

Abstract

Anecdotal stories by professionals working in the heritage management industry, specifically Cultural Resource Management (CRM), describe feeling unprepared for the work upon graduating with an undergraduate anthropology degree. Likewise, recent graduates complain that they are unqualified for posted CRM jobs even though many hope to enter the field upon graduation. This anecdotal information raises questions about whether undergraduate academic training adequately prepares students for compliance archaeology. Although anecdotes suggest the academy could do a better job at preparing undergraduate students for compliance work, few resources exist to evaluate these claims. To further complicate the issue, some academics rightly question whether undergraduate education should focus on training students to enter the industry at the expense of a more holistic education. They also question who should be responsible for training students to enter the industry. This article explores these complicated issues and presents initial results from a recent pilot survey conducted in Colorado that was designed to examine undergraduate student preparation for compliance work. Using these preliminary results, we evaluate perceived gaps in training and offer possibilities for addressing these gaps that range from partnerships between CRM and academia to curriculum reform where appropriate.

Introduction

Discussions about teaching archaeology have been prevalent in the literature in recent decades (see for example: Baxter 2009; Bender and Smith 2000; Burke and Smith 2006; Mytum 2011). At the same time, the diversity of professional positions in agency and heritage management fields have increased and the field is projected to grow faster than average over the next five to 10 years (Baxter 2009:25; US Bureau of Labor Statistics 2020). For students interested in archaeology, the most prevalent option involves working in heritage related fields, including Cultural Resource Management (CRM) or Heritage Resource Management (HRM)¹. Despite moving into CRM positions, anecdotal stories from professionals working in the industry describe feeling unprepared for the reality of the work upon graduating with an undergraduate degree. Recent alumni also report lacking key qualifications to land their first job. CRM company administrators looking to hire fresh undergraduates also lament that students with newly minted bachelor's degrees lack the basic skills hiring authorities seek in candidates. These anecdotes raise the question of how well undergraduate degrees prepare students to enter the field of CRM upon graduation. While the field of archaeology has

been changing over the past several decades, “[t]hese changes in the professional landscape have not been addressed in most types of archaeological training,” as Jane Baxter (2009:26) succinctly points out. The lack of professional training of students has not gone unnoticed. Most of the discussion around training students for cultural resource management jobs has occurred at the graduate level, however here we focus on undergraduate education since it is the foundation for preparing for a career in CRM. We question: How can we as academics and professionals better prepare the next generation of archaeologists for the important work of cultural resource management? We present data from a survey designed to gauge the efficacy of undergraduate education and field training and offer suggestions on how to address the areas of concern identified in the survey.

Karin Larkin, an academic, trains students in archaeology and museum studies in an undergraduate only program and Michelle Slaughter is a seasoned CRM professional. Our realms converged when we partnered on campus compliance and cultural resource management work, which included a field school as part of a History Colorado State Historical Fund grant. This grant funded compliance-based work with the goal of creating a historic preservation plan for the campus. Our collaboration piqued our interest in how well the department was training students who were interested in pursuing CRM work upon graduation. We created a survey to query academics and CRM professionals in our state on their perceptions of undergraduate training for preparing students to enter the field. We noted a disconnect between how traditional undergraduate curriculum and field schools are structured and the tasks that CRM professionals spend the majority of their time doing. From an academic perspective, the disconnect is a problem because most of our department’s graduates who pursue a career in anthropology seek jobs in cultural or heritage resource management. Workforce analyses indicate that there are approximately five times more archaeologists employed in the cultural resource management field than in academia (Whitley 2004:23). To better serve future archaeologists and the profession, this gap between undergraduate student training and professional opportunities needs to be addressed. Here we do not use the term “gap” pejoratively but to note differences between academic training of undergraduates, which is focused on teaching students about the broader discipline and specific skills required on CRM work.

The Disconnect Problem

As noted above, we noticed a disconnect between the cultural resource management industry and academia in terms of providing students with suitable training and real-world experience before graduation. Unfortunately, noting the problem is far easier than solving it. The problem appears to have roots in a variety of interlinked as well as independent factors that generally receive little attention. Some of the issues are

related to a lack of communication between the academy and the industry, and others are rooted in the different operations and goals of each. Some issues stem from the very laws, policies, and procedures that govern both the industry and the academy. Problems also arise from the diversity of the discipline itself. Below we briefly explain the disconnect problem and touch on previous related research. We do not attempt to offer an exhaustive discussion of the myriad of issues underlying this disconnect. Instead, we offer an overview of the underlying differences between CRM and academic archaeology and a few observations to contextualize our interest in conducting the survey.

An underlying issue rests in the very different goals and even methodology of cultural resource management versus academic archaeology. These differences create schisms or barriers between CRM and academia, which unfortunately affect students negatively. As Joseph Schuldenrein and Jeffrey H. Altschul explain (2000:59), “[t]his is not to say that students do not pick up practical skills along the way; most do. However, they do this not because of the formal requirements of a department, but sometimes in spite of it.” The undergraduate classroom education and academic field schools where undergraduates receive the majority of their field-based training are fundamentally different from compliance-based work in most cases. Additionally, undergraduate field school excavations encounter unique circumstances that affect both the conduct of the investigations and the timeliness and content of the reports generated. For example, Colorado’s guidelines and timelines for permitting and reporting for excavation projects (8CCR 1504-7) appear to have been designed primarily for compliance/CRM projects (Colorado Historical Society 1973). Such projects are normally conducted to provide information to make informed decisions on cultural resources and heritage management in areas that are proposed for development, or to recover data from sites that will be destroyed/disturbed by development. They are conducted by professionals whose full-time activity and obligations relate to accomplishing the task. The timelines associated with permit obligations are designed to fit into the schedules of professionals who devote their full attention to these obligations.

While CRM firms focus on compliance and heritage management, academic activities generally focus on research driven goals that fit into a suite of job requirements. The latter includes teaching and service requirements in addition to research activities typically divided by percentage of time, for instance 40% teaching, 40% research, and 20% service. Faculty members are expected to perform a broad array of services to support the programs and function of the university, the profession, and the community. These range from student advising, serving on campus committees or professional organization’s boards or committees, to engaging in activities that involve the public. These additional duties necessitate very different timelines for completing analysis and report writing than those outlined by the permitting agencies because teaching and service often compete with time for research activities. Generally,

research is relegated to the time between teaching and service or concentrated in the summer when field-based activities generally occur. Running field schools can be used to fulfill the faculty member's research obligations, but those do not always align with research foci. The location of a faculty member's field location can also impact their ability to prepare students for CRM work. Federal or state laws would not apply to research at sites on private land or sites outside the United States, making faculty members less likely to know about or teach the laws. Academic timelines leave little time for full-time analysis and timely report completion. Further, excavation reports typically do not contribute to the tenure portfolio. In fact, work on them could actually hurt faculty in the promotion and tenure process if writing field reports interferes with producing "peer-reviewed" publications. Faculty members who rely on "peer-reviewed" products to advance (or even keep) their positions have little incentive to devote much time or effort toward compliance reports. Including technical reports in departmental tenure criteria could help alleviate this problem (Driver et al. 2018).

Archaeological ethics require that all excavation projects adhere to rigorous scientific and reporting standards whether for compliance or instructional purposes. However, field school excavations encounter uniquely difficult circumstances that affect both the conduct of the investigations and the timeliness and content of the reports they generate including:

1. Crew members on field school excavations are, by definition, inexperienced limiting their ability to identify and describe materials they encounter in the field. Inexperienced excavators often collect non-cultural materials, which increases the time required to conduct laboratory analyses.
2. Students should be exposed to a variety of techniques of excavation often resulting in the collection of more material (e.g., soil samples, pollen samples, C14 samples) than normally needed, further increasing the time needed for processing and laboratory analysis. However, students are less frequently exposed to large-scale survey or monitoring projects (the majority of compliance-based work).
3. Laboratory analyses are often conducted by students working under the supervision of the Principal Investigator (PI) or other faculty member. Unless funds are available to pay those students, they would be enrolled in a class or an independent study. Attempting to analyze materials well and consistently in a class setting is nearly impossible because of the inexperience of the students and lack of consistency working with students on a short-term basis (semester or quarter). Lab classes canceled for insufficient enrollment will delay analysis for at least another semester, likely longer. Students who were not involved in the initial project may do the analysis at a much later time with little familiarity with the project and field work. Delays in artifact processing also create barriers to resolving inconsistencies or questions related to paperwork or

artifact labeling because students graduate and move on. While still a practical learning experience for these students, it is a disservice to the original field school students who are unable to carry the project through to completion and understand the full process from start to completion.

4. Field schools are frequently conducted at the same site over a period of several years because the site is related to faculty research interests. Because of the intensive focus on excavation in these types of field schools, a large amount of data are collected further compounding the problem of timely analysis and interpretation.

Complicated differences in methods and goals boil down to inexperienced field and lab technicians producing a multitude of data that needs serious massaging before faculty can meet reporting obligations. These issues are compounded in departments that do not have graduate programs and particularly need addressing in undergraduate education.

Background and Research

Turning to the literature on the undergraduate curriculum and field schools does not help address the disconnect in training but does further expose where and why the gaps exist. We are not alone in noticing gaps in training undergraduates and offering suggestions to try to realign the curriculum to address those gaps (Anderson 2000; Blanton 2000; Lipe 2000; McGimsey III 2003; Miller 2000; Mytum 2011; Schuldenrein and Altschul 2000; White 2000; Whitley 2004; Wooley Vawser 2004). While some research details the benefits of field schools as experiential learning (Burke and Smith 2006; Haury 1989; Mytum 2011; Perry 2006), few studies examine the utility of field schools for preparing students for compliance work. Fewer still address undergraduate training for compliance work since most focus on graduate training (Hester 1963; Jameson et al. 2012; Welch et al. 2018; Welch and Corbishley 2020). Here we briefly summarize these.

Most of the previous research around the undergraduate curriculum and field school education focuses on matters other than training for professional work. For instance, most studies extol the benefits of fieldwork as an invaluable experiential learning opportunity for students (Baxter 2009; Burke and Smith 2006; Colley 2003, 2004; Lovata 2007; Walker and Saitta 2002; Mytum 2011; Perry 2004). Some discuss the economic benefits of archaeological field schools on local economies (Bernbeck and Pollock 2004; Boytner 2014; Kohl 2004). Others examine the historical development of the institution of field schools (Gifford and Morris 1985). Finally, a few offer instruction on the logistics and pedagogical underpinnings of running a field school (see for example Baxter 2009; Mytum 2011). A literature review on the archaeological curriculum also highlights the observed gap in student training for the industry. In a volume dedicated

to field school pedagogy, Baxter (2009:27) states that articles in the “volume *Teaching Archaeology in the Twenty-first Century*, ...clearly indicates these issues of training versus employment have not been adequately addressed ...” This volume offers recommendations for altering the curriculum to address the gaps in training due to the changing work landscape (Baxter 2009:27). Whitley (2004) presents an excellent summary of recommendations that have previously been offered for curriculum reform, which are also summarized in Baxter (2009: 27-29). A few of these suggestions include initiating formal internships (Anderson 2000:143-144; Blanton 2000:103; Schuldenrein and Altschul 2000:63); partnering with cultural or heritage resource managers to deliver content to students (Blanton 2000:103; Miller 2000:69-72; Schuldenrein and Altschul 2000:63); revising course content to include preservation law, ethics, business, working with descendant and Native American communities, public administration, and project management (Miller 2000:69-72; Schuldenrein and Altschul 2000:63); and exposing students to the broad range of cultural and heritage resource management and its importance to the discipline as a whole (Anderson 2000:143-144; Blanton 2000:103; Miller 2000:69-72; White 2000:113). The list is daunting, especially as it pertains to the undergraduate curriculum and most are directed at graduate level training for archaeological students.

In the United States, most undergraduate programs in archaeology are housed in anthropology programs. As part of broader anthropology programs, students are generally exposed to a well-rounded education based on a three or four field approach that includes archaeology, cultural, biological, and linguistic anthropology. Most archaeologists in the U.S. would agree that this exposure to broader anthropological method and theory benefits the practice of archaeology. However, because archaeology is only one of these three/four sub-fields, undergraduate students may only have room in their schedules for a few archaeology classes beyond the introductory level course. These can range from methods based (such as archaeology lab and/or field classes) to geographical regions (Mesoamerican archaeology, the US Southwest, or Prehistoric Europe, etc.), or topical themes (foraging societies, the origins of agriculture, complex civilizations). While these are generalizations, courses common in undergraduate programs generally offer more breadth than depth. The issue of cost further compounds the barriers to adequate training. Most students try to complete their requirements in the most efficient way possible, leaving little room for extra courses that could address the training gaps. Additionally, most field schools are expensive, and students struggle to afford the tuition, let alone the additional travel and supplies associated with field training. Students should be exposed to a wide range of anthropological ideas, theories, and topics to have a well-rounded understanding of the field. This breadth also allows them the opportunity to explore a wide range of topics before they specialize in a narrower niche in their graduate programs, if they choose to continue their education. However, the nature of the undergraduate curriculum also limits the opportunity to add

additional full courses that may address gaps in undergraduate training identified by practicing professionals in CRM.

The job force has been evolving rapidly since the 1970s when the CRM field emerged in force in response to federal and state legislation. However, the undergraduate curriculum has been much slower to change. Many graduate programs focus on CRM preparation, but undergraduate programs have not responded in the same way to changes in the industry. In fact, there has even been resistance to the idea of changing the undergraduate curriculum to keep pace with the job market. Some faculty would (and have) argue(d) that the academy should not be in the business of simply training students for the workforce. They argue that the academy should not devolve into a trade school. While we agree, we also believe there are mechanisms to address this issue without compromising academic rigor and objectives. We believe that fostering collaborations between CRM industries and academia, as well as incorporating small curricular changes that align with the work force demands, could enhance any academic undergraduate program without compromising the foundations of a three/four field anthropological education.

Methods

To help address the question of undergraduate training for the workforce, we developed a survey. From our initial interest in the efficacy of field school training, our project grew to include other aspects of the undergraduate curriculum. Here we offer a critical examination of the utility of undergraduate anthropology programs in preparing future archaeologists to enter the industry. We assume that most students who graduate and work in the profession will go into CRM, not academia, as the research indicates (Baxter 2009; Whitley 2004; Zeder 1997) and our alumni illustrate. Providing data to support or refute anecdotal accounts of students' lack of preparation could also prove useful in both adding quantitative and qualitative data to the discussion. In addition, these data allow us to identify where the gaps actually lie.

Designed as a pilot study, we conducted this survey in Colorado and queried both cultural resource management professionals and academics in the state about student preparation at the undergraduate level. While this survey was designed to gather preliminary data, we also believe it is unique in its intention and design. Our original survey has some limitations. These include the structure of the language of the questions, imperfect mirroring of questions between industry and academic respondents, and the scope of the distribution of the survey. While this is a limited sample, we think that the results are interesting enough to share more widely. Our goal is to spark a discussion around the undergraduate curriculum. Here we outline our methodology and its underlying rationale.

Using SurveyMonkey, we surveyed both CRM and academic archaeologists about the realities and expectations of undergraduate archaeology training and polled the interest in academic/CRM collaborations. We obtained expedited Institutional Review Board (IRB) approval from the University of Colorado, Colorado Springs for our survey and invited all archaeologists holding a state issued permit in Colorado to participate in the survey. We distributed a link to the survey directly via email using a list we obtained from the Colorado State Historic Preservation Office (SHPO) for all archaeologists holding a state permit. We also sent requests to all college and university anthropology department faculty in the state of Colorado that offer archaeological programs but may not hold a current permit. We sent invitations to 112 permitted and academic archaeologists. Of those invitations, 30 responded, which was an approximately 27% response rate. According to a SurveyAnyplace.com blog, the average survey response rate is 29% for an online survey such as ours (SurveyAnyplace.com). Our response rate of 27% is very close to this average and considered a good response rate for the type of survey.

The survey was structured to ask a mirrored set of questions to both CRM and academic respondents related to undergraduate training as well as ask specific questions related to academic workload and academic/industry collaboration. The wording sometimes differed between CRM and academic questions, which caused some issues in interpreting our results. Respondents were first asked whether they worked in CRM, academia, or “other.” We defined the “other” category as archaeologists who worked for a local, federal, or state agency. The questions were then tailored based on that answer for either CRM or academic archaeologists. Archaeologists who answered “other” were directed to the CRM questions. The survey asked approximately six to 10 questions for each group regarding observations of archaeological field schools, undergraduate training, and the utility of these to prepare students for CRM work. For a list of questions per respondent affiliation see Table 1.

Of the 30 total responses, 11 (37%) came from academia, 14 (47%) from CRM firms and five (17%) answered “other.” We left the survey open for several months and sent reminders to boost the sample size. The responses were anonymous unless the respondent voluntarily provided their name and contact information for follow-up. Once the survey closed we compiled the data and began to interpret the results. While these data are not generalizable to the entire country, the study serves as a useful baseline for any future efforts.

Table 1. Table of questions in survey by respondent affiliation.

CRM Questions	Academic Questions
Q1: Who do you work for? Answer Choices: Academic Institution, CRM Firm, Other Q2: Do you feel recent graduates of anthropology undergraduate programs who have taken an archaeological field school are well prepared to immediately enter Cultural Resource Management work? Yes or No Q3: For which aspects are recent graduates well prepared? (Check all that apply) Answer Choices: pedestrian survey, excavation, site monitoring, artifact identification, artifact analysis, archival research, records searches, completing state or federal forms, report preparation, running specialized analyses, determining state or federal eligibility, writing proposals Q4: For which aspects are recent graduates NOT well prepared? (Check all that apply) Answer Choices: pedestrian survey, excavation, site monitoring, artifact identification, artifact analysis, archival research, records searches, completing state or federal forms, report preparation, running specialized analyses, determining state or federal eligibility, writing proposals Q5: Which skills are most important for recent graduates to acquire PRIOR to their first Cultural Resource Management job? (Check all that apply) Answer Choices: pedestrian survey, excavation, site monitoring, artifact identification, artifact analysis, archival research, records searches, completing state or federal forms, report preparation, running specialized analyses, determining state or federal eligibility, writing proposals Q6: What else could make recent graduates more attractive in the hiring process? (Check all that apply) Answer Choices: additional archaeological work experience, internships, multiple field schools, archaeological laboratory experience, report writing experience Q7: Would your company consider an internship program for undergraduates or recent graduates who have had a field school? Yes or No	Q1: Who do you work for? Answer Choices: Academic Institution, CRM Firm, Other Q9: How often do you teach field school? Answer Choices: more than one per year, one per year, one every other year, periodically, never Q10: Do you feel recent graduates of anthropology undergraduate programs who have taken an archaeological field school are well prepared to immediately enter Cultural Resource Management work? Yes or No Q11: Which skills do you emphasize/teach in field school? (Check all that apply) Answer Choices: pedestrian survey, excavation, site monitoring, artifact identification, artifact analysis, archival research, records searches, completing state or federal forms, report preparation, running specialized analyses, determining state or federal eligibility, writing proposals Q12: Do you run field schools on public or private property? Answer Choices: publicly owned, private property, other Q13: If you run field schools on public land, do you or faculty experience difficulty meeting agency reporting deadlines or requirements? Yes or No Q14: Have you collaborated with consultants (CRM or Agency archaeologists) in conjunction with running a field school? If so, please comment on your experience. Yes or No Comment box Q15: Is this type of collaboration something you would consider? Yes or NO

Results: Survey Says...

The results of our survey provided some interesting and illuminating data, while highlighting the gap in undergraduate training and workforce preparedness. These data give insight into three important areas related to aspects of the training/CRM disconnect including undergraduate training, faculty workload in relation to permit requirements, and creating synergistic collaborations.

Undergraduate Training

When asked whether students are prepared to enter CRM work upon graduation, we immediately see the divide. For the academic survey participants, we asked, “Do you feel recent graduates of anthropology undergraduate programs who have taken an archaeological field school are well prepared to immediately enter Cultural Resource Management work?” The majority of academic respondents feel they are preparing students to enter the workforce. Of the responses, 71% answered “yes,” while 29% answered “no.” We asked CRM archaeologists, “Do you feel recent graduates of anthropology undergraduate programs who have taken an archaeological field school are well prepared to immediately enter Cultural Resource Management work?” Of the responses, 37.5% answered “partially” and 62.5% responded “sometimes.” Not one CRM respondent answered definitely “yes” or “no.” These results presented graphically in Figure 1, suggest there are elements missing in student preparation and there is room for improvement within academia to better prepare students for the professional realm. The disconnect in these results also highlight that some academic archaeologists may not understand the requirements of CRM, which presents an additional problem.

ACADEMIC VS INDUSTRY RESPONSES

Undergraduate Student Preparation for Workforce

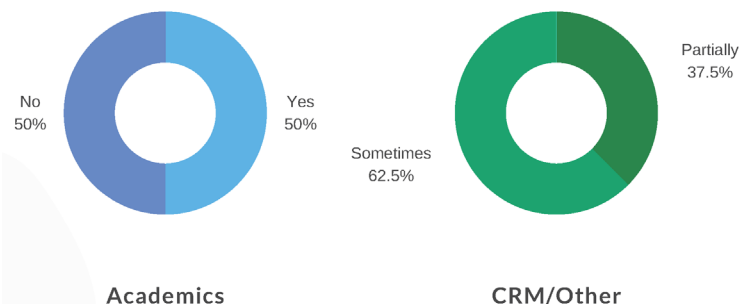


Figure 1. Comparison of academic and industry responses to student preparation upon graduation with an undergraduate degree.

In order to identify the missing skills, we asked additional questions of both CRM and academic respondents. Both groups were asked to evaluate student preparation of an identical set of skills. We asked academics, “Which skills do you emphasize/teach in field school? (Check all that apply),” and CRM professionals, “For which aspects are recent graduates well prepared? (Check all that apply).” We provided the same

list of options to both groups as outlined in Figure 2 below. In comparing the responses between academic and CRM respondents, we found some mixed results (see Figure 2). The skills academics identify as ones emphasized in field school are not always translating to observed skills in recent graduates by CRM professionals.

Q: For which aspects are recent graduates well prepared? (Check all that apply)

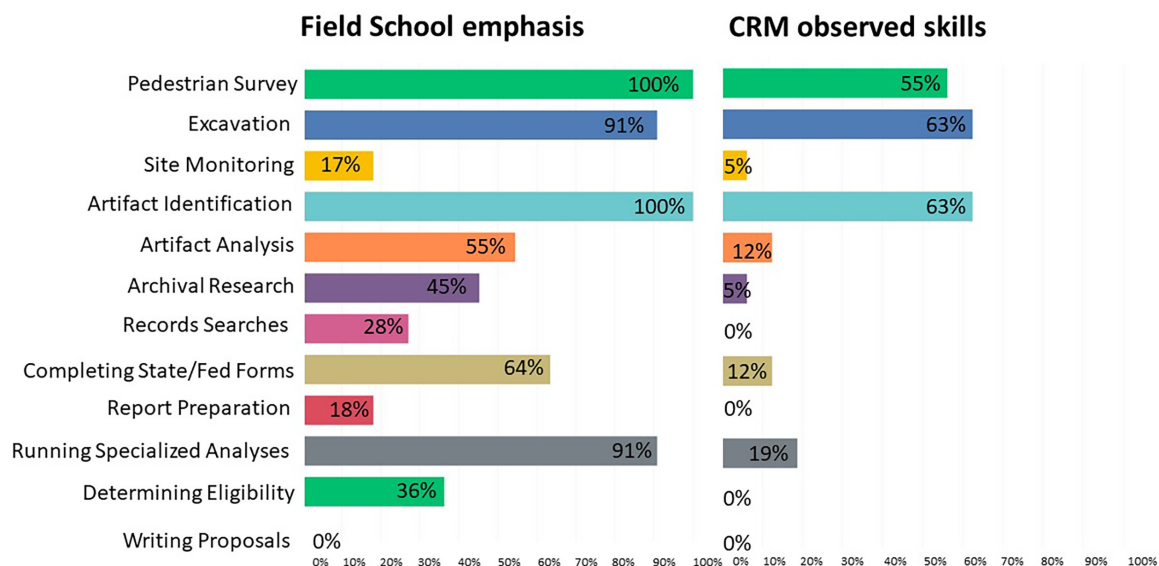


Figure 2. Comparison of skills reportedly taught in field school to ones observed by industry professionals in graduating students.

In interpreting the results of these data, we break the skills into three different categories: essential, general, and additional skills. The first set, essential skills, include pedestrian survey, excavation, and artifact identification. CRM respondents agree that these are areas where recent graduates are generally well prepared. Academics also report to teach general skills such as artifact analysis, archival research, and running specialized analyses. However, CRM respondents do not observe that students are well prepared in these areas upon entering the workforce. Additional skills for CRM work include completing state or federal forms, records searches, report preparation, writing proposals, and determining eligibility recommendations. Academics claim to teach some of these to a lesser extent, but CRM professionals felt graduating students were unprepared or poorly prepared to complete those industry specific tasks upon graduation. Academics may not be familiar with these skills or may not have had any experience in some of these areas as noted above depending on their research interests. Even if academics have this experience, it may not be as robust as that of industry professionals who regularly complete these types of activities. Academics could argue that this last skill set would be better taught by CRM professionals on the job.

What skills do CRM professionals look for in potential employees? To identify these skills, we asked CRM respondents “which skills are most important for recent graduates to acquire PRIOR to their first Cultural Resource Management job?” We provided the same list of choices as those in the previous questions (see Figure 3). These results highlight areas that academia does well and where academic undergraduate preparation could improve. The top five most important skills to acquire prior to employment include pedestrian survey, excavation, artifact identification, completing state or federal forms, and running specialized equipment or analyses. Only survey, excavation, and artifact identification are emphasized by all academics who teach field schools (compare Figure 3 with Figure 2) and industry professionals agree these are areas students are well prepared. In addition, 91% of academic respondents report they prioritize running specialized equipment. However, only 64% of the academic respondents emphasize completing state or federal forms. Other skills that potential employers rank at or above 25% include records searches, determining state or federal eligibility recommendations, archival research, and report preparation. Academic emphasis on these skills roughly match the percentages. When comparing these results to the skills that academic field schools emphasize, the results are more complimentary.

Q: Which skills are most important for recent graduates to acquire PRIOR to their first Cultural Resource Management job?

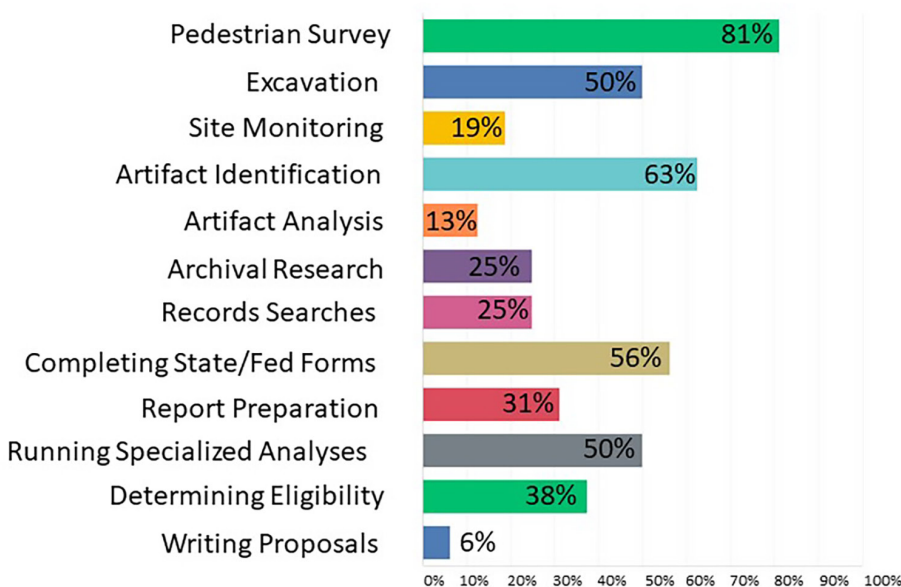


Figure 3. Industry desired skills prior to first job.

Beyond skills, we were interested in what types of experiences would enhance the undergraduate educational experience. We asked, “what else could make recent graduates more attractive in the hiring process?” and gave the following options: “additional archaeological work experience, internships, multiple field schools, archaeological laboratory experience, and report writing experience.” According to our results, 88% of CRM professionals indicate a desire for recent graduates to have technical report writing experience even though only 31% indicated this as an important skill to acquire prior to their first job (Figure 4). While they view this as an important skill, employers do not necessarily expect recent graduates to have acquired this experience in school. On the other hand, it also suggests that report writing experience would give recent graduates an advantage on the job market. However, when we compare this variable to the skills academics focus on in undergraduate education, we observe only 25% of academic respondents emphasize technical writing. Experience gained through internships also make recent graduates more attractive to 63% of CRM professionals. These results would seem to align with the third most desirable trait of additional work experience. Approximately 56% of CRM professionals respond that additional hands-on archaeology work and laboratory experience would be desirable. However, only 31% thought that multiple field schools would make recent graduates more appealing during the hiring process. These data suggest that while CRM professionals would like recent graduates to have more field experience, they prefer the types of experiences that are available in CRM work as opposed to additional field schools. This implies CRM professionals do not feel that field schools represent the full range of real-world work experience graduates need prior to entering the workforce. In summary, students need practical experience like internships and technical report writing, but academic field schools and undergraduate curriculum are only touching the surface for preparing graduates to succeed in the job market (see Figure 4).

Combined these data indicate that the undergraduate curriculum does deliver the foundational skills that graduates will need to enter the workforce. However, the data also indicate areas of potential improvement. These data also suggest that students who are exposed to additional work experience and report writing would have an advantage when applying for a CRM job.

Faculty Workload and Permit Requirements

Our second area of interest questioned whether faculty teaching undergraduate field schools feel an additional burden to meet reporting requirements. In order to evaluate this, we asked academic archaeologists “If you run field schools on public land, do you (or your faculty) experience difficulty meeting agency reporting deadlines or requirements?” While faculty often complain about the additional burden that field schools place on their workload, we wanted to quantify the extent to which this is true, at least for the state of Colorado. The responses affirmed the difficulties in meeting

Q: What else could make recent graduates more attractive in the hiring process?

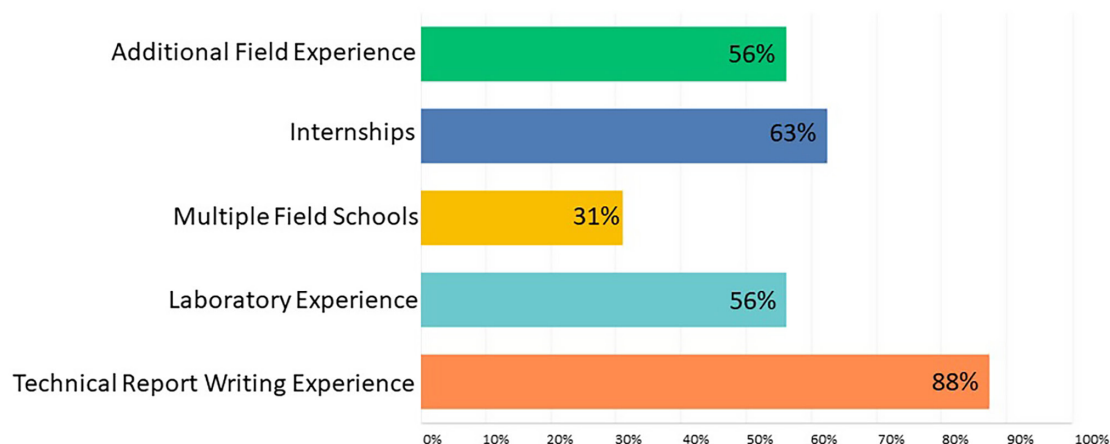


Figure 4. Skills that would make students more desirable on the job market.

reporting deadlines with 80% responding “yes,” they do find it difficult to meet agency deadlines, and only 20% responding “no” (see Figure 5). While our survey did not query the source of the difficulty, anecdotes by faculty expressed informally offer some insight. Anecdotally, faculty report work related to processing field school data and writing the reports, often conflicts with regular faculty duties related to teaching, publication, and service, underscoring the differences in goals and agendas between the academy and the industry and warranting further examination. *The Society for*

Academic Difficulty Meeting Report Requirements

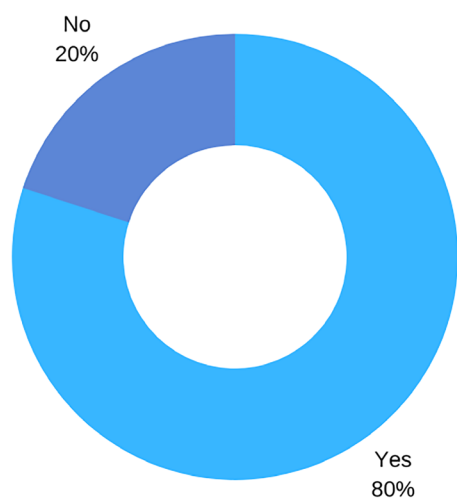


Figure 5. Academics' responses to difficulty meeting reporting obligations.

American Archaeology Task Force for Guidelines for Promotion and Tenure for Archaeologists in Diverse Academic Roles report from January 31, 2018 offers some suggestions on addressing this issue (Driver et al. 2018). Suggestions include changing promotion and tenure documents to value products produced as part of CRM, public archaeology, and digital archaeology as legitimate in their publication requirements and recognizing that teaching field school involves more work than a traditional class (Driver et al. 2018:1). However, these guidelines require systemic

change at multiple levels from the department to the university or system. Changes would have to address adjustments in thinking about publications, the meaning of academic productivity, and the valuation of CRM work in the academy.

Synergistic Collaboration

One way to address the gap observed in field training could be for academics to partner with CRM firms to deliver field schools to undergraduate students. A collaboration could be beneficial to all parties. This leads to our last area of interest, whether CRM firms would be interested in collaborating in undergraduate education. We specifically asked about internships for undergraduate students as a way of sharing this educational burden. To gauge interest, we asked CRM respondents, “Would your company consider an internship program for undergraduates or recent graduates who have had a field school? (Yes or No).” While the authors of this article found our collaboration useful and could see the benefits of these types of collaboration, we were not sure that our perspectives were widely shared. We recognize that interns can require extra time and supervision. We were heartened to see that nearly all CRM respondents shared our perspective and answered “yes” they would consider an internship program (see Figure 6).

Q: Would your company consider an internship program for undergraduates or recent graduates who have had a field school?

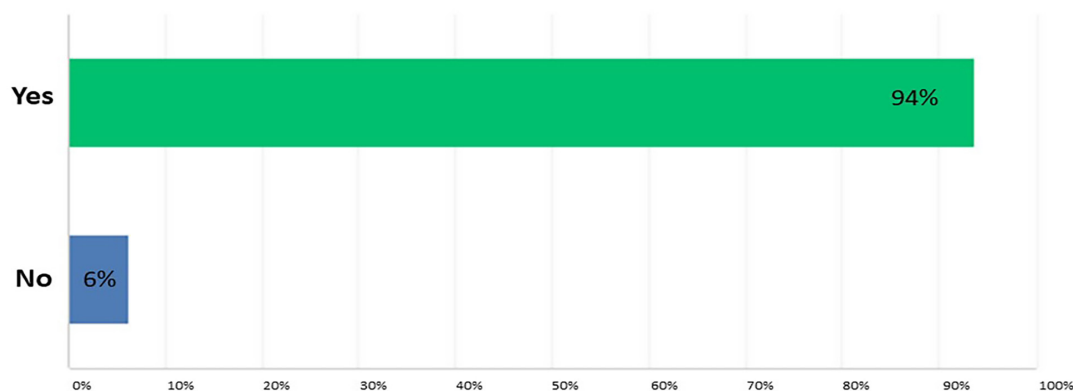


Figure 6. Industry interest in internships for students.

In addition, we asked academic respondents, “have you collaborated with consultants (CRM or Agency Archaeologists) in conjunction with running a field school? (Yes or No).” We were surprised to see that 100% of the academic respondents answered “yes” to that question. We did not think that our collaboration was unique, but the 100% response rate surprised us because few academics or CRM professionals discuss their collaborations. Additionally, the literature on this type of collaboration is

scant. We suspect that a nation-wide survey would indicate that collaboration is much more prevalent than the literature indicates. Figure 7 shows our collaboration in action. In this image, Slaughter is working with field school participants on a compliance project on campus during the 2016 field school.

The data reveal that collaborations may prove very beneficial to all parties involved. For academics, incorporating undergraduate students in artifact and data analysis as well as report preparation and writing would help ease compliance burdens on faculty as well as provide students with an opportunity to gain these valuable skills. We also believe that collaborative work must be recognized in the promotion and tenure criteria. Without recognition, it will remain in conflict with faculty duties and would not be incentivized. Maintaining and promoting internships in the CRM industry would also benefit students in gaining additional work experience and allow academics and CRM industry professionals to share the responsibilities of educating future employees. In the following section, we expand on these results and offer some suggestions on addressing the observed gaps on different scales.



Figure 7. Michelle Slaughter working with field school students on the UCCS Campus.

Bridging the Curriculum Gap

Our data illuminate the gap between undergraduate education and CRM workforce preparation. These observations loom large when considering the undergraduate curriculum. They would seem to suggest an overhaul of the curriculum, which is a daunting and seemingly impossible task that, quite frankly, probably would not produce rewards equal to the effort required. It might also detract from other goals of a well-rounded undergraduate education. Since only a percentage of total undergraduate anthropology students choose to focus on archaeology and only a fraction of those will go on to work in the industry, overhauling the entire undergraduate curriculum does not seem like a worthwhile task. In addition, the undergraduate curriculum needs to prepare students in all four (or at least three of the four) subdisciplines. Having said that, the anecdotes and background information noted previously, and the survey results indicate that the current curriculum does not adequately serve the needs of undergraduates who do plan to enter the workforce in CRM and heritage management. Here we suggest some strategies based on a variety of suggestions and sources. These include the volume *Teaching Archaeology in the Twenty-first Century* (Bender and Smith 2000); our own experiences; survey results; and pedagogical advances. We offer curriculum strategies ranging from “small teaching” techniques (as described by Lang 2016) to larger curriculum additions or reform. We divide them here as Small Ideas, Medium Ideas, and Big Ideas in terms of effort required to implement.

Small Ideas

In considering how to better prepare students, we offer ideas that can be accomplished during field school and in other courses with smaller amounts of effort. The idea of “small teaching” was conceived and explained by James Lang (2016) in his book, *Small Teaching: Everyday Lessons from the Science of Learning*. He describes “small teaching” as “an approach that seeks to spark positive change in higher education through small but powerful modifications to our course design and teaching practices” (Lang 2016:5). These techniques or approaches could take one of three forms: brief classroom learning activities that could be completed in five to 10 minutes and small modifications in a course design (Lang 2016:7-8). None of these require a radical re-thinking or re-design of a course or curriculum. Instead, they are designed as small modifications that could have a big impact on student learning and the undergraduate experience. In this case, small teaching ideas could include the addition of guest speakers, field trips, reading lists, discussions, focused counseling, and written assignments.

The Register of Professional Archaeologists (RPA) has published recommendations for teaching field school to comply with industry standards and offer a certification program for field schools that comply with their guidelines. According to

their website, the RPA offers *Guidelines and Standards for Archaeological Field Schools* were revised and approved by the RPA Board of Directors on January 6, 2015 (RPA 2015) and outline both operational as well as field procedures/structures among other criteria. In terms of operational procedures, RPA guidelines recommend at least 12 hours of lecture introduction before any field work commences. This requirement could provide an opportunity to integrate information on preservation and heritage laws or the work of heritage resource managers as integral to the discipline. Guest speakers from the industry could be included in these lectures to provide an industry perspective. The RPA guidelines further recommend formal lectures on aspects of field and laboratory work including research plans, curation, and reporting among other things. Formal lectures are a good start; however, our data suggest employers also want work experience in laboratory analysis and report writing as well as a working knowledge of heritage and preservation laws and procedures...

Beyond field school, a few small teaching ideas could address the above noted gaps in the classroom:

- **Incorporate field-based methods into introductory or other lower and upper division archaeology classes.** Introducing field techniques into a class assignment can be done in a variety of ways. The lead author borrowed a Sidewalk Archaeology assignment from a colleague then adapted the original assignment to incorporate aspects of actual survey work into her Introduction to Archaeology classes. The assignment uses a scaffold structure that first models how survey work is done in class before allowing students to practice survey in groups. During class we discuss the applicable laws and permitting requirements to deter students from independently collecting or conducting excavations. Students are required to complete the appropriate SHPO forms for their survey area. They use the instructions provided by the SHPO and have a class session to address questions. Students record the data, draw sketch maps, take photographs, then write an interpretation of their survey area. Pedagogically, this project has many advantages. First, this semester long assignment gives students the opportunity to engage in higher level cognitive processes, understand the nature of archaeological inference, recognize the limitations in archaeological data, and foster stewardship of archaeological sites. Second, this project addresses some of the training gaps by introducing students to heritage law, SHPO forms, and writing interpretations of their work in a mini-report. Rebecca Dean (2019) describes her experience incorporating field excavations in her introduction to archaeology class in her article *Incorporating Field Excavation in Introduction to Archaeology*. These types of assignments can have a big impact on student learning while at the same time addressing some of the preparation gaps noted above. Each could be adapted or scaled to fit more readily into existing courses.

- **Have students interact with SHPO forms as a class assignment.** A scaled down way to address a couple of gaps could be to choose one known public site and have students complete SHPO forms for it. In completing those forms, students will be exposed to geographic coordinate systems, required to complete archival research, and make eligibility recommendations for the site, thus addressing a variety of skill gaps noted in our survey. This type of assignment is also easily adaptable and could fit into a variety of classes from introductory to laboratory or methods-based to upper division or geographically regional classes. Having students complete these forms as part of their field school experience also reinforces their learning.
- **Have students interact with cultural heritage laws and ethics in role-play activities.** Survey comments like this one, suggest that students generally lack this basic knowledge and skill set: “Recent graduates should know what Section 106 of the NHPA is and how federal laws interact to form the CRM industry. Many have never even heard of Section 106 when they hire on, and the laws are something that would be easy to teach in a university course.” This comment hits on a valid critique of most undergraduate and graduate curriculum and touches on opportunities for small teaching techniques or even curriculum reform. Teaching cultural heritage law and ethics could also be incorporated into multiple course levels. The lead author incorporates a scenario-based activity using ethics bowl type questions into a class assignment that asks students to apply the applicable heritage laws and industry ethics to “real-world” scenarios. I typically use the *Register of Professional Archaeologists and Society for American Archaeology Code of Ethics* and national level heritage laws for this assignment. Educators could create an assignment for an upper division course or field school that requires students to assess the cultural property and offer management recommendations beyond “do not disturb.” Another option involves using role-playing activities in class to examine the applicable heritage laws and ethics in relation to a planned development project such as the Stadium Showdown activity available on the SAA educational resources website (https://documents.saa.org/container/docs/default-source/doc-teachingarchaeology/stadium_showdown.pdf?sfvrsn=60a9d9da_6)
- **Incorporate laboratory analysis into class assignments.** Having undergraduate students analyze materials from the field as part of upper division or laboratory-based undergraduate classes provides another way to integrate CRM preparation in the curriculum. It can also be scaffolded to involve data analysis after students have completed a discrete collection (such as a unit, feature, or artifact class). These data and analysis, if done well, can then be used in reporting documents thus easing the burden associated with reporting for the faculty member while giving students valuable additional laboratory experience and skills.

- **Focus academic counseling advice for archaeology track students.** Faculty can advise their students on ways to fill some of the skills gaps. For instance, faculty could suggest that students seek out additional survey experience through internships. They could advise students to take a technical writing course offered through the campus curriculum. Departments could maintain a reading list (including articles, books, and websites) or small lending library for students to learn more about cultural heritage law and practice, even if they are not incorporated into the curriculum.

Medium Ideas

While small teaching techniques can address many of the gaps, some curricular additions or changes could prove beneficial to both students and faculty. Based on survey feedback and experiences, the University of Colorado, Colorado Springs Anthropology Department is actively re-vamping our curriculum by adding courses or revising existing courses. We offer suggestions based on our experiences and recommendations from colleagues.

First, departments could add courses to their existing curriculum that address some of the gaps noted. Our department introduced two such courses in our curriculum, Public Archaeology and Advanced Laboratory Methods. As seen in the respondent comment above, many undergraduates are not exposed to heritage laws and ethics in their undergraduate curriculum. Beyond simply introducing students to heritage law in small teaching opportunities, many departments have added a course devoted to these laws and ethics. Such a course expands the brief introduction students get in the introductory and beginning laboratory methods courses to offer a more detailed and nuanced education in the subject. At UCCS, the course is taught by an agency archaeologist who covers the Section 106 process and other applicable state and federal laws and methods. His position as an agency archaeologist also allows him to offer an industry perspective. Hiring an industry archaeologist who is comfortable with teaching this type of class is another type of collaboration that helps to share the responsibilities for educating students.

UCCS also recently added an Advanced Laboratory Methods course. This course is offered as a low, restricted enrollment class (capped at five students) in the fall semester following the field school. Students work closely with the field school instructor and/or the CRM partner to process the artifacts, paperwork, and data from the field season. The students who elected to continue in the Advanced Laboratory Methods course, chose one of the sites surveyed or tested and conducted archival research on that site, analyzed the artifacts from that site, and for their final project, wrote a mini report with eligibility recommendations for their chosen site. They experienced the whole process and wrote the final report. The students conduct additional research on field school site(s) with the goal of contributing more broadly to the final field report.

This experience has proven beneficial to both students and faculty. The course gives students additional research and specialized analysis skills, in addition to report writing experience. Faculty have included these students as contributors or co-authors on the report, also giving our undergraduate students a publication credit. These opportunities are rare in undergraduate curriculums but help address the points made in our survey. One survey respondent said, “I would like to punctuate the point that archaeology undergraduate or graduate students need to be able to write well. In the CRM realm, the product you deliver is a well-researched and well written technical report.” The course allows students research and writing experience and also helps our faculty work through the multitude of material generated during field school and addresses the problem of meeting reporting deadlines. Different faculty at our institution have now taught this series of courses (field school and advanced lab methods) multiple times and it has proven beneficial.

Second, departments could partner with CRM firms to offer internships to students who have already taken field and laboratory classes. Our survey indicates that there is overwhelming support in the industry for this type of collaboration as evidenced in Figure 6. Of the CRM and agency respondents, 94% indicated their company would consider offering internships to students who completed basic lab and field requirements. Internships offer an excellent opportunity for academics and industry professionals to collaborate in training students. As Schuldenrein and Altschul (2000:59) point out, many other professions require long-term experience-based training in the form of apprenticeships or residencies. These are important for students to not only gain skills not taught during their academic career, but also gain practical experience and establish networks and contacts in the professional world. While the benefits of internships are many, they require work and commitment from both academic faculty as well as professionals. This includes negotiations to establish learning goals and outcomes for the student. We use an intern contract negotiated and signed by all parties (student, faculty sponsor, and company supervisor), which outlines the goals and expectations for the student. Interns also need additional supervision and training on the job as they are still learning. This can sometimes slow down the work process and progress. Despite the extra commitments or obligations placed on both the faculty and company, in the end everyone benefits. The medium ideas require additional work from both faculty and industry professionals, but small investments could yield big rewards.

Big Ideas

Our most ambitious proposal involves developing a whole new program that focuses on training students for CRM. Very few examples of this type of undergraduate program exist. For departments interested in larger curriculum reform, we suggest two options.

Option one will serve students who plan to enter the CRM field from the start. The University of Central Florida (UCF) recently restructured their undergraduate

B.A. program to offer two track options (UCF 2018). The first “General Track” reflects a typical anthropology undergraduate degree. The second track is called the “Anthropological Methods and Practice Track.” This track is designed to focus on preparing undergraduate students to pursue professional positions in archaeological, ethnographic, and biological anthropological fields upon graduation. Students in this track are required to take core courses in applied, field, and laboratory methods courses. Examples of the courses that would prepare student for CRM work include GIS Methods in Anthropology, Lithic Analysis: The Archaeology of Stone Tools, Paleoethnobotany, and Ethnographic Field Methods, among others.

California State Polytechnic University (Cal Poly) Pomona also offers an Anthropology B.S. with an Applied Anthropology or Archaeology subplan, which incorporates CRM. Their website explains their goals in the following quote:

The CRM Option provides its graduates with the training and experience necessary to (1) conduct analysis of sociocultural, ethnohistoric, and archaeological data to assist the public and private sectors in implementing environmental protection and historic preservation legislation; (2) assess the scientific importance of ethnohistoric and archaeological resources; (3) be familiar with existing cultural resource data-keeping facilities; and (4) be competent in appropriate anthropological techniques of field and laboratory analysis, as well as procedures employed in archival and museum collections preparation. Training in anthropology provides a unique understanding of human beings and human issues that is highly appropriate for many different kinds of careers, (Cal Poly Pomona 2020).

Courses in this program include one on Cultural Resource Management, California Archaeology or North American Archaeology, and Field Archaeology (Cal Poly Pomona 2019, 2020).

These tracks or subplans offer some options for undergraduate students who are interested in pursuing CRM/HRM work. Other universities and colleges offer applied approaches, which could also incorporate courses that would address the gaps identified in our survey.

At UCCS, two anthropology faculty members, including Larkin, recently developed an interdisciplinary degree program in archaeology, museum studies, and heritage management. From 2017 through spring 2019, we worked with administration and faculty in the Bachelor of Innovation program to propose a Bachelor of Innovation (BI) for Anthropology in Museum Practice and Heritage Management (MPHM). The Bachelor of Innovation is a trademarked family of interdisciplinary degree programs that reach across colleges. Students are exposed to business, engineering, and

project managements skills that they can apply to their chosen major. The degree program is designed to address gaps in training for undergraduate students as well as combine anthropology and museum studies. The need for this type of a program was identified both through discussions with students in the anthropology department, as well as during the survey discussed here. The curriculum pairs traditional anthropology method and theory with technical writing, heritage laws, business skills, and project management classes through client-based projects. The program is an addition to our traditional degree program and incorporated curriculum from that program. The department firmly believes that students benefit from having both the traditional degree curriculum as well as this additional BI. The program we designed is unique in undergraduate training in the United States, although some graduate programs deliver this type of educational experience.

Final Ideas and Thoughts

One way to expand opportunities for students to acquire the skills they need to succeed in CRM may not rest in curriculum reform but through alternative means. Collaborations between the academy and industry offers students exposure to many of these skills, and we (Larkin and Slaughter) have seen the benefits of synergistic collaboration. Using a History Colorado, State Historical Fund grant we partnered to offer a field school that conducted compliance-based work on campus providing some of these missing skills. During the field school, students completed SHPO forms, learned applicable State and Federal laws, learned about the permit process, made eligibility determinations for State and Federal level registers, and completed records searches for the survey and testing area. These tasks complimented our traditional field school curriculum. Beyond allowing students to participate in compliance-based archaeology, the partnership also provided exposure to a CRM professional who could address questions related to the industry. The nature of our collaboration has allowed us to address some of the problems identified above and implement some solutions.

Collaborations and internships are effective ways to help fill the training gap as well as share the responsibilities and burdens of education for the workforce. One CRM respondent explained, "I've done it [collaborations] before. It is win-win. Experience in CRM (or agency) context for students, and better infrastructure/support of completion of project. CRM gets better trained graduates, and interesting collaborations with the academics (and vice-versa)." Our survey suggests this respondent is not unusual, and all parties appear to perceive academic/CRM collaborations as a win-win for all involved. Another survey respondent explained, "I think that internships and even volunteer experiences are some of the best ways for new folks to understand the big picture of what CRM involves. In other words, a real job in archaeology is a lot more than just 'doing archaeology'; it involves dealing with co-workers, clients, agency personnel, rules and regulations, etc." Along with sharing the work of training future

archaeologists, internships create additional areas for collaboration, networking, and mentorship. UCCS regularly successfully collaborates with the City of Colorado Springs, one of only two cities in Colorado who staff an archaeologist. The current archaeologist is an alumnus of our program and has worked with faculty on field schools, taught a field school, offered post fieldwork analysis internships, and included students and interns in public outreach through the city museum. These internships offer an economical workforce for the campus compliance work, while providing students with real-world compliance experience in a professional setting.

Our survey did not address some other important aspects of CRM and academic archaeology. Other skills not included in the original survey, like working with descendant and Native American communities, planning budgets, working with relevant heritage management laws, and project management, are also all important for the industry but are rarely taught in an undergraduate anthropology curriculum. This sobering fact leaves a few options. Students can find alternative ways to acquire the skills through internships, volunteer work, or on the job training. Or universities can address the gaps through curriculum revisions or reform, for example many universities are beginning to incorporate working with descendant communities (see for example Silliman 2008). Even small additions to the curriculum could make a big difference. While academic institutions cannot address all the gaps noted, clearly collaborations with CRM professionals could benefit all parties.

Conclusion

We hope that this survey and discussion can encourage more dialogue around developing and delivering an applied archaeological curriculum to undergraduate students. Based on our survey results, observations, and suggestions from colleagues, we have a few ideas for moving forward to revise and expand our survey and spark a broader discussion around this topic.

Our first goal is revising the survey instrument to address the previously noted inconsistencies and focus on student preparation more inclusively. We will clarify the questions regarding undergraduate curricula and tighten the questions that mirror academic and industry respondents. We will expand our list of skills and offer more opportunities for open-ended responses. Our original survey uncovered collaboration between CRM and academics but did not query the nature of that collaboration. The next step is examining how CRM and academics are currently collaborating.

Differentiating training at the undergraduate and graduate level is important for a few reasons. First, programs designed to deliver an education suitable for cultural resource management work are generally available as terminal master's degrees (Baxter 2009:29). As a result, most of the conversation around training students to enter this field is directed toward Masters-level degree programs. However, this is "in

no way proportionate to the number of archaeologists who will eventually be employed in some form of CRM,” (Baxter 2009:29) nor does it address the gaps in training at the foundational undergraduate levels. As Baxter (2009:29) further notes “[p]erhaps because discussions of appropriate training are kept to the domain of graduate work, field schools are never mentioned in the text of *Teaching Archaeology in the Twenty-first Century*, or in subsequent literature on the subject.” Neither does the literature focus on undergraduate curriculum in preparation for the workforce. Because students graduating with a field school and bachelor’s-level degree often get their first job in cultural resource management prior to pursuing graduate work, they should receive some training to prepare them during their bachelor-level education. Most entry-level jobs in archaeology are at the level of field technician, which generally require only a BA in Anthropology and a field school, yet neither undergraduate curricula nor field schools themselves adequately prepare these workers, as our survey indicates. Second, the job opportunities are different depending on whether the graduate has a bachelor’s or master’s degree. Therefore, programs should be adjusting their curricula and opportunities to match these different needs. We acknowledge that undergraduate training should not solely focus on workforce training, students need a well-rounded, four-field anthropological education to be successful. Even so, the skills our survey identifies as gaps would enhance any undergraduate education regardless of whether students continue in the discipline or move on to other careers.

In future studies, we plan expand the poll to recent graduates in addition to practitioners in academia and the industry and outside of Colorado. Distribution through state historic preservation offices in each state could allow for an analysis by state and region. Reaching academics through this distribution method may prove difficult, as it did for us. A partnership between the Society for American Archaeology (SAA), the Society for Historical Archaeology (SHA), the American Cultural Resources Association (ACRA), and the Register for American Archaeologists (RPA) would facilitate distribution to academics and CRM professionals. There are no perfect solutions for reaching professionals in both CRM/HRM and academia. The difficulty in identifying good distribution methods further highlights the divide between academia and CRM/HRM professions.

By publishing these results, we hope to facilitate more conversation between academics and industry professionals around this topic. During the 2019 Society for American Archaeology Annual Meetings in Albuquerque, Sarah Barber and Karin Larkin hosted a forum titled “Looking To the Future of Training Archaeologists: Aligning Curricula with Workforce Needs.” This forum paired participants from academia and CRM/HRM fields to discuss student preparation for the heritage industry more broadly. We discussed the gaps identified in this survey, expectations of both academics and potential industry employers, and successes and failures in collaboration and communication between academics and the industry. This forum raised many interesting

issues, pointed out productive paths forward, and exposed the gaps in communication and collaboration. More forums such as this could prove beneficial in addressing this issue.

Within the past few years, the American Cultural Resources Association (or ACRA) established a task force on innovating synergistic collaborations between CRM archaeology and the academy. The lead author participated as an academic representative. A task force goal is examining identifying areas for collaboration in education. A sub-group is currently assembling articles that describe academic programs that address the gaps. The goal is to offer suggestions and cautions related to curriculum designed to train archaeologists for compliance work at both undergraduate and graduate levels.

The authors believe that a solid undergraduate training that addresses gaps in student preparation is an essential foundation for student success in future graduate work and/or employment. Students should learn about compliance work, heritage laws, and ethics as undergraduates, which will require some curriculum reform and an investment in students by the cultural resources management industry and agencies. As professionals, we all need to share the burden and rewards of training future archaeologists.

While only a small, pilot study, these data contextualize and quantify the gaps in training students for careers in archaeology. Addressing these gaps can benefit students, the industry, and the profession as a whole. We do not pretend to have all the answers, but instead hope to start a broader conversation about better training for students. We also believe that the responsibility must be shared between academics, industry, and agency professionals. Our hope is that this article sparks conversation and collaboration between these groups on how we can all work together to train the next generation of archaeologists.

Notes

- 1 While these fields and terms are overlapping, they are not synonymous. Here we will use the term CRM or Cultural Resource Management to encompass both cultural resource management and heritage resource options that archaeological undergraduates may move into upon graduation. While these terms have varying connotations to practitioners in the field, they both commonly “refer primarily to professional archaeological research and resource management, typically done under contract to proponents of community or economic development initiative or by government staff,” (Welch et al. 2018:1). Heritage Resource Management expands the definition of Cultural Resource Management to also include preserving and managing the tangible AND intangible aspects of heritage, such as landscapes, customs, language, and other aspects not directly tied to material culture or space. HRM refers to work in other related heritage industries, including museums, historical sites, parks, and the like (Knudson 1999; Welch et al. 2018).

References Cited

Anderson, David G.

- 2000 Archaeologists as Anthropologists: The Question of Training. In *Teaching Archaeology in the Twenty-first Century*, edited by Susan Bender and George Smith, pp. 141-146. Society for American Archaeology, Washington DC.

Baxter, Jane Eva

- 2009 *Archaeological Field Schools: A Guide for Teaching in the Field*. Routledge, New York.

Bender, Susan, and George Smith (eds.)

- 2000 *Teaching Archaeology in the Twenty-first Century*. Society for American Archaeology, Washington DC.

Bernbeck, Reinhard, and Susan Pollock

- 2004 The Political Economy of Archaeological Practice and the Production of Heritage in the Middle East. In *A Companion to Social Archaeology*, edited by Lynn Meskell and Robert W. Preucel, pp. 335-352. Blackwell, Malden, MA.

Blanton, Dennis

- 2000 Cultural Resource Management at the College of William and Mary. In *Teaching Archaeology in the Twenty-first Century*, edited by Susan Bender and George Smith, pp. 99-104. Society for American Archaeology, Washington DC.

Boytner, Ran

- 2014 Do Good, Do Research: The Impact of Archaeological Field Schools on Local Economies. *Public Archaeology* 13(1-3):262-277.

Burke, Heather, and Claire Smith

- 2006 *Archaeology to Delight and Instruct: Active Learning in the University Classroom*. Left Coast Press Inc., Walnut Creek.

Cal Poly Pomona

- 2019 2019-2020 University Catalog [archived]. Retrieved from https://catalog.cpp.edu/preview_program.php?catoid=51&poid=13459&returnto=3845 accessed 10/20/2020.
- 2020 Anthropology department website <https://www.cpp.edu/class/geography-anthropology/degree-programs/anthropology.shtml> accessed 10/20/2020.

Colley, Sarah

- 2003 Lessons for the Profession: Teaching Archaeological Practical Work Skills to University Students. *Australian Archaeology* 57(1):90-97.
- 2004 University-based Archaeology Teaching and Learning and Professionalism in Australia. *World Archaeology* 36(2):189-202.

Colorado Historical Society

- 1973 *Historical, Prehistorical, and Archaeological Resources*. History Colorado State Historical Preservation Office, Denver, CO.

Dean, Rebecca M.

- 2019 Incorporating Field Excavations in Introduction to Archaeology. *Journal of Archaeology and Education* 3(1):1-18. <https://digitalcommons.library.umaine.edu/jae/vol3/iss1/1/>

Driver, Jon, Ted, Goebel, Lynne Goldstein, P. Nick Kardulias, Fred Limp, Heather Richards-Rissetto, LuAnn Wandsnider, and Daniel Sandweiss

- 2018 *Report of the SAA Task Force on Guidelines for Promotion and Tenure for Archaeologists in Diverse Academic Roles*. Society for American Archaeology, Washington DC.

Gifford, Carol A., and Elizabeth A. Morris

- 1985 Digging for Credit: Early Archaeological Field Schools in the American Southwest. *American Antiquity* 50(2):395-411.

Haury, Emil

- 1989 *Point of Pines, Arizona: A History of the University of Arizona Archaeological Field School*, 50th ed. University of Arizona Press, Tucson.

Hester, J. J.

- 1963 A Training Program for Salvage Archaeology. *American Antiquity* 28(3):392-394.

Jameson, J. H., and J. Eogan

- 2013 *Training and Practice for Modern Day Archaeologists*. Springer, New York.

Knudson, Ruthann

- 1999 Cultural Resource Management in Context. *Archives and Museum Informatics* 13(3):359-381.

Kohl, Philip L.

- 2004 Making the Past Profitable in an Age of Globalization and National Ownership: Contradictions and Considerations. In *Marketing Heritage: Archaeology and the Consumption of the Past*, edited by Yorke M. Rowan and Uzi Baram, pp. 295-302. AltaMira Press, Lehman.

Lang, James M.

- 2016 *Small Teaching: Everyday Lessons from the Science of Learning*. Jossey-Bass/Wiley, San Francisco.

Lipe, William

- 2000 Archaeological Education and Renewing American Archaeology. In *Teaching Archaeology in the Twenty-first Century*, edited by Susan Bender and George Smith, pp. 17-20. Society for American Archaeology, Washington DC.

Lovata, Troy R.

- 2007 Learning a Practice Versus Learning to be a Practitioner: Teaching Archaeology in an Honors Context. *Honors in Practice—Online Archive*. Retrieved from <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1051&context=nchchip>

McGimsey III, Charles R.

- 2003 The Four Fields of Archaeology. *American Antiquity* 68(4):611-618.

Miller, James. J.

- 2000 The government sector: Reforming the archaeology curriculum to respond to new contexts of employment. In *Teaching Archaeology in the Twenty-first Century*, edited by Susan Bender and George Smith, pp. 69-72. Society for American Archaeology, Washington DC.

Mytum, Harold (ed.)

- 2011 *Archaeological Field Schools: Constructing Knowledge and Experience*. Springer, New York.

Perry, Jennifer E.

- 2004 Authentic Learning in Field Schools: Preparing Future Members of the Archaeological Community. *World Archaeology* 36(2):236-260.
2006 From Students to Professionals: Archaeological Field Schools. *SAA Archaeological Record* 6(1):25-29.

Register of Professional Archaeologists (RPA)

2015 Register of Professional Archaeologists: Guidelines and Standards for Archaeological Field Schools.

Schuldenrein, Joseph, and Jeffrey Altschul

2000 Archaeological Education and Private Sector Employment. In *Teaching Archaeology in the Twenty-first Century*, edited by Susan Bender and George Smith, pp. 59-64. Society for American Archaeology, Washington DC.

Silliman, Stephen. W. (ed.)

2008 *Collaboration at the Trowel's Edge: Teaching and Learning in Indigenous Archaeology*. University of Arizona Press, Tucson.

SurveyAnyplace.com <https://surveyanyplace.com/average-survey-response-rate/> accessed 10/13/2020.

University of Central Florida

2018 *University of Central Florida Undergraduate Catalog 2018-2019* [Archived]. Retrieved from https://catalog.ucf.edu/preview_program.php?catoid=3&poid=829&returnto=173 accessed 10/20/2020.

U.S. Bureau of Labor Statistics

2020 *Occupational Outlook Handbook: Life, Physical, and Social Sciences: Anthropologists and Archaeologists*. Retrieved From: <https://www.bls.gov/ooh/life-physical-and-social-science/anthropologists-and-archeologists.htm#:~:text=in%20May%202019.-,Job%20Outlook,of%20positions%20relative%20to%20applicants>. Website updated September 1, 2020; last accessed March 22, 2021.

Walker, Mark, and Dean J. Saitta

2002 Teaching the Craft of Archaeology: Theory, Practice, and the Field School. *International Journal of Historical Archaeology* 6(3):199-207.

Welch, John R., David V. Burley, Jonathan C. Driver, Erin A. Hogg, Kanthi Jayasundera, Michael Klassen, David Maxwell, Janet Pivnick, and Christopher D. Dore

2018 Digital Bridges Across Disciplinary, Practical and Pedagogical Divides: An Online Professional Master's Program in Heritage Resource Management. *Journal of Archaeology and Education* 2(2). <https://digitalcommons.library.umaine.edu/jae/vol2/iss2/1/>

Welch, John R., and Michael Corbishley

2020 Grand Challenge No. 4: CURRICULUM DESIGN – Curriculum Matters: Case Studies from Canada and the UK. *Journal of Archaeology and Education* 4(3). <https://digitalcommons.library.umaine.edu/jae/vol4/iss3/5/>

White, Nancy M.

2000 Teaching Public Archaeology at the University of South Florida. In *Teaching Archaeology in the Twenty-first Century*, edited by Susan Bender and George Smith, pp. 111-116. Society for American Archaeology, Washington DC.

Whitley, Thomas

2004 CRM Training and Academic Archaeology: A Personal Perspective. *SAA Archaeological Record* 4(2):20-25.

Wooley Vawser, Anne

2004 Teaching Archaeology and Cultural Resource Management. *SAA Archaeological Record* 4(2):18-18.

Zeder, Melinda

1997 *The American Archaeologist: A Profile*. AltaMira Press, Walnut Creek.