceptance of natural selection as fact, most Americans in poll after poll continue to hold outdated misconceptions about evolution and its relevance to their lives (see Kauffman Jr & Wilson, 2016). Furthermore, it turns out that even now, at the nation's top universities, education in evolutionary theory is hard to access (see Glass, Wilson, & Geher, 2012).

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The Evolutionary Studies educational model was designed to address this issue. Recent research suggests that students engaged in Evolutionary Studies curricula are more effectively engaged in cognate STEM learning beyond content knowledge and attitudinal change (Chiappetta & Koballa, 2002; Glaze, Goldston, & Dantzler, 2015; Kauffman Jr & Wilson, 2016). The nature of science instruction can be enhanced through investigation of evolutionary theory itself (Abd-El-Khalick & Lederman, 2000; Nickels & Nelson, 1996). First, students can identify and understand their previously held misconceptions about evolutionary theory. Second, by investigating the major claims of evolutionary science, students must apply scientific thinking, developing an increased understanding about the nature of science. For instance, analysis of Evolutionary Studies students at Binghamton University found that *a single Evolutionary Studies course* increased student acceptance and understanding of evolution and the nature of science (Kauffman Jr & Wilson, 2016). For all of these reasons, there has been strong motivation to create Evolutionary Studies programs throughout the US and one such attempt was made at the State University of New York at Oswego (i.e., SUNY Oswego).

ATTEMPTING A PROGRAM

There are myriad ways to institute Evolutionary Studies curricula, but one route outlined by the Evolutionary Studies Consortium is the development of interdisciplinary minors based around David Sloan Wilson's model and book *Evolution for Everyone* (Wilson, 2007). Among the values of creating this minor is that Evolutionary Studies appears as a discipline on a transcript, which enhances credibility of the program and its students. The State University of New York at Oswego attempted to create an interdisciplinary Evolutionary Studies program in 2008 using this model. In many ways it exemplified the challenges that many Evolutionary Studies programs face; a lack of resources, departments scrambling for lines and funding, an ideological territoriality regarding evolution in the STEM departments and a resistance to it in the humanities. Because of these issues, SUNY Oswego attempted to create a truly interdisciplinary program, coordinating courses from Art to Zoology and creating the widest range of learning opportunities possible.

There was little in the way of resources in this current environment, and a new Evolutionary Studies program was being launched into the fray with more established and far more experienced competitors. Even departments interested in contributing to the new program threatened to rescind their contribution if their particular needs were not met. This made for a very precarious collaboration. When the program was presented to the chairs of the various departments, they began dividing up shares of resources; staff, courses, and funding, that the new program would receive. Some departments claimed "ownership" of evolutionary theory and demanded they house the program and receive all its resources. Arguments broke out between STEM and non-STEM fields over their relative "importance" in this field. These suggestions and demands decreased the program's viability (no one department had the resources to run it alone) and eliminated its interdisciplinarity—

the linchpin that ensured administrative support. These collaborators were under too much pressure to be competitors, and taking care of their own departments was vastly more important than being altruistic toward less related memetic kin.

This process played out like the proverbial ‘tragedy of the commons’ scenario: resources from the administration/community were dependent on interdisciplinary cooperation. The departments that were to provide it were not willing to participate in creating a program dependent on interdisciplinarity and could not support their own programs without additional funding. A lack of funding, staffing, and space led to intense competition over ownership of a new, potentially funded, program. This competition led to a breakdown in cooperation, eliminating the very interdisciplinarity that might have led to more staff and support.

SELECTION PRESSURES: FACTORS INFLUENCING SUCCESS AND FAILURE

In creating an Evolutionary Studies program at any institution, it is important to survey the landscape and view that environment in evolutionary terms. Many of these pressures are the same across academia as they are in the natural world; resource strains, cultural inflexibility, competition, and territoriality (Franks et al., 2007). The evolutionary parallels are quite obvious. With proper preparation and knowledge of one’s respective academic ecosystem, many of these obstacles can be surmounted. However, just as in evolutionary processes, flexibility is critical (Piersma & Drent, 2003).

Resource Scarcity

Resource scarcity is a common and destructive factor in creating the next generation of evolutionary programs, or any new interdisciplinary programs for that matter (Ledder & Tenhumberg, 2013; Franks et al., 2007), and it is an obvious factor in the failure of the SUNY Oswego program. This issue can be dealt with through external support (e.g., grants, endowments) but at the very least, Evolutionary Studies developers must examine where the largest amount of institutional funding is being focused and determine the best practices for garnering support. Infusing evolution-based courses and programs into new administrative initiatives can strengthen the argument for why EvoS needs external funding or additional administrative support. For example, large administrative initiatives at SUNY Oswego include both international studies and STEM. In this context, Evolutionary Studies developers in STEM fields can push for more funding in that area, while social sciences and humanities Evolutionary Studies developers can create evolution based international programs, collaborations, and travel grants. If human services are a priority, applied evolutionary principles in mental health, social psychology, and group dynamics should be emphasized. By following the institution’s priorities, internal grants, hiring lines, department collaborations, on campus conferences and symposia can become available, creating momentum for a full program.

Territoriality

It is not surprising that the departments at SUNY Oswego argued over which department was best suited to house the Evolutionary Studies program. Academia is rife with territorial disputes, both metaphorical and literal (Lattuca, 2001). This territoriality can be related to the resource scarcity listed above, or can be based in theory or 'ownership' of a research realm (Franks et al., 2007; Becher & Trowler, 2001). This tendency towards claiming ownership is where the diversification of evolutionary science and the infusion of evolutionary principles into other fields are critical. When evolutionary science is infused into the international studies curriculum, for example, it is much harder for a STEM field to claim ownership (and vice versa), and the interdisciplinarity of the program is retained.

This interdisciplinarity can be a blessing and a curse if the territorial dispute is a literal one: it is a challenge finding a physical home for an interdisciplinary program (Lattuca, 2001). Shared spaces can be difficult to maintain. Centers for Interdisciplinary Curricula or Projects are being created in several institutions and provide both a physical home and an incentive for investment from several departments. As these centers and clusters continue to grow, more footholds for Evolutionary Studies will emerge.

Resistance to Evolutionary Theory

Theoretical territoriality also creates one of the unique problems in creating a larger scale (interdisciplinary and applied) Evolutionary Studies program; the resistance to evolutionary studies shown in several non-STEM fields. Indeed, it is a difficult situation when STEM fields do not want to share evolutionary ownership and areas in the social sciences or humanities (Psychology, Cultural Anthropology, or Women's Studies, for example) do not want to engage in any work involving evolution. The largest obstacles to acceptance of evolutionary science in many fields are the misconceptions of what evolutionary theory is and is not. This situation is summed up well by Dominic Johnson in his article "What Isn't Evolutionary Psychology?" for the Evolution Institute:

"Trained as a biologist, I now spend my days among social scientists and humanities scholars. Like us, many of them are at root interested in human nature and its consequences, but the dominant input comes not from science, but rather from an entrenched intellectual tradition of philosophers and political theorists—Aristotle, Hobbes, Locke, Hume, Rousseau, Kant, Rawls, and Foucault, among others. Against this great pantheon and many centuries of careful thinking, evolutionary approaches to human behavior tend to be seen as a new fad, as well as being—thanks to the history of the early interactions between Darwin and politics—dangerous and wrong."

This lag in catching up with the modern status of evolutionary theory might not matter if natural scientists and social scientists worked on different planets and did not compete for funding or intellectual territory. However, we do share university campuses, pages of the big interdisciplinary journals, finite grant budgets, and seats at media and public debates, and consequently, these common misconceptions matter a great deal. Moreover, much of the public, key opinion leaders, and most

politicians have been trained in the humanities and social sciences, not the natural sciences. We are a minority group, and seem to have lacked sufficient unity and organization to gain ground against firmly entrenched ideas about human nature.

So what can be done about these misconceptions and resistance? In the broadest scope, this situation can be seen as involving ingroup/outgroup dynamics, with certain groups over-generalizing and stereotyping others. Interdisciplinary programs and colloquia can be key forces in debunking these beliefs, but not all institutions have them. The most effective way of dealing with these dynamics as a program director or an Evolutionary Studies advocate is outreach in all academic settings: institutions, professional society meetings and membership, 'brown bag' colloquia, social media for research labs, research groups, and programmatic applications of research findings.

Many groups are realizing this necessity and doing a stellar job of introducing evolutionary principles to formerly resistant readers and researchers. For example, societies and journals are realizing how limiting academic labels are to their discipline. *The Journal of Social, Evolutionary and Cultural Psychology* was renamed *Evolutionary Behavioral Sciences* in 2013, as even the broad scope as represented by the previous title was thought of as too limiting. In the few years since, the journal has grown by leaps and bounds and is inundated with diverse and innovative research.

In 2009, the Feminist Evolutionary Perspectives Society was created (notice that the society used the term 'perspectives', not 'psychology'; just as with *EBS*, this society realized the need for inclusive terms). FEPS holds itself to four goals: to investigate the active role of women, to re-examine previous findings (and question objectivity and identify bias), to highlight understudied topics, and to call attention to diverse populations (Sokol-Chang, Fisher et al., 2013). These would be the goals of any feminist society, but FEPS is using evolution as a theoretical basis; a perspective thought antithetical to feminism in many circles. But, as FEPS has demonstrated, it is clearly not, and as a result FEPS is growing, bringing in many evolutionary trained scholars who identify the need for feminist scholarships in evolutionary-based studies and evolutionary considerations in feminist scholarships.

Both of these examples are overcoming one of the biggest obstacles to Evolutionary Studies programs- the misconception of evolution as a discriminatory mindset held by (largely) white males- with outreach that increases diversity both in thought and in representation.

STRATEGIES TO INCORPORATE EVOLUTIONARY STUDIES INTO MULTIPLE DISCIPLINES

The key to creating an enduring Evolutionary Studies program is to be flexible, seek out new niches, and take advantage of hospitable environments, even if they appear in unexpected places. In order to do this, program directors need to broaden their research and curricular scope and search out interested collaborators. This also means that learning objectives must be large scale, flexible plans that are widely applicable to courses as far afield as philosophy and international studies. As

I review several possible areas for evolutionarily based curricula, let me provide a set of potential learning outcomes.

For the sake of argument, let's say that the large scale primary goals of an evolutionary science based course (as stated in the introduction, Kaufman, Jr. & Wilson, 2016) are to provide an understanding of evolution, remove misconceptions about evolutionary theory, and to apply this theory to people's lives. Thus, the primary objectives of infusing evolutionary science into non-STEM courses are to a) provide a basic understanding of evolutionary processes, b) dispel major misconceptions and myths traditionally perpetuated against evolutionary theory and c) explore applications of evolutionary science that improve understanding of the given discipline. Based on these primary objectives, our expectations would be as follows: students, upon completion of the course(s) should be able to 1) have an understanding of humans as a species and how evolution has acted on this species to carve out various adaptations, 2) understand that cultural differences in human behavior have been acted upon by these same evolutionary pressures in differing environments, and culture is not an antithesis to evolution, 3) realize that flexibility is a consistently adaptive facet of behavior and the effects of the environment are in line with, not obstructions to, evolution, 4) understand that evolution can account for positive behaviors (such as altruism) just as efficiently as negative behaviors (such as violence), and 5) provide evolutionary perspectives and solutions for various issues in that given discipline.

The first of these points provides the major step in infusing evolution into any discipline; courses must take on a global scope and view humans as a species. Not only does this set the stage for teaching evolutionary principles, this large scope helps to break down the ingroup/outgroup or 'tribal' disciplinary mindsets that create resistance to the theory.

Globalization as a Gateway to Evolutionarily-Based Curricula

Bernhard and Glantz in "Beyond Diversity: A Curriculum for What All Kids Have in Common" (2012) examined the divisive nature of current multicultural education: "Unfortunately, this well-meaning attempt to help children 'appreciate' difference tends to drive kids apart rather than bring them together." (p.3). To prevent this, multicultural education must "present a coherent, larger 'we' that all people can be part of, an identity that transcends apparent differences." (p. 3). Although Bernhard and Glantz (2012) focused on public grade school education, their observations can easily be applied to the college setting. Educational systems and networks are now emphasizing (and funding) the new buzzwords of "world awareness" and "global engagement" while teaching the same divisive principles—that groups are different and, more importantly, different from "us." This concept immediately provides a base for the ingrained concepts (and human reactions) of ingroup/outgroup animosity. Indeed, educators must think about the situation a bit more fully, as "(w)e need a curriculum that emphasizes commonality and explores what it means to be a human being" (Bernhard and Glantz, 2012, p. 4). New conceptual frameworks need to be utilized to structure these courses and the "coherent and larger 'we'" should be a learning outcome for these general education requirements.

Human behavior and evolution is an obvious conceptual framework whose level of focus is the human species—the coherent, larger “we.” Creating world awareness and global engagement courses serve several purposes: removing the divisiveness of current models, placing human behavior in a larger, cohesive construct, and actually creating global courses with a global focus, not just cherry-picking a few cultures the instructor is familiar with. Evolutionary Studies can even go beyond the human species, showing how our one species interacts with and influences others.

Once the instructor is charged with the task of ‘examining humans as a species, emphasizing their commonality as well as their differences,’ an enormous variety of courses take shape. Any course can be broadened to examine human behavior on a species level. Every topic in higher education explores humans at some level and human interaction with said topic. For example, Chemistry inevitably explores how it can be applied to improve human lives. So, in summary, examining humans as a species and applying any given topic to the species as a whole leads to courses that integrate evolutionary principles and fulfill learning outcomes. As STEM fields often use evolution as the basis for their courses, I am going to focus on humanities and social sciences in the next section.

Areas for Evolution-Infused Courses

International Studies/Cultural Studies: Using these principles to study humans as a species inevitably leads to studying humans across the world and delving into international and cultural studies. Any courses when viewed in this way instantly become courses in international studies. This perspective can be taken to a new level by examining the evolution and differentiation of cultures themselves.

A culture is a set of rules and practices put in place by a group of people. The group of people is acted upon by evolution and therefore, the rules and practices they create are influenced by evolution as well. As Cartwright (2000) states, culture is a reflection of the genotype creating it: culture represents a rationalization of fitness maximizing behavior. Cultures create laws regarding marriage, incest, gender roles, and parenting, and other behaviors in accord with evolution. Studying individual cultures or cultural universals using this framework is obvious, but applying evolutionary principles to the change of cultures over time—the evolution and ‘speciation’ of cultures—is a novel area of study in itself. Courses can also be developed that study a singular behavior or set of behaviors and how it shifts and changes with cultural speciation across the globe. Imagine creating a course on standards of beauty across the world and mapping those standards, and changes in those standards, as the cultures that create them evolve, split off, and evolve further. One could map this evolution geographically, examining clusters of similar cultures in specific areas of the world. The recently formed Society for the Study of Cultural Evolution has exactly this purpose and holds a vast amount of information that can be used in developing courses.

Feminist Theories/Women and Gender Studies: I have already alluded to the importance of (and indeed, the need for) feminist theories to be incorporated into evolutionary studies, and vice versa. A number of publications on this particular question exist, most notably by researchers Maryanne Fisher and Rose Sokol

Chang. Instead of reviewing all of the information here, I refer readers to *Evolution's Empress: Darwinian Perspectives on the Nature of Women* (2013). The introduction lays out the history and obstacles to integrating evolutionary and feminist theory and provides vital insight and criticism to the topic. Kruger, Fisher, and Wright (2013) provide a framework for integrating feminist and evolutionary theory in research, and thereby, in courses. Kruger et al. (2013) address the resistance on both sides to this integration but clearly make the case for the importance of females as 'active agents of evolutionary processes' (p. 301). This is not just through their reproductive capabilities, but also through their large roles in human dynamics, parenting, status, and their vital (and underappreciated) role in provisioning. A thorough examination of the literature shows that we are long overdue in acknowledging the importance of women throughout the evolution of the species and incorporating this long history into feminist studies/women and gender studies courses. Fisher et al (2013) point out that academics have criticized this integration, arguing that research should not be conducted with any sort of bias, including a feminist one. I argue that the idea of women being vital active agents in the evolution of the human species cannot be deemed a bias, as it is fully and repeatedly supported by the literature.

Human Development/Developmental Psychology is an obvious and easy curriculum in which to infuse evolutionary principles. All humans progress through developmental stages and experience continuity and change through the lifespan. Likewise, all cultures have various rituals and celebrations of these milestones. To create an examination of these milestones and their universality makes for a large-scale global course. The same applies for specific developmental stages such as infant and child development, adolescence, adult development, aging and gerontology, death and dying, etc. Indeed, human development has traditionally taken a more ethological approach, much more so than psychology, which shifted to behaviorism for such a large part of its history. Because of this, human development lends itself much more easily to an evolutionary approach and already has plenty of evolution friendly resources (LaFreniere, 2011; Burgess & MacDonald, 2004; Bjorklund & Pellegrini, 2002). Other courses include human sexuality, parenting, family studies, criminal behavior; essentially any universal behavior in humans is ripe for study.

One can simply use a pattern to create evolutionary based courses in any number of disciplines, whereby they start with human universals (metaculture) then move toward studying variation in evoked cultures. For example, in Business, courses on wealth and status seeking, the importance of respect and social standing in intercultural relations, and cultural shifts that come with economic growth (both historical and cross cultural) are all possible. In Counseling and Mental Health, one could examine the evolutionary factors that lead to (or result from) problematic human behaviors and work toward the development of evolutionary based treatments. In Communication, a study of evolutionary factors in displays, signaling, language, and persuasion would be informative. In Health and Wellness, one could develop a course to explore the impact of diet and activity changes on health and biology, or even create an entire course on evolutionary factors in current health. English and Literature have ready-made materials, as Gottschall and Wilson (2005) already provide the text for including evolutionary theory in literary studies. In Political Science, integration of evolutionary theory may involve a study in activism,

inequality, power and status, and the rise of despotism. In Public Justice, one could develop a course in life history, intersexual or intrasexual competition or jealousy and their role in crime, or the role of evolution in creation of morality and legal systems. A course in sports and play where play is viewed as a human universal or on the importance of sports in development and culture can be placed in Human Development, Health Sciences, Psychology or another social science discipline. At this point, courses in departments like Anthropology, Art, History, Marketing, and Philosophy seem obvious.

A special mention must be made of Sociology, the study of humans in groups, which has been traditionally resistant to evolutionary theory, to its detriment. For example, Hertler (2017) has written a book (not just a critical review) pointing out that glaring blindspot in sociologist Murray's book "Coming Apart" (2012). Here is Hertler's synopsis of his own book: "This book supplies the evolutionary and genetic framework that Charles Murray, towards the end of *Coming Apart: The State of White America 1960-2010*, predicts will one day explain revolutionary change in American society...In turn, the thirty years of life history literature herein reviewed confirms the biological logic of elite intermarriage and sequestration. The source of life history variation, policy implications, and demography are discussed."(preface). The 'future' Murray (2012) dreamt of began thirty years prior in evolutionary studies. Hertler (2017) has already made the case for the improvement of the Sociology curriculum through evolutionary theory.

Positive Psychology: Another application of evolutionary principles is in positive psychology. This would seem an unlikely pairing to those not familiar with the true range of the evolutionary sciences. Many believe the two would be strangely juxtaposed; evolution with 'nature red in tooth and claw' (Tennyson, 1849; Ruse, 1999) and positive psychology full of cooperation and altruism. In reality, evolution has been given a reputation for brutality, despite researchers showing broad ranging examples of mutualism, cooperation and altruism throughout the animal kingdom and throughout human history. Many evolutionary scientists are realizing this misconstrued view and are creating evolution-based strategies for positive psychology, cooperation, and activism. The most widely known example of this is David Sloan Wilson's "The Neighborhood Project: Using Evolution to Improve My City, One Block at a Time." (2011). It is also vital to mention how important a resource like this book would be in creating an evolutionarily based human services or civic engagement course.

MOVING OUTSIDE OF THE CLASSROOM

Infusing Evolutionary Studies is not limited to the expansion of courses. Evolutionary principles can be infused into existing student services, internships, service learning, civic engagement, and community outreach. Wilson's book (2011) is a great example of how evolutionary principles can be used outside of the classroom for community service and civic engagement. This has actually spawned the Binghamton Neighborhood Project, encompassing several projects to improve the quality of life in Binghamton, New York, each with a basis in evolution and human behavior. This project has created neighborhood identities, developed new

community parks designed by the communities themselves, held workshops on the developmental importance of outdoor play and socialization, and assisted with relief and restoration after flooding in the city. These projects are large-scale and ongoing. Imagine an Evolutionary Studies minor that incorporates these types of projects in a community; imagine the learning outcomes but also the improvement in the college community, the community at large, and also the relationship between the two. For academics who see a strained relationship between campus and community, this type of initiative can be a conduit for better collaboration and quality of life for all involved.

Wilson's (2011) model is very large in scale, but applications of these principles can be scaled to fit the needs of each instructor and course. For those without Evolutionary Studies programs or resources, smaller, action-based teaching models can be used in evolution based courses, possibly (and hopefully) with the intention of development into a larger project like Wilson's. While learning about different forms of human behavior there are many opportunities for students to experience such concepts outside of the classroom and reinforce lessons learned. Professors can take a proactive role, making sure these learning opportunities are seized and the application to class lectures can be optimized in any number of ways. Such assignments would allow students to experience the real-world implications of concepts learned in class.

Assignments can require students to observe inter-sexual interactions between two strangers and analyze the behaviors from an evolutionary perspective, or observe parenting behaviors, or play behavior at different points in the lifespan. Each assignment should emphasize a reflection and application to the current literature. Evolution and Human Behavior classes at SUNY Oswego employ such practical assignments. These assignments are offered as alternatives to standard research paper assignments. One assignment that is of special interest requires students to perform an act of altruism for a stranger. The goal of this assignment is essentially encourage students to perform acts of kindness in the community. Students invest a great deal of thought into the needs of their community, where they can help, and how to act. Students then write about and reflect on their experiences and the importance of altruism, reciprocal altruism, and cooperation in the human species. This fits well into the already established 'service learning' component in many courses but requires students to take a much larger, evolutionary view of cooperation and community. Students have found doing altruistic acts for strangers rewarding and interesting and highly preferable to standard assignments. Students have responded very well to these assignments, stating that they learning more 'by doing' in this course than in others. Indeed, active application based learning can be extremely important to student development (Lier, 2007).

The altruism assignment has been so popular and successful that another, more intensive assignment is being developed around this concept. In this prospective assignment, each student will be tasked with asking for a 'favor' (in actuality, an ongoing service) from a fellow student and performing a 'favor' for a different student. Students will begin by listing the services they are able to perform (e.g., teaching another student how to cook, knit, or play an instrument) and the services they are in need of (e.g., tutoring for another course, various life skills).

These givers and receivers would then be matched and the exchange would continue throughout the semester. The matching would ensure that each student would provide a service to one student and receive a service from another. As a final project, students would then be asked to evaluate the acts of the giver and receiver and to apply it to the course content. In addition to providing an enriching and engaging learning experience for students, this exchange will allow the researchers/instructors to examine the perceptions and effects of altruistic acts (both as givers and receivers), how the actions and real world experience affect knowledge of course content, and to determine whether giving or receiving the altruistic act triggers greater bonding and affiliation amongst students (if performance was less than optimal, lessons on cheater detection, social contracts, and group dynamics would abound). In essence, this assignment would create an active community of reciprocal 'altruism.' Students have responded very positively to the first altruism assignment in the past and feedback forms indicate a very positive outlook for an ongoing project.

It should be noted that assigning altruistic acts may render the acts not truly altruistic. The fact that the students are getting a grade for performing acts and writing about them may be considered a reward, making the interaction more of an indirect mutualistic exchange. However, from a pedagogical perspective, the main point of the assignment is for students to explore altruism and its evolutionary etiology through a real-world experience. With this in mind, the fact that the act may not be completely altruistic is overshadowed by the educational and community service values of the assignment.

In summary, there are innumerable hands on, real world assignments in countless courses that can be created using evolutionary principles. These assignments can be used individually or part of a larger collaborative system between college and community to improve the quality of life for all involved and stress the importance of being active and engaged community members. With these obvious benefits comes the dissemination of evolutionary theory.

CONCLUSION

Evolutionarily focused academics have several tools at their disposal to expand their research and pedagogy, and these projects can also service the community at large. Obviously, creating an Evolutionary Studies program would be fantastic addition to the curriculum, but an evolutionary analysis of the environment is crucial to its success. If the environment is not hospitable for a full Evolutionary Studies program, creating new courses and revising extant courses can still introduce students to evolutionary principles and give them research and outreach opportunities. This can be done along several academic avenues, not just through STEM courses. In addition, outside of traditional curricula, research and community outreach can be created through professional societies and civic collaboration. Each of these projects can establish the basis for a strong evolutionary program; the keys to success are flexibility, collaboration, and innovation.

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