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Instructional Resources to Assess Applied Projects as a Culminating Graduate Communication Student Experience

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Abstract: This study reviews the traditional culminating graduate student experiences, theses, and comprehensive exams, as well as a newer, more professionally relevant option, applied research projects. We conceptualize applied projects as student-led, client-connected, hands-on, experiential projects that address a real-world communication problem or topic through the creation of relevant deliverables. We used Glassick et al.'s (1997) scholarship assessed model and the National Communication Association's communication learning outcomes to determine perceived differences between culminating experiences. Survey results ($N = 32$) of recent alumni and current master's level Communication students demonstrate near-equal ratings of applied projects and theses in their ability to both meet scholarship assessment criteria and communication learning outcomes. Comprehensive exams are rated comparatively worse. Based on these criteria and others gained from implementing applied projects as an option for students, we offer a rubric for assessing master's level applied research projects.

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Introduction

In what has become a memoir for missed opportunities, Cassuto (2015), author of *The Graduate School Mess*, laments the state of graduate education. For Cassuto (2015), the "graduate school mess," as he calls it, is hamstrung by an assumption that we (academicians) are responsible for preparing graduate students to be future professors. This outdated notion is worrisome for numerous reasons but chief among them is the realization that we may be preparing graduate students for a future that either does not exist or that they do not want. As a result, preparation for professorial positions that center on scholarly research may just be an obsolete core focus of graduate education. But, if the academy is not preparing most graduate students for the professoriate, what then?

The central challenge of graduate school has been communicated for some time. Even in 1944, Edwards and Jessup declared the system effectively broken. In the decades since, employers continue to communicate a disconnect between their expectations and the skill set of graduates (Supiano, 2018). The supposed preparation gap that exists for college graduates entering the full-time workforce is not limited to undergraduate students. In some ways, the issues are magnified for doctorate students who, after deciding not to pursue a career in academia enter a world full of industry-friendly candidates (Nerad, 2004), but master's students also face similar struggles. Master's students deal with an already/not yet dilemma and training in their respective programs may veer more toward doctoral preparation rather than preparation for a specific industry (Austin, 2002).

Graduate students, at both the master's and doctoral level, tend to have a traditional path: coursework followed by a culminating research paper and/or comprehensive exams. However, the traditional research paper, while helpful for those entering the academy full-time, may not be as applicable for graduate students who want to use their skills in a professional or industry context, especially depending on how the program or department approaches the thesis. Ironically, in the United States, approximately 13% of the population attains a master's degree, and just one quarter of them go on to complete a PhD (U.S. Census Bureau, 2019).

The most recently available data on where recent PhDs are employed reveal a first: Private sector appointments now account for 42% of employers, while educational institution appointments account for 43% of employers for recent PhD graduates. A 43% placement rate of PhDs in academic positions is at its lowest in recent years, although much discrepancy across disciplines exists (Langin, 2019). There is hope, however, as there is a renewed call for alternative-academic (alt-academic) jobs which in turn has led graduate faculty to consider how to support all students regardless of differing career aspirations (Rogers, 2020). To keep pace with employment trends and prepare students who will not engage in traditional academic scholarship after graduation, and to prepare students for a variety of career possibilities, a more relevant model is needed.

It may be helpful, as a first step, to examine and acknowledge that a change has taken place. For Cassuto (2015), the misappropriated central assumption, that we are responsible to prepare future professors in graduate school, can be countered by two student-centered revisions to the graduate student experience: (1) that graduate programs need to revise curricula to effectively prepare students for employment beyond solely academia and (2) that students need to receive this preparation in a reasonable time frame.

Various developments have reinvigorated the industry preparation conversation, especially at the graduate level. For instance, many graduate programs have established connections with career services,

credentials or micro-credentials are part of curricula revisions, and internships, at some universities, are offered to master's students for credit, as part of their graduate degree. These improvements should not be taken lightly. However, further discussion must occur surrounding culminating experiences at the graduate level.

We recognize that simultaneously training students for industry and the academy can be difficult. It is important to remember that our job as communication educators is to "design, execute, and interpret scholarly research on communication in a way that will transform" and this means students should come at communication topics as "scholars" (Thorson, 2005, p. 21). This point is important to remember. We cannot prepare every individual for a specific position, but our efforts in graduate programs especially should combine practice and theory/research.

As mentioned above, graduate school systemic challenges are substantial and developing career-ready master's graduates is a multifaceted process. For our purposes, we are suggesting an assignment pathway that complements traditional culminating experiences (i.e., thesis and comprehensive exams). The path suggested here, a culminating applied project, uses a traditional high-impact practice framework and revitalizes an applied definition of scholarship to help prepare students for a range of career opportunities. To frame the remainder of our argument, we conceptualize an applied project as a student-led, client-connected, hands-on, experiential project that addresses a real-world communication problem or topic through the creation of relevant deliverables. While theses and comprehensive exams may be employed for more applied goals, depending on the student and the program, there are typically qualities inherent to exams and theses that make them more rigid than the applied projects concepts, as implemented at our university. For instance, a thesis must be a five-chapter academic product, despite any additional creativity or additional content. Final deliverables for applied projects can vary more, as client needs drive the final products. Examples from our own department include: A training video on suicide awareness, now mandated viewing for new firefighters in the county, and a rebranding of our university sexual assault support department.

We use our data to create program-specific instructional resources that we believe may be applicable and usable for other institutions. Our rubric (Appendix A) incorporates categorizations from the National Communication Association communication learning outcomes as well as ideas from Glassick et al. (1997) regarding assessment of applied scholarship. Based on previous research, our standardized applied project rubric focuses on clarity of communication goals; the application of communication theory; messaging; methodology; influence and identification; the accomplishment of communication goals; ethical communication; deliverables that add to the field; and reflective critique. In addition, we have developed learning objectives (Appendix B) instructors can apply to applied projects at the graduate level. We suggest that communication programs can use these specific learning objectives to refine their systemic approach to programmatic assessment. First, however, we provide a rationale for applied projects as a high-impact practice that can achieve authentic assessment of graduate communication students.

Framing a New Expectation

High-impact practices, as a framework commonly used in undergraduate degree programs, may be a worthwhile companion for graduate programs. High-impact practices have rapidly become institutional imperatives for higher education course and program assessment. Even more so, as Kuh (2008) argues, high-impact practices, known as HIPs, can increase student engagement and student retention and, with

appropriate planning, student learning. Unfortunately, HIPs have long been a staple of undergraduate education whereas graduate education, and the subsequent assessment of graduate students and programs, has a more rigid, traditionally academic structure or pathway. High-impact practices have shown to be extremely effective. Kuh believes the effectiveness occurs because of six reasons: the considerable time and effort devoted to the task; the necessity of interacting with faculty and peers about substantive matters over an extended period; the likelihood that students will experience diversity through contact with others; frequent feedback; the contextualized nature of the activities; and the life-changing or transformational element.

High-impact practices should not be limited to undergraduate students. What is transformative during one's associate's or bachelor's degree can, theoretically, be transformative at the graduate level. Graduate students can benefit from high-impact practices specifically in terms of student engagement (Diggs, 2021) and retention (Sobeck et al., 2021). However, to continue to approach high-impact experiences at the graduate level additional dialogue is required, specifically one that encourages assessing transformative experiences and scholarship and further argues for the integration of applied projects at the graduate level.

Applied Projects as Culminating Graduate Student Experiences

Culminating experiences often take the form of a capstone project or class. At the undergraduate level, these culminating experiences happen, traditionally, during the student's senior year (Martin & Strawser, 2019). A capstone culminating experience requires students to apply what they have learned throughout the totality of their academic program. As such, a capstone may take the form of a research paper, a performance, portfolio or e-portfolio, or an exhibit of creative work (Thomas et al., 2014). These culminating capstone experiences showcase a holistic deliverable that brings together the student's training across their program and is not siloed to learning objectives represented in one course. A culminating capstone experience may be the most applicable model graduate education can use to effectively assess students beyond the traditional research paper.

Capstone culminating experiences, at the undergraduate level, are unique learning experiences. For one, capstones allow for holistic assessment where students demonstrate achievement of course or even program-level outcomes (Krause et al., 2014). Cullen (2016) sees a capstone as a final stage of a student's education that offers closure and focus and should improve the employability of the student. For some programs, the capstone is dual-purpose, where students can demonstrate, or build, a direct workforce competency that suits their own need and needs of the employer (Thomas et al., 2014).

The capstone experience is not one-size-fits-all as there are several different models. Lee (2015) identifies six different interdisciplinary capstone models: externally oriented projects, academic inquiry projects, practice-oriented simulations, practice-based consultancies, task-oriented simulation, and professional placements. In terms of output, Cullen (2016) emphasizes varying outcomes that students should exemplify as part of their capstone experience, chief among them disciplinary and professional skills. And, more specifically, "transition to professional practice, integration and extension of prior learning, authentic and contextualized experiences, student ownership and independence, and continued development of critical inquiry and creativity" (Cullen, 2016, p. 368). In communication, capstone experiences can function as a synthesizing and integrative course. But, no matter how they manifest, demonstration of key concepts and skills as well as the development of integrated projects and an integration of the communication discipline are crucial (Rosenberry & Vicker, 2006).

Students' satisfaction with their culminating experiences may be affected by multiple variables. As previously mentioned, it is important to offer graduate students an option that will allow for a better transition to a role outside of academia. At the undergraduate level, a variety of disciplines offer capstones that take a hands-on approach to preparing students for professional work settings. For example, Joo et al. (2019) discussed the rise of student satisfaction when engineering students were given projects that mirror potential work in their field. Similarly, hotel and tourism management undergraduates experienced greater levels of satisfaction when simulations were used as a learning tool in their capstone course (Pratt & Hahn, 2015). Therefore, if a graduate student intends on seeking or continuing a professional role outside of higher education, perhaps they would be more satisfied completing a project that prepares them for their specific goals such as an applied project. Alternatively, a student seeking to pursue a career in higher education may find a thesis more relevant.

In addition to seeking an educational experience that is relevant, other factors may influence a student's satisfaction with the culminating experience that they choose. Padilla (2016) found that the support system of a student completing a culminating experience played a significant role in the successful completion of participants' capstones. Padilla's conceptualization of how work factored into a student's support system focused on work flexibility; however, colleagues and mentors could offer more direct support if completing an applied project related to a student's current employment. Also, Padilla's respondents noted a concern with another group part of their support system, faculty availability. While beyond the scope of this discussion, resources like the one developed here may help faculty—who are overtaxed and overworked—guide a student through the applied project process while providing a baseline for assessment. We recognize that training faculty to work with students in a truly applied setting may need additional discussion but for purposes here it is important to note that applied experiences are helpful tools to use to help students achieve varying career goals and, as such, cannot be ignored.

Assessing Student Learning Through Culminating Projects

Student knowledge is evaluated differently when comparing comprehensive exams and theses. Completing a thesis will measure students' ability to recall what they previously learned to complete independent research (Ashwin et al., 2016). Thesis completion measures a student's ability to successfully argue their research, as well as respond to questions in defense of their study (Mauch & Park, 2003). A thesis can evaluate student knowledge by measuring how well a student argues their point, using information learned through coursework, to further existing literature.

Comprehensive exams help measure knowledge retention from students and ensure that students are up to par with understanding graduate coursework in their discipline. Comprehensive exams also help departments by using the competence (or lack thereof) from students and their results on the exam to find areas of improvement for the curriculum within the discipline (Lindquist et al., 2011). Though comprehensive exams have long been used to measure student knowledge after completion of coursework, the effectiveness of comprehensive exams to accurately measure student knowledge and abilities is often challenged as students possess vastly different learning and problem-solving strategies (Morris, 1982).

Our program incorporates an applied project model and students can select an applied project option instead of a thesis or comprehensive exam option. How effective a culminating experience is for a student depends on the student's goals. When researching online courses, Barbera et al. (2013) found that the learning content of a course positively correlated with the perceived ability to apply the knowledge

gained to new contexts. As noted previously, theses tend to be most helpful for students hoping to pursue a doctoral degree. Students seeking employment outside of higher education can gain transferable skills by completing an applied project that more closely aligns with their career goals. For students who choose the comprehensive exam route, the applicability of the experience to their career goals may be less direct as the final product does not result in a portfolio-building deliverable in the way that a thesis or an applied project would. In addition to transferability, Barbera et al. noted that the learning content positively correlated with participants' satisfaction with online learning experiences. Therefore, students might be more satisfied with their culminating experience if they choose the option that is most practical for their professional development.

Because of varying differences, for our purposes we do not fully position a capstone alone as a functional culminating project. However, there are issues with assuming an applied project is directly akin to a capstone culminating experience. For one, as Wien (2010) points out, in some capstone courses, an applied project may just be one assignment and not the overall focus of the class. Thorson (2005) also describes applied projects as an experience where students spend "three-quarters of their capstone semester producing professional products like news photo documentaries, investigate news analyses, best books on topics like crime or education, and the like" (p. 17). She goes on to say that the "quarter-time research component was ratcheted up to a respectable small piece of quality research" (Thorson, 2005, p. 17). Potentially this is a semantic matter, but if an applied project is an assumed "part of" the capstone course at the undergraduate level, how should we expect graduate students to take an applied project seriously as *the* culminating effort?

In addition, capstone courses tend to be summative experiences. Scholars have wondered, though, whether capstone events should be more forward-looking and function as a bridge between the degree and the world after college (Heinemann, 1997; Rosenberry & Vicker, 2006). Applied projects help establish clear dialogue between colleges and companies, something desperately needed today (The Chronicle of Higher Education, 2019). In this manner, an applied project can become a potential pivotal core feature of graduate education. Applied projects, as one graduate culminating experience, can help students develop unique or industry-specific skills without using core curriculum to train students for just one company (The Chronicle of Higher Education, 2019).

The applied project can be a culminating experience, bringing together theory and research from the degree program; however, similar to the thesis, we believe an applied project should also seek to develop a new understanding, new skill, or bring to the forefront new research. Like Rosenberry and Vicker (2006), we believe applied projects should infuse integration, application, and transition. As such, we advocate for a standardized applied project experience, just like most graduate programs do for thesis submissions or comprehensive exams. To do this, assessment measures, best practices, and learning outcomes must be developed. Ultimately, applied projects should present an equitable culminating experience for graduate students in terms of program outcomes and rigor. Ultimately, standardized learning outcomes and expanded definitions of scholarship can frame applied project assessment.

NCA Communication Learning Outcomes

The National Communication Association (NCA, 2015) developed nine learning outcomes for students in communication courses, formally known as the organization's Learning Outcomes in Communication (LOC). The outcomes took the discipline's core values, potential career paths for

students, and feedback from those within the discipline into account when they were being outlined by faculty leaders within the organization. Essentially, the goal of the LOCs set forth by the NCA is to articulate what students in communication programs should know, understand, and do upon completion of the degree. The nine LOCs are as follows: (1) describe the communication discipline and its central questions; (2) employ communication theories, perspectives, principles, and concepts; (3) engage in communication inquiry; (4) create messages appropriate to the audience, purpose, and context; (5) critically analyze messages; (6) demonstrate the ability to accomplish communicative goals (self-efficacy); (7) apply ethical communication principles and practices; (8) utilize communication to embrace difference; (9) influence public discourse (The National Communication Association, 2015). This list details goals at length and can prepare students for success for employment in the workforce or a career in academia after completion of a communication program. These nine outcomes can be used as a guideline for scholars when engaging in dialogue on how to improve student learning for those enrolled in communication programs. Importantly, these learning outcomes can also be implemented in the use of applied projects for graduate students as a culminating experience. Because these LOCs are adaptable, student-centered, specific to the communication discipline, and encourage student-to-faculty collaboration, they can serve as an efficient guideline to assess applied projects.

Assessing a New Expectation

We recognize that, because of their variance, it may be difficult to assess applied projects (Scott & Van der Merwe, 2003). However, Glassick et al. (1997) provide a simultaneously appropriate framework to evaluate culminating applied projects. In their work, *Scholarship Assessed*, Glassick et al. propose a model that evaluates the new standards and ever-evolving role of the professoriate. Yet, their work provides insight into assessing student scholarly work that transcends the traditional research paper. The six dimensions and clarifying questions for assessing scholarship proposed by Glassick et al. (1997) include:

1. Clarity of goals
   A. Does the scholar state the basic premise of the scholarly work?
   B. Does the scholar define objectives that are realistic and achievable?
   C. Does the scholar identify important questions in the field?
2. Adequacy of preparation
   A. Does the scholar show an understanding of existing scholarship in the field?
   B. Does the scholar bring the necessary skills to his or her work?
   C. Does the scholar bring together the resources necessary to move the project forward?
3. Appropriateness of methods
   A. Does the scholar use methods appropriate to the goals?
   B. Does the scholar effectively apply the methods selected?
   C. Does the scholar modify procedures in response to changing circumstances?
4. Significant of results
   A. Does the scholar achieve the goals?
   B. Does the scholar's work add consequentially to the field?
   C. Does the scholar's work open additional areas for further exploration?
5. Effectiveness of presentation
   A. Does the scholar use a suitable style and effective organization to present his or her work?
   B. Does the scholar use appropriate forums for communicating work to its intended audiences?
   C. Does the scholar present his or her message with clarity and integrity?

6. Reflective critique
    A. Does the scholar critically evaluate his or her own work?
    B. Does the scholar bring an appropriate breadth of evidence to his or her critique?
    C. Does the scholar use evaluation to improve the quality of future work?

For our purposes, these six dimensions can help graduate faculty and graduate program directors think strategically about requirements for and assessment of applied projects at the graduate level. Glassick et al. (1997) believe these six categories are helpful for assessing discovery, integration, application, and teaching in the academy. However, like the professoriate, we recognize that our students have different goals, outlets, desires, and skills. To create an equitable landscape, how can master's programs create a framework to assess diverse types of scholarly work developed by students in an applied academic context?

The previously described NCA learning outcomes and the six dimensions for assessing scholarship help establish a common language to assess applied scholarly deliverables or culminating projects at the graduate level. Like Glassick et al. (1997), we believe projects should have established goals where the student-scholar is clear about the aims of their work, that deliverables should be adequately and professionally prepared, and that methods should be chosen wisely and applied effectively. We also agree that projects should have significant results or make significant contributions to the field, that student-scholars should present their findings effectively, and that the student-scholar should think deeply about their work while seeking the opinions of others and reflecting on their learning through the process. By developing best practices, learning outcomes, rubrics, and expectations that emphasize the benefits of high-impact practices and encourage a new way to assess scholarship, professors can help create worthwhile culminating experiences even at the graduate level that transcend thesis submissions or comprehensive exams.

Thankfully, the review of deliverables, like applied projects, has experienced a renaissance of sorts as authentic assignments have become more popular at colleges and universities. Authentic assignments generally measure outcomes that are worthwhile, significant, and meaningful. Furthermore, authentic assignments require application of what students have learned to a new situation and demands judgment to determine what information and skills are relevant and how they should be used. Very specifically, authentic assignments replicate real-world performances and involve performance measures with the end goal of developing applicable skills. As a rule of thumb, assignments are authentic when there is a meaningful connection between the grade and project participation (Frey et al., 2012). By approaching applied projects as authentic assignments, we can determine a way forward to assess applied projects in a way that is helpful and effective.

Assessing Applied Projects: A Path Forward

Applied projects that are rigorous, summative, as well as forward-looking may solve some of the issues inherent in graduate school and may provide an authentic culminating experience. Among the solutions, students can build out their portfolio, establish specific "industry" skills while tying these skills to theory, and network with corporate partners. Purposeful applied projects can also help establish

partnerships between institutions and companies and create a shared language or shared understanding (The Chronicle of Higher Education, 2019). Furthermore, applied projects should "develop the research effort and link it to a tremendous applied enterprise" (Thorson, 2005, p. 17).

To develop learning objectives and clear and consistent guidelines, we undertook a survey research project with the goal of using the data to design relevant instructional materials—specifically, learning objectives for applied projects as well as a rubric for assessing master's level applied research projects in communication. Therefore, this project surveys current Communication Master's level students and recent alums who have a context for applied projects at our institution. Because of this limited scope, our number of participants was lower. While there are several relevant stakeholder groups, such as faculty and employers, student perceptions ultimately are what determine actual choices made by students, as well as actual experiences from the student perspective. To develop student-centered assessments, gaining their insight about the value of such assessments is a crucial step. The primary goal of this research project is to define applied project learning objectives based on previously collected and new data and create a rubric for applied research projects.

A primary distinction that must be made then, is *how* applied research projects differ from similar projects. We are primarily interested in how applied projects differ in expected learning objectives and proposed assessment criteria as compared to the traditional master's thesis. In addition, a third, common culminating experience at the graduate level in communication is explored: comprehensive exams. Previously conceptualized as the non-PhD track option for master's students, comprehensive exams cannot be characterized as a high-impact practice, and thus do not offer the established benefits of more engaging, student-centered learning that HIPs can provide. Given the established differences between high-impact and non-high-impact learning experiences, and our interest in discovering differentiating features of an applied project as compared to a traditional master's thesis, we explore three research questions. First, we are interested in student and alumni perspectives on the effectiveness of these high-impact culminating experience (i.e., theses and projects) as well as comprehensive exams in preparing students for their next steps—either in the workforce or in pursuit of a PhD:

> **RQ1:** How are culminating experiences viewed in regard to preparing graduates for the workplace (RQ1a) and for further academic study (RQ1b)?

Second, we are interested in how these same stakeholders view the value of these culminating experiences in meeting basic assessment criteria related to both academic scholarship and specifically competence in the communication discipline. Since comprehensive exams do not rise to the level of academic scholarship, they are excluded from RQ2. Both the value of traditional and newly implemented culminating experiences are explored as adequate venues for demonstrating communication competency.

> **RQ2:** Are applied projects or theses viewed as best for allowing students to demonstrate competence in scholarship, according to Glassick's six scholarship assessment criteria?

> **RQ3:** Which culminating experience option is viewed as best for allowing students to demonstrate competence in NCA's nine Communication Learning Outcomes?

Methods

A survey study of current students and recent alumni with ties to one master's program in Communication at a university in the Southeast United States was undertaken to help answer the research questions posed. All procedures were completed with the approval of the university's Institutional Review Board. The survey took approximately 12 minutes, and was distributed via Qualtrics.

Participants

Participants in the current study ($N = 32$) were current students or recent graduates (within 3 years) of the same Master's program in Communication. Participants were contacted via email to ask to participate by the program's faculty coordinator, which provided a link to the informed consent document and survey. The associated Communication Master's program implemented an applied research project exit option 3 years prior to this data collection, which also served the internal purpose of refining expectations and guidelines for faculty and students. Participants were 75% female, 21.9% male, and 3.1% declined to indicate their sex, with a mean age of 28.11 ($SD = 10.39$). All participants were asked if they were Latino/Hispanic, and 9.4% indicated that they were. Participants were given the option of selecting a number of different races that best represent them: 18.8% of participants identified as Black, 75% identified as White, 3% identified as Asian/Asian American, and 12.5% identified as "Other."

Measures

Workplace and PhD Program Preparation. Single-item, 5-point Likert scale items were used to assess how well individuals view each of the previously identified master's program culminating experience options (applied projects, theses, and comprehensive exams) to prepare graduates for "the workplace," and for "further study in a PhD program."

Dimensions for Scholarship Assessment. All participants were asked to evaluate how important Glassick et al.'s (1997) six dimensions of evaluating scholarship are to assessing applied research projects and when evaluating master's theses. These dimensions include Clarity of Goals, Adequacy of Preparation, Appropriateness of Methods, Significance of Results, Effectiveness of Presentation, and Reflective Critique. Since comprehensive exams are not considered academic scholarship, these questions were not asked about them. Short descriptions accompanied each dimension. These perceived importance ratings are collected on 5-point Likert scales.

Communication Learning Outcomes. Participants were also asked how each of the three master's level culminating experience options can help graduates demonstrate competence in NCA's Communication Learning Outcomes. These learning outcomes include items such as "Employ communication theories, perspectives, principles and concepts," "Critically analyze messages," and "Apply ethical communication principles and practices." These are measured on a 5-point Likert scale, ranging from *Not at all* to *Very much*. All learning outcomes are presented in Table 1. The measures of Dimensions of Scholarship and Communication Learning Outcomes thus provide an indication of how well each culminating experience should demonstrate competency in each of these dimensions.

Table 1. Perceptions about each culminating experience option (projects, theses, exams) demonstrating proficiency in NCA's nine communication learning outcomes.

Communication Learning Outcomes	Applied Project		Thesis		Exams		Project vs. Thesis			Project vs. Exam			Exam and Thesis		
	M	*SD*	*M*	*SD*	*M*	*SD*	***t*(31)**	*p*	**Cohen's *d***	***t*(31)**	*p*	**Cohen's *d***	***t*(31)**	*p*	**Cohen's *d***
Describe the discipline and central questions	**3.84**[a]	1.05	4.38	.66	4.00	.88	2.790	.009*	1.077	.624	.537	1.417	1.879	.070	1.129
Employ theories, perspectives, principles, concepts	3.94	.98	**4.72**[a]	.58	4.09	.99	3.498	<.001*	1.126	.624	.537	1.417	3.401	.002*	1.040
Engage in communication inquiry	**4.25**[b]	.72	**4.63**[b]	.61	**3.50**[b]	1.27	2.547	.008*	.833	3.215	.003*	1.320	4.673	<.001*	1.362
Create messages appropriate to audience, purpose, context	**4.69**[b]	.54	**4.03**[b]	.82	**3.00**[b]	1.27	3.962	<.001*	.937	6.599	<.001*	1.447	4.463	<.001*	1.307
Critically analyze messages	4.34	.75	4.47	.72	**3.53**[a]	1.16	.751	.458	.942	3.335	.002*	1.378	4.100	<.001*	1.294
Accomplish communicative goals	4.63	.55	4.44	.71	**3.50**[a]	1.22	1.531	.136	.693	4.844	<.001*	1.314	3.816	<.001*	1.390
Apply ethical communication principles and practices	4.53	.72	4.47	.72	**3.53**[a]	1.32	.466	.645	.759	4.000	<.001	1.414	3.881	<.001*	1.366
Utilize communication to embrace difference	4.34	.87	4.13	.91	**3.16**[a]	1.25	1.422	.165	.870	5.244	<.001*	1.281	4.888	<.001*	1.121
Influence public discourse	**4.19**[b]	.93	**3.75**[b]	.98	**2.69**[b]	1.31	2.709	.011*	.914	6.552	<.001*	1.295	4.739	<.001*	1.268

[a] = significantly differs from both other means; [b] = all significantly differ from one another

Results

The first research question can be answered by examining responses from participants on how well each of the culminating experience options—thesis, applied project, and comprehensive exams—prepare students for both the workplace and for further study in a PhD program. SPSS version 26 was used to analyze all data. Paired-sample *t*-tests revealed that applied research projects ($M = 4.36$, $SD = .73$) were rated better at preparing students for the workplace than both theses ($M = 3.71$, $SD = 1.01$; $t(27) = 3.204$, $p < .01$) and comprehensive exams ($M = 2.69$, $SD = 1.19$; $t(27) = 7.309$, $p < .001$). Theses were also rated as significantly better than comprehensive exams, $t(27) = 3.948$, $p < .001$.

The same analysis was used to test perceptions about preparedness for further academic study. Theses ($M = 4.86$, $SD = .36$) were rated better than both applied research projects ($M = 3.50$, $SD = 1.20$; $t(27) = 5.729$, $p < .001$) and comprehensive exams ($M = 2.68$, $SD = 1.25$; $t(27) = 8.636$). Applied research projects were also rated significantly better than comprehensive exams, $t(27) = 3.191$, $p < .010$. In sum, applied research projects were viewed as the most effective in preparing students for the workplace, followed by theses and then comprehensive exams. Meanwhile, theses were rated the best at preparing students for further academic study, followed by applied research projects and then comprehensive exams.

Research question 2 asked about perceptions of how well applied projects and theses succeed in meeting the dimensions of evaluating scholarship proposed by Glassick et al. (1997). These dimensions include *clarity of goals*, *adequacy of preparation*, *appropriateness of methods*, *significance of results*, *effectiveness of presentation*, and *reflective critique*. There was a significance difference on one dimension, such that applied projects were rated as better at demonstrating *effective presentation* ($M = 4.66$, $SD = .60$) than theses ($M = 4.44$, $SD = .72$, $t(31) = 2.239$, $p = .032$). There were no differences on the other five dimensions of assessing scholarship between applied projects and theses, and the range of scores ranged from 4.39 to 4.78—less than half a point on a 5-point scale. Overall, these results suggest that current MA students and recent alumni see few differences between these two culminating experiences meeting academic scholarship criteria.

The final research question asked how each of the three culminating experience options fared at helping students demonstrate proficiency in NCA's nine Communication Learning Outcomes. Results from multiple pairwise *t*-tests, contrasting projects to theses, projects to comprehensive exams, and theses to comprehensive exams are presented in Table 1.

Overall, applied projects and theses are rated as equally good (and better than comprehensive exams) on four of the nine outcomes, including: *critically analyze messages, accomplish communicative goals, apply ethical communication and principles,* and *utilize communication to embrace difference.* Of the remaining five learning outcomes, applied projects are rated significantly higher on two: *create messages appropriate to audience, purpose, and context*, and *influence public discourse*, while traditional theses are rated higher on three: *describe the discipline and its central questions, employ theories, perspectives, and principles of communication,* and *engage in communication inquiry.* A further, notable, takeaway is that comprehensive exams, perhaps unsurprisingly, is the lowest rated culminating experience across all nine communication learning outcomes (including only one outcome where it is significantly tied with applied projects for scoring lower than theses), *describe the discipline and its central questions.* These findings suggest that while applied projects and theses may individually better allow students to demonstrate competence in some of these learning outcomes that are critical to the discipline, they are

perceived as more similar than not at adequately meeting these learning outcomes, with means well above the midpoint across all nine learning outcomes for both. Comprehensive exams are the standout culminating experience in this context (and not in a good way).

Discussion

Generally, our results show that our stakeholders believe applied projects, those student-led, client-connected, hands-on, experiential projects that address a real-world problem or topic through the creation of relevant deliverables, are more appropriate for preparing students for the workplace compared to both theses or comprehensive exams. In addition, and not surprisingly, students in our sample believe a thesis will better prepare a student for future PhD study compared to an applied project or comprehensive exam. Applied projects appear to be preferred to comprehensive exams on every aspect measured. This is an important finding that suggests students who are not interested in pursuing a doctorate degree are still interested in, and able to thrive in, a high-impact learning experience (Austin, 2002). Interestingly, students in our sample desire situations where they can apply their knowledge (through theses and applied projects) rather than just regurgitate memorized facts through comprehensive exams (Barbera et al., 2013).

While small in sample size ($N = 32$), the results of this survey, along with the previously demonstrated validity of the scholarship assessments outcomes (Gassick, 1997) and the communication learning outcomes (NCA), provide a great starting point for how to assess applied projects, and give us insight into the perceived value of applied projects, as well as other culminating experiences from a student perspective. Future research should certainly include larger samples of more diverse student populations. Hopefully, by improving the graduate student culminating experience we can address the concerns of Cassuto (2015) and revise our curricula to prepare students for work beyond the academy within a reasonable timeframe. Another relevant population of interest to include in future research are faculty members, especially those who are involved in admission committees for PhD programs, as well as employers of graduates of Communication Master's programs. All of these are relevant stakeholders who could add to the breadth and depth of assessments made here. A qualitative first look—perhaps via focus groups or in-depth interviews may be a helpful first step, in order to capture differing perspectives than the ones presented here.

Specifically, certain results are important to consider when comparing the three culminating experiences. For one, we cannot ignore the fact that students perceive applied projects as more effective for workplace preparation when compared to thesis and comprehensive exams. Our communication graduate programs should, thus, consider offering applied projects as a legitimate culminating experience for those who will not pursue a career in the academy. Not surprisingly, the thesis option was rated as more effective for preparing students for a career in academic study. Holistically, these findings should give us pause and, at the very least make us reconsider how and why we offer comprehensive exams as a continued culminating experience option.

For purposes of developing our instructional materials located in the appendices, our results provide a rationale for applied project assessment. The primary goal of this research project was to define learning objectives based on previously collected and new data and create a rubric (Appendix A) for applied research projects. Our results demonstrate near-parity in student and alumni perceptions across theses and applied projects in their ability to demonstrate student competency across Glassick et al.'s (1997) dimensions of assessing scholarship and NCA's communication learning outcomes.

To create our applied project learning objectives (Appendix B), we focused on six key ideas. Specifically, that students would submit projects that focus on shared communication goals; that a communication theory framework would be applied; that appropriate methodology would be used to solve communication challenges; that the deliverables created as a result of the project would align to the stated goals; that the project would be completed in an ethical manner; and that the student would reflect on their own work. These objectives, then, serve as the foundation for our rubric to subsequently assess applied projects.

Our rubric categories incorporated ideas from Glassick et al. (1997) as well as the National Communication Association communication learning outcomes. Specifically, based on the results of our survey, we focused on clarity of communication goals; the application of communication theory; messaging; methodology; influence and identification; the accomplishment of communication goals; ethical communication; deliverables that add to the field; and reflective critique. The results here provide insight not just into student perceptions of culminating experiences but were also helpful in creating useful instructional materials.

Limitations

Our study does have limitations. The most glaring limitation was the sample size of our survey population. We believe, however, that we specifically targeted individuals within our context, our own students and, even more specifically, we targeted students in our program or who recently graduated from our program who understand applied projects. We wanted, first and foremost, a resource for our student audience. After completion of this project, though, we believe our resources are applicable for other Communication graduate programs and can be revised to fit most applied projects that would address communication topics.

Best Practice Suggestions for Instituting Applied Projects

To continue the theme of practical and applied instructional strategies, we want to end with three best practices for incorporating applied projects at the graduate level.

First, remember that assessment is an ongoing cycle. Assessment, at the program level, or as an end-of-major tool, should measure student learning outcomes, present opportunities for students to achieve these learning outcomes, interpret evidence of student learning, and suggest programmatic improvement for better student learning (Wien, 2010). As such, applied projects should fit within the general scope of what your program is designed to do at the graduate level. If industry preparation is not a central focus of your graduate program goals, an applied project may not be an appropriate assessment mechanism for your student population.

Second, consider how the institution will evaluate the applied project deliverables. For something as inconsistent as an applied project, a standardized, institution-specific criterion-referenced measurement is appropriate and preferable (Rubin, 1999). And, further, the evaluation criteria should relate closely to the content, focus, and objectives of the program (Rubin, 1999).

Third, gather feedback from your own institution including current and former students, faculty, staff, and working professionals to create a unified language expectations surrounding applied projects. Use this information to create learning outcomes, clear and consistent guidelines, best practices, and so forth.

Ultimately, applied projects should be an option for students who may not want to pursue a doctorate, do not desire a thesis experience, or want something more practical to bookend their experience as a graduate student. If applied projects are an option for your institution, though, students and faculty must know what is expected.

Applied projects can be student-centered culminating experience alternatives to the more traditional thesis or comprehensive exam options at the graduate level. However, there is more work left to do. Future research surrounding applied projects should continue to develop best practices. In addition, now that a baseline rubric has been developed, we should measure the use of the rubric and continue to refine any dimensions that need addition or clarification.

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Appendix A: Applied Project Sample Rubric

	Above Satisfactory	Satisfactory	Below Satisfactory
Clarity of Communication Goals	Communication and project goals are specific, measurable, and attainable. Establishes a clear directive and uses a strategic and disciplined approach. Goals are also connected to the discipline and specific needs of the external partner.	Communication and project goals are identifiable and present but lack creativity and depth.	Communication and project goals are not easily distinguishable and are not connected to the discipline and the needs of the external partner.
Employ Theory, Perspectives, Principles, and Concepts	Communication theory is used as a defining framework of the project.	Communication theory is used as a supplemental component of the project.	Communication theory is not identified or utilized effectively throughout the project.
Messaging	Create messages appropriate to the audience, purpose, and context.	Create messages that are somewhat appropriate to the specific audience, purpose, and context but some information was not relevant, and messaging lacked creativity.	Messages were not appropriate to the audience, purpose, and context.
Appropriate Methods	The project is completed using the appropriate methods to accomplish the established goals and methods are effectively applied.	Methods were appropriate for some of the established goals and were moderately applied.	The appropriate methods to accomplish the goals were not used nor applied.
Influence and Identification	Accurately identified the challenges of the organization or client and established the role of communication in resolving those challenges and the issue was framed and evaluated from a communication perspective.	Communication was used to determine various challenges but was not applied appropriately.	The challenges of the organization or client were not accurately identified, and a communication framework was not used to resolve the issues.
Accomplishment of Communication Goals	Communication goals were achieved within the constraints of the project.	Some communication goals were achieved but those that were not achieved were due to a planning or implementation issue and not a barrier created by the organization or client–partner.	Communication goals were not achieved.

Ethical Communication	Fulfills the project in an ethical manner by communicating with an ethical intention and evaluating the ethical elements of the communication situation.	Fulfills the project using ethical principles but they are not a focal point of the project.	The project was completed unethically or the project did not address unethical communication issues.
Results and Deliverables	The completed project adds consequentially to the field and the project deliverables are appropriate and of high quality.	The completed project was completed but deliverables were lacking in overall quality.	The completed project did not add consequentially to the field and the project deliverables were not appropriate and were not of high quality.
Reflective Critique	The student critically evaluates their own work and uses evaluation to suggest improvements.	The student's reflection is appropriate but lacks depth.	The student did not critically evaluate their work and does not suggest improvements.

Appendix B: Sample Applied Project Learning Objectives

Upon completion of this applied project, the student will:

Outcome 1: Submit a project that focuses on the stated communication goals of the client or organization.

Outcome 2: Complete a project that uses a communication theory framework to identify and resolve communication challenges.

Outcome 3: Use appropriate methodology to solve communication challenges.

Outcome 4: Create high-quality project deliverables that align to the stated communication goals.

Outcome 5: Complete a project that enforces and identifies ethical solutions.

Outcome 6: Critically reflect on their own work.