

AN ASSESSMENT STUDY OF THE EFFECTIVENESS OF THE GENERAL EDUCATION
COMMUNICATION "A" REQUIREMENT AT THE UNIVERSITY OF WISCONSIN-MADISON

A Report Submitted to the University General Education Committee

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Executive Summary

The study reported here assessed the extent to which courses that are certified as satisfying the UW-Madison Communication–A requirement yield student outcomes that fulfill fundamental general education objectives with respect to writing, communication, and information literacy skills. The results forcefully testify to the effectiveness of the Comm–A requirement as an instrument for achieving general education objectives: Freshmen who took a Comm–A certified course during fall semester 2006-07 report greater improvement in their communication skills as a result of their educational experiences than do comparable freshmen who did not satisfy the requirement. This finding is unusually robust and general: it holds for virtually all of the salient dimensions of communication skill targeted by the Comm–A requirement, and holds in roughly equal measure for all five Comm-A courses, including ESL Comm–A, and for male and female students alike. The growth in communication skills that students experience as a result of taking Comm–A courses is appreciable. The expectation underlying general education objectives is that students who satisfy the Comm–A requirement by taking one of the certified courses would benefit from a richer communications experience than they might otherwise, and richer than the experience of students who do not take a Comm–A course. This study has shown that this expectation is empirically valid. The findings leave no doubt that the decentralized mode of implementing the Comm–A requirement at UW-Madison is a highly effective means of achieving general education proficiency objectives with respect to writing, speaking, and information-seeking skills.

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1.0 INTRODUCTION

The UW-Madison General Education Requirements that were adopted by the Faculty Senate in 1994 and implemented in 1996 included central provisions aimed at insuring that students acquired key skills in the areas of writing, communication, and information literacy. These provisions are known as the *Communication A and B* (hereafter, “Comm–A” and “Comm–B”) requirements. Although the plan for implementing the General Education Requirements included as a core feature the systematic assessment of student outcomes, to date there has not been the kind of comparative analysis needed to rigorously assess the effectiveness of the communication requirements in achieving their stated objectives.¹ This report takes a first step in that direction by describing the results of a comparative assessment study of student outcomes achieved under the Comm–A requirement during fall semester 2006-07. The primary goal of this research is to use measures other than grades to assess the extent to which courses that are certified as satisfying the Comm–A requirement yield student outcomes that fulfill fundamental general education objectives with respect to writing, communication, and information literacy skills.

The logic behind the Comm–A requirement is that basic communication skills may be enhanced by exposing students to courses that have been designed to, according to founding documents, “develop student abilities in writing and public speaking, for both exposition and argumentation.”² Courses that fulfill the Comm–A requirement are spread across the Colleges of Letters and Science, Engineer-

¹To be sure, in 1999 there was a wide-ranging and deep study of student outcomes associated with the Communication B requirement, but by design that project was limited to students who had taken courses certified as satisfying the requirement. Because it was not comparative, that study could not address the “effect” of satisfying, versus not satisfying, the Comm–B requirement on student experiences and skills. The project is described in a 2001 report by Solomon and Knobloch entitled “Spring 1999 Communication-B Study: Outcomes Associated with the General Education Communication-B Requirement”, which may be found at <http://www.ls.wisc.edu/Gened/Assessment/CommBStudy.pdf>.

²See <http://www.ls.wisc.edu/gened/FacStaff/comma.htm>.

ing, and Agriculture and Life Science, but all are expected to satisfy a common set of criteria. In particular, courses that satisfy the requirement are expected to advance student skills in the following areas:³

- Planning (selecting, narrowing, and focusing topics; identifying and analyzing audience information needs; generating and organizing ideas; comprehending and analyzing texts)
- Drafting (learning structures of exposition and argument, and the use of evidence; organizing and developing paragraphs, papers, and speeches; adapting writing and speaking for intended audiences; learning conventions of academic writing; mastering elements of grammar, usage, and style; preparing speeches for oral delivery; citing sources, avoiding plagiarism, and compiling accurate bibliographies)
- Revising (developing critical skills for reading and listening – in review of peer writing/speaking revising and editing essays and speeches – for spelling, punctuation, grammar, style, organization, and logic critiquing assigned readings and speeches delivered outside class)
- Information-Seeking Skills and Strategies (identifying and retrieving source materials needed to evaluate, organize, and select information from print and electronic sources; acquiring basic critical, technical, and mechanical skills needed to find relevant information)

These criteria constitute a core set of communication skills with respect to which both courses and students may be assessed. The fundamental objective of the research reported here was to determine the extent to which courses that satisfy the Comm–A requirement, and hence putatively fit these criteria, provide students with the experience and opportunity needed to improve writing, speaking, and information-seeking skills. In other words, the goal was to fashion one study that could serve as an assessment of both Comm–A courses and their student outcomes.

³See <http://www.ls.wisc.edu/gened/FacStaff/comma.htm>.

The approach taken here follows upon a method that has been used previously to successfully assess the General Education Quantitative Reasoning requirements. To anticipate, our method amounted to asking a sample of students *how much* the courses and educational experiences they had had during the semester just completed had taught them the skills that the Comm-A requirement views as fundamental. The heart of the analysis involves rigorously comparing students who had and had not taken a Comm-A course in terms of their self-reported gains in communication proficiency along the various skill dimensions itemized above. The results of such a comparison may be viewed from two vantage points. First, such comparisons reflect directly on the differences in the content, as experienced by students, of curricula that do and do not satisfy the Comm-A requirement. The general education objectives anticipate that students who satisfy the Comm-A requirement by taking courses that have been certified as delivering the appropriate content would have a richer communications experience than they might otherwise, and richer than the experience of students who do not take a Comm-A course. This study will assess the extent to which that belief is empirically valid. If this belief is shown to be valid, so that Comm-A courses in fact do convey more of the skill content identified by the criteria above, then it would follow that grades in Comm-A courses are themselves a valid measure for assessing actual student learning.

Second, to the extent student self-reports of gains in communications proficiency may be viewed as valid, if indirect, indicators of actual student learning outcomes, the comparisons we construct can yield estimates of the effect of the Comm-A requirement. The 2004-05 study of the QR-A requirement provided strong evidence of a close connection between estimates of gains in quantitative reasoning proficiency yielded by student self-reports and estimates yielded by laboratory tests of actual student learning. A comparison of students who did and did not satisfy the QR-A requirement in terms of their self-assessed gains in quantitative reasoning yielded results that were closely corroborated by rigorously estimated differences in quantitative reasoning ability as measured by laboratory tests.

These earlier results buttress the argument for the validity of student self assessment as a tool for the comparative analysis of learning outcomes. Hence, we believe there is ample ground for interpreting the analysis reported below not only in terms of differences in the content of curricula that do and do not include Comm–A courses, but also in terms of differences in student learning outcomes.

The remainder of this report is organized as follows. The next section describes the sampling procedure, sources of sample selection bias, and the measurement of communications proficiency. Sections 3 and 4 present the analysis and conclusions, respectively.

2. DATA AND MEASUREMENT

2.1 *Target Population and Sampling*

The assessment issues driving this research were examined by surveying a sample of freshmen students who were enrolled fall semester 2006-07. The population of interest consisted of all freshmen whose score on the UW English Placement Test meant they were required to fulfill the Comm–A requirement by taking a certified course.⁴ Since the main goal was to compare the learning experiences of nonexempt students who did and did not take a Comm–A course in a given semester, a stratified sampling design was appropriate and efficient.⁵ To that end, the entire fall semester population of approximately 3000 students was stratified into the two comparison groups. In addition, the subpopulation of students who had satisfied the Comm–A requirement during fall semester was stratified by Comm–A course: Communication Arts 100, English 100, Life Science 100, and Engineering Professional Development 155 (hereafter, EPD 155).⁶ The first three of these are 3-credit courses that meet three times per week for 50 minutes; EPD 155 is a two-credit course that meets twice weekly for 50

⁴Scores on the UW English Placement Test range from 150 to 850, with students scoring 610 or above automatically exempted from the Comm–A requirement.

⁵By “efficient” I mean this design would be expected to yield smaller sampling error in the estimates of the effect of Comm–A than would a simple random sample of the same size.

⁶We omitted from the population those who were satisfying Comm–A by taking a course for students for whom English is a second language. This group is the focus of a separate study as reported later.

minutes. This difference in credit hours introduces a measure of noncomparability—EPD students would be expected to report lower gains in communication skills because they experience 33% less class time devoted to Comm–A subjects. As long as this rather large difference in exposure to the substance of the Comm–A requirement is kept in mind when considering the findings, there is no reason not to include all Comm–A courses in this study. Hence, random samples were drawn from each of these four strata and the stratum of nonexempt students who had not enrolled in a Comm–A course.

Table 1 gives the five population strata and sample sizes, as well as the number of respondents from each stratum who actually participated in the study by returning a completed questionnaire. The last row indicates that the overall response rate was about 80%, which is extremely high as mail surveys go.⁷ A contrast between the two major subpopulations shows that students who did not take a Comm–A course responded to the survey at a rate that is 10 percentage points higher than their counterparts who chose to satisfy the requirement in their first semester. This difference is statistically significant ($\chi^2 = 7.96$; p-value= .005), but it would be premature to attribute this to a sharp and general distinction among the two subpopulations. An examination of the response rates for the four Comm–A courses indicates that the 10 percentage point difference between the two subpopulations is largely a reflection of the low rates of response by students from Communication Arts 100 and Life Science 100. Indeed, the response rates of students in English 100 and EPD 155 are statistically indistinguishable from the response rate for non-Comm–A students ($F = 1.05$; p-value= .35), but significantly different from those of students in Comm Arts 100 and Life Science 100 ($F = 15.29$; p-value= .0001). Hence, variation in response rates appears to reflect course-specific processes of selection into the sample, rather than simple selection on the basis of Comm–A status.

An important consideration is whether the variation in response rates across strata is system-

⁷The survey was carried out by the UW Survey Center during spring semester 2006-07. Thanks to Bob Cradock for overseeing the project and for heroic efforts to improve response rate.

atically related to measurable student characteristics. In particular, a potentially serious source of sample selection bias would occur if the propensity to respond was a function of student characteristics that varied across strata (i.e., courses) and that might be related the dependent variable of this study, communication skill proficiency. Two such sources that suggest themselves and are of some interest interest in their own right are gender and academic aptitude or performance. To see if the observed stratum-level variation could be explained by such differences, response rates were adjusted for variation across courses in the gender and academic quality of students. The results shown in Table 2 were generated by adjusting response rates for differences in gender, UW English Placement Test scores, and fall semester grade point average. A comparison of the two columns shows that correcting for gender and academic ability does not explain the variation across courses: the adjusted rates look very similar to the observed rates.

Although we were unable to account for differences in response rates across courses, we did find that the propensity to respond to the survey depended on academic performance, with stronger students responding at a higher rate than their academically weaker counterparts. Hence students whose fall grade point average exceeded the median of 3.17 responded at a rate of 86%, while the response rate was only 75% among students whose overall first semester GPA fell below the median. This eleven percentage point difference is statistically significant ($t = 3.52$; $p\text{-value} = .0005$). The dependence of response rate on academic performance is not problematic for assessing the effect of the Comm-A requirement on communication skills as long this relationship holds equally for students who did and did not satisfy the requirement. The risk, however, is that this relationship does not hold equally across Comm-A status groups, so that comparisons in terms of communications skills would be across academically nonequivalent groups of students.⁸

⁸The 2005 QR-A study found that QR-A course performance was positively associated with survey response, which meant that the sample of QR-A students represented not the average QR-A student, but rather those who had received high grades in their QR-A course.

To pursue this possibility, we first ascertained whether the effect of academic performance on response rates was the same for both Comm-A and non-Comm-A students. Academic performance (i.e., fall semester grade point average) had no effect on the propensity of non-Comm-A students to respond to the survey ($t = 0.46$; $p\text{-value} = .64$), but a powerful effect on the survey response of Comm-A students: each one unit increase in fall semester grade point average increased the rate of response by 14 percentage points ($t = 4.84$; $p\text{-value} = 4.84$). As it turns out, the bulk of this effect is due to performance in the Comm-A course itself. As Table 3 shows, there is a regular increase in response rate with increases in Comm-A grade ($F = 6.13$; $p\text{-value} < .0001$). This means our sample of Comm-A students represents not the average student, as in the non-Comm-A sample, but rather those who had received higher grades in their Comm-A course. Unless accounted for, this selection bias would be expected to yield overstatements of the effect of the Comm-A requirement on the acquisition of communication skills if our measure of the latter is related to Comm-A course grade. In particular, estimates of the communication skills acquired by Comm-A students would be slanted toward the better students rather than representing the average student, which in turn would yield biased comparisons to non-Comm-A students. We will explore this source of bias further after detailing the measurement of self-reported gains in communication proficiency.

2.2 Measurement of Communication Course Content and Student Proficiency

The outcome variable for this assessment was measured by a scale constructed from a set of Likert-type items that tapped students' self-reported gains in writing, communication, and information literacy skills achieved during fall semester 2006. The items, which were developed by Comm-A course directors, are intended to capture the core skills that the Comm-A requirement is supposed to advance.

In order to encourage all students to reflect broadly upon their learning experiences during fall

semester 2006, the preamble to the main question read as follows:

Please think about the courses that you took here at UW during the fall semester. This includes the lectures, readings, and assignments, as well as studying with other students and any other experiences you had as part of these courses.

This preamble was followed by the question:

How much did any of these courses teach you to do each of the following:

where the items used to measure the communication content of courses and the skills students putatively gained from them during fall semester were listed as follows:

- Deliver a speech or oral presentation?
- Retrieve and analyze information from library databases?
- Select and focus topics for a paper or speech/presentation?
- Recognize logically sound arguments?
- Use language clearly and appropriately?
- Support ideas in a paper or speech?
- Produce papers or speeches/presentation for a specific audience?
- Judge the credibility and soundness of evidence?
- Organize ideas for a paper or speech/presentation?
- Improve your grammar, punctuation, and style?
- Cite sources and avoid plagiarism?
- Use library databases to locate research materials specific to the topic of a paper or speech/presentation?
- Write and revise drafts of a paper or speech/presentation?
- Critique speeches/presentations or papers?

with response categories ranging from “not at all”, scored 1, to “a lot”, scored 4. Averaging over these fourteen items for each respondent yielded a scale (hereafter, the “general” Comm–A scale) with Cronbach’s α -reliability equal to .91, which is excellent.⁹ The initial analysis reported below assumes

⁹It is important to note that these fourteen items are meant to represent the objectives of the Comm–A requirement; they do not exhaust the aims of the individual Comm–A courses.

that this scale is unidimensional in the sense that the constituent items represent a single underlying concept, i.e., “communication proficiency”. Later the scale will be disaggregated into subscales to gauge the extent to which satisfying the Comm–A requirement may have differential implications for constituent dimensions of communication proficiency.

3. ANALYSIS AND FINDINGS

3.1 How the Communication “A” Requirement Affects Self-Reported Gains in Communication Proficiency

This section compares non-exempt students who did and did not take a Comm–A course with respect to the communication skills content of their educational experiences during fall 2006-07. Table 4 gives an initial set of results generated by comparing the mean scale scores of the two Comm-A groups both without and with adjustment for salient control variables. The first column gives the unadjusted mean scale scores, the difference, and the t-ratio for the test of the difference in means. The result indicates that the mean scale score for Comm–A students (3.08) exceeded the mean scale score for other students (2.40) by .68, an amount that is highly statistically significant. The magnitude of the t-ratio means that the difference of .68 is ten times what would be expected by chance if the two Comm–A status populations were actually identical in their mean scale scores. The second column gives the same statistics after adjusting for differences in gender and academic ability as measured by UW English Placement Test Scores and fall semester GPA. As is plainly evident, the adjusted means and the difference are virtually identical to the unadjusted figures. This result reflects the fact that neither gender nor academic performance are associated with the scores students achieve on the general communication scale. Furthermore, the difference in means between those who did and did not satisfy the Comm-A requirement is virtually identical for males and females (not shown).¹⁰

¹⁰Findings that use the whole population of Comm–A students without taking account of course are adjusted for

The findings displayed in Table 4 emphatically indicate that, by comparison to their peers who do not satisfy the Comm-A requirement, students who do complete a Comm-A course experience far greater exposure to the kind of course content one would plausibly expect to yield gains in writing, speaking, and information-seeking skills. In other words, satisfying the Comm-A requirement can be expected to yield gains in communication skills that students would not otherwise achieve. If the requirement is, in this sense, effective in achieving its purpose, does its effectiveness depend on a student's academic performance in the Comm-A course? We saw earlier (Table 3) that the rate of response to the survey by Comm-A students was positively associated with their Comm-A grade. If Comm-A students with better grades also report higher scores on the general communications scale, then the estimate of the effect of Comm-A as given in Table 4 (i.e., .68) would be too big, since it would be biased in the direction of the *above average* Comm-A student.

A first step in addressing this issue is to compare the communication scale scores of students who achieved different grades in Comm-A. The relevant figures are displayed in Table 5, which gives the mean communication scale scores by Comm-A grade. The finding of this table is rather unexpected: the gain in communication skills as self-reported by Comm-A students is not associated with performance in their Comm-A course. Regardless of grade, the communication scale means are roughly the same. Hence, our estimate of the effect of the Comm-A requirement is not biased by the over-representation of better Comm-A students in our sample.

The absence of a correlation between the communication scale and grades in Comm-A invites explanation. Two explanations are plausible. First, the communication scale itself is problematic: it can pick up gross skill differences between Comm-A and non-Comm-A students, but is not sensitive enough to detect fine differences among Comm-A students at the different levels of achievement indi-

the disproportionate stratified sampling scheme that was used. Relative to their representation in the total population of students who took Comm-A in the fall, Life science 100 and EPD 155 were oversampled and Comm Arts 100 and English 100 were undersampled.

cated by grades. Second, the communication scale and grades may be measuring different quantities. Grades putatively measure *levels* of communication skills achieved by the end of the semester, while the communication scale implicitly taps *growth* in skills by asking students to gauge “how much” they learned from the start to the end of the semester.

This latter interpretation is supported by evidence on the relationship of scores on the UW English Placement Test to both subsequent Comm-A grades and communication scale scores. UW English Placement Test scores before fall semester and Comm-A grades at the end of fall semester are both measures of levels of achieved communication skills, and hence should be positively correlated. We would expect that students who were strong and weak relative to each other at the start of fall semester would still evince the same relative ordering at the end of the semester. But if the communication scale is tapping “how much” students learned in Comm-A, there’s no compelling reason to expect that, on balance, students with high scores on the UW Placement Test would gain more from Comm-A than students with low scores.¹¹ These expectations are supported by the data. UW English Placement Test scores are moderately correlated 0.39 ($t = 4.84$; $p\text{-value} < .000$) with *grades* in Comm-A courses, but virtually uncorrelated ($r = -.05$; $p\text{-value} = .51$) with communication scale scores.

To this point students from different Comm-A courses have been pooled into a single category, so the analysis addresses the aggregate effectiveness of the Comm-A requirement; it does not speak to the effectiveness of each of the individual Comm-A courses. The aggregate result does not mean that all the courses that are certified as satisfying the requirement are effective in producing gains in communication skills, let alone that they are all *equally* effective. The first question concerns pairwise comparisons of students from each course with our sample of non-Comm-A students; the second question concerns comparisons among the Comm-A courses themselves.

Table 6 displays the results pertaining to the effectiveness of each individual Comm-A course in

¹¹The effect of satisfying the Comm-A requirement as measured by the difference in communication scale means between Comm-A and non-Comm-A students does not depend on UW English Placement Test scores.

turn. The second column of figures gives the estimate of the “effect” of the course, i.e., the amount by which the communication scale score mean for a course exceeds the sample mean for students who did not satisfy the requirement; the third column speaks to the statistical strength of the effect. For all four courses the communication scale means exceed the mean for non-Comm-A students by an amount that, statistically speaking, is very large. The figures in the last column indicate that these differences in means are 9-11 times larger than would be expected by chance if there were truly no difference between Comm-A and non-Comm-A students. In each case we can conclude that students who complete the specified Comm-A course experience far greater exposure than their non-Comm-A peers to the kind of substantive content that would be expected to yield gains in writing, speaking, and information-seeking skills.

Do some courses register a more powerful effect than others? The figures in the second column vary from a high of .82 to a low of .61. A formal test of the hypothesis that all four *differences* in means are equal yields $F=3.37$ with a $p\text{-value}=.02$, which is evidence against the conclusion that all four courses are equally effective in producing gains in communication skills that would not otherwise be achieved.¹² In particular, the differences generated by Life Science 100 (.82) and Comm Arts 100 (.77) are significantly larger ($t = 2.99$; $p\text{-value} = .002$) than those associated with English 100 (.61) and EPD 155.¹³ Similarly, there is evidence against the hypothesis that all four Comm-A courses yield the same mean on the general communication scale ($F = 4.45$; $p\text{-value} = .004$).¹⁴ Still, the major pattern in the data of Table 6 is plain: the differences between students in Comm-A courses and their non-Comm-A counterparts is huge by comparison to the variation among students from

¹²Earlier we noted the aggregate result that grade on Comm-A did not appear to be associated with communication scale scores. This aggregate result also holds for individual Comm-A courses. In no instance were the grades students earned in their Comm-A course correlated with the communication scale scores they reported.

¹³As mentioned earlier, EPD 155 is only a 2-credit course, whereas the others are 3 credits.

¹⁴Although it may not seem like it, the hypothesis of equality of course means (column 1, Table 6) is not the same as the hypothesis of equality of differences between each course sample and the non-Comm-A sample of students (column 2 of Table 6).

the four Comm–A courses.

3.2 How the Comm–A Requirement Affects Self-Reported Gains on Specific Dimensions of Communication Skill

To this point the analysis has been carried out exclusively in terms of a single summative scale consisting of fourteen items that target self-reported improvements in writing, communication and information literacy skills during first semester 2006-07. We have assumed implicitly that general communication skill is a unidimensional construct: factors that cause one aspect of the underlying phenomenon tapped by the construct not only have the same direction of effect, but the same magnitude of effect, on *all* aspects of the underlying phenomenon. In this section we relax this assumption in order to entertain the possibility that the Comm–A requirement, not to mention the Comm–A courses themselves, may have disparate effects on the different aspects of communication skill tapped by the general scale. To this end, the analysis that follows disaggregates the general communication scale into its fourteen constituent items.¹⁵

The third column of figures in Table 7 gives, for each aspect of communication proficiency, estimates of the mean difference between students who did and did not satisfy the Comm–A requirement. The table is arranged in descending order of these differences, with items evincing strong “effects” of Comm–A listed in higher rows.¹⁶ In every instance, the Comm–A mean exceeds the mean for students who did not satisfy the requirement, usually by a comfortable margin; in all but two instances the “advantage” of Comm–A students is statistically significant, usually by a wide margin.¹⁷ The only items for which there is no statistically detectable effect of Comm–A are “use language clearly and

¹⁵We initially explored the idea of grouping items into a few subscales, but in the end decided in favor of more rather than less detail.

¹⁶By “strong” I mean the magnitude of the difference in the third column of figures; this will be highly correlated with statistical strength as indicated by the t-ratio.

¹⁷Introducing controls for UW English Placement Test Scores and fall semester grade point average leave the estimates in Table 7 virtually unchanged.

appropriately” and “recognize logically sound arguments”.

These results reveal unambiguously that the effect of fulfilling the Comm–A requirement on the dimensions of communication proficiency privileged by general education course criteria is broad and deep. Compared to their counterparts who did not to take a Comm–A course their first semester, students who satisfied the requirement report significantly greater gains in learning with respect the great majority of skill dimensions that go into certifying Comm–A courses. These results definitely indicate that the Comm–A requirement is effective in advancing communication skills beyond what would otherwise be achieved if students did not take Comm–A courses.

The findings of Table 7 are buttressed by the course-specific analysis displayed in Table 8. Table 8 is similar to Table 7, but now gives estimates of Comm–A “effects” for each of the four courses on each of the fourteen dimensions. This table is arranged like Table 7, in descending order from very strong to weak effects. Each item/course cell of the table gives the difference between the item mean for Comm–A students compared to non-Comm–A students. The findings are rather startling: again, excluding the items in the last two rows, in every instance the Comm–A mean exceeds the non-Comm–A mean by a statistically significant margin. This is powerful evidence that all Comm–A courses are aligned with faculty-mandated criteria and are effectively advancing the communication skills privileged by general education objectives.

The last column of Table 8 gives the test statistics and p-values for tests of the hypothesis that all four Comm–A courses have an equal effect on a specified dimension of communication skill. The seven shaded cells are instances in which this hypothesis is rejected. Of these seven, five yield differences among courses that are large enough to be substantively interesting. These are as follows:

- *Deliver a speech or oral presentation*: The effect of CA 100 is much larger, and that of English 100 much smaller, than the effects of the other courses.

- *Write and revise drafts of a paper or speech/presentation:* The effect of English 100 is much larger than that of the other three courses.
- *Produce papers or speeches/presentation for a specific audience:* The effects of Life Science 100 and Comm Arts 100 are significantly larger than those of EPD 155 and English 100, and the effect of EPD 155 is significantly larger than that for English 100.
- *Judge the credibility and soundness of evidence:* The effect of English 100 is significantly smaller than the effects of the other three courses.
- *Use language clearly and appropriately:* Comm Arts 100 is the only course to have a statistically significant effect on this dimension.

Viewed from the perspective of all the results taken together, these differences in effects reflect rather minor and somewhat idiosyncratic variation among courses. The more telling conclusion, the one that best summarizes the bulk of the evidence, is that these four courses are extraordinarily homogeneous in terms of their contributions to advancing core communication skills as set down by general education criteria. Indeed, the homogeneity is all the more remarkable when we understand that each of these courses had their own unique approaches that took them beyond the core objectives of the Comm–A requirement alone.

3.3 *The ESL Comm–A Experience*

As part of the university’s Program in English as a Second Language, English 118 is the course that fulfills the Comm–A requirement for most non-native English speakers who have been admitted to an undergraduate degree program at UW-Madison. A key aspect of the current study involved assessing the extent to which students who completed English 118 also achieve outcomes that fulfill fundamental general education objectives with respect to writing, communication, and information literacy skills.

To this end, a questionnaire that included all fourteen communication scale items described earlier was administered in class in English 118 at the end of spring semester. Two comparisons are naturally of interest, one to students who did not fulfill the Comm–A requirement fall semester 2006-07, and a second to other students who fulfilled the requirement by completing one of the four Comm–A courses (hereafter, “regular” Comm–A courses) studied above.¹⁸

Table 9 gives the means and tests of differences among means on the general communication skills scale for the three groups. The difference between ESL and regular Comm–A students is stunning by its total absence. The mean scores for both groups are virtually identical.¹⁹ It follows that the difference between ESL students and students who did not take Comm–A is not only large and statistically significant, but identical to the difference observed for regular Comm–A students. In other words, the effect of ESL Comm–A on communication skills is the same as the effect of regular Comm–A. Just like their regular Comm–A counterparts, ESL Comm–A students experience far greater exposure to the kind of course content one would plausibly expect to yield gains in writing, speaking, and information-seeking skills.

Table 10 disaggregates the general scale in order to compare ESL Comm–A students to students who did not satisfy the requirement on each of the fourteen individual dimensions of communication proficiency. The table is arranged in descending order of these differences (see column “Diff”), with items evincing strong “effects” of ESL Comm–A listed in higher rows.²⁰ Looking down the “Diff” column shows that in every instance, the ESL Comm–A mean exceeds the mean for students who did

¹⁸Given the nature of the data collection, sample selection bias was not an issue—virtually all eligible students responded to the in-class questionnaire, yielding a sample of 131 respondents. Checks for associations among the number of previous ESL courses a student had completed, grade in English 118, and scores on the general communication scale failed to turn up any statistically significant relationships. Number of previous ESL courses was not associated with either grade in English 118 ($t = 1.02$; $p\text{-value}=.310$) or communication scale scores ($t = 0.85$; $p\text{-value}=.399$). Similarly, grade in English 118 was only weakly linearly related to communication scale scores ($t = 1.50$; $p\text{-value}=.13$). In light of these findings, we ignored students’ previous ESL courses and English 118 grade in the analysis that follows.

¹⁹The .01 difference in the table is due to rounding. The actual difference is -.0008.

²⁰By “strong” I mean the magnitude of the difference in the third column of figures; this will be highly correlated with statistical strength as indicated by the t-ratio.

not satisfy the requirement, usually by a comfortable margin; for all but two items the “advantage” of Comm-A students is statistically significant, again by a wide margin. The only items for which there is no statistically detectable effect of ESL Comm-A are “use language clearly and appropriately” and “recognize logically sound arguments”. Recall that these are the same two items that failed to register a statistically significant advantage for regular Comm-A students.

Are the benefits of satisfying the requirement the same for ESL and regular Comm-A students? This issue is addressed by the differences in means displayed in Table 11. As before, the table is arranged in descending order of these differences (see column “Diff”), with items evincing larger disparities between the two groups listed in higher rows. Of the fourteen dimensions of communication proficiency, only the four differences listed at the top of the table are statistically significant, with two other “small differences” worth noting. Even the differences that are statistically significant are only moderate in magnitude by comparison to the differences between these groups and students who did not satisfy the requirement. In addition, note that the differences cut both ways, showing an advantage for regular Comm-A students on two items and an advantage for ESL students on two others. ESL students report greater gains on “retrieve and analyze information from library databases” and “improve your grammar, punctuation, and style”; regular Comm-A students reports an advantage with respect to “deliver a speech or oral presentation” and “produce papers or speeches/presentation for a specific audience”. The rest of the table shows mostly little or no difference between the two Comm-A groups on these dimensions of communication proficiency. Overall, the findings underscore the conclusion that ESL and regular Comm-A course are equivalent ways to satisfy the requirement and yield equivalent improvements in communications skills.

3.4 DISCUSSION AND CONCLUSIONS

The uniformity of the findings render them easily summarized: freshmen who took a Comm-A course

during fall semester 2006-07 report greater improvement in their communication skills as a result of their educational experiences than comparable freshmen who did not satisfy the requirement. This finding is unusually robust and general: it holds for virtually all of the dimensions of communication skill measured by our survey, and holds for all Comm-A courses, including ESL Comm-A.

The results forcefully testify to the effectiveness of the Comm-A requirement as an instrument for achieving general education objectives. They show emphatically that the growth in communication skills that students experience as a result of satisfying the Comm-A requirement is appreciable and occurs in roughly equal measure for males and females, and for all five certified courses. As observed at the outset, the expectation underlying general education objectives is that students who satisfy the Comm-A requirement by taking one of the certified courses would benefit from a richer communications experience than they might otherwise, and richer than the experience of students who do not take a Comm-A course. This study has shown that this expectation is empirically valid.

There is another respect in which the findings are important: they validate the way the communication component of general education objectives has been implemented at UW-Madison. UW-Madison is institutionally decentralized; so too is its implementation of the Comm-A requirement. Rather than having one course that is intended to address writing, speaking, and information literacy objectives for all students, there are five different Comm-A courses spread across three schools and colleges. Although all five courses satisfy a common set of criteria by advancing communication skills across a wide range of dimensions, each course has its own unique emphasis and approach. The findings reported here leave no doubt that the decentralized mode of implementation established at UW-Madison more than a decade ago is a highly effective means of achieving general education proficiency objectives with respect to writing, speaking, and information-seeking skills.²¹

²¹The consistency of findings across Comm-A courses that embrace common general education objectives but otherwise have their own unique educational goals is quite remarkable. Annual meetings of the individual directors of the Comm-A courses would be one mechanism for insuring that such consistency is maintained over time.

Table 1 Populations, Samples, and Respondents, by Stratum, for Study II of the Effect of QR A on Self-reported Quantitative Reasoning Skills and Preparedness for Future Courses, Spring 2004-05

	<i>Population Size</i>	<i>Selected Sample Size</i>	<i>Respondent Sample Size</i>	<i>Response Rate</i>
<i>Comm A stratum</i>	1541	480	374	78%
<i>English 100</i>	694	140	115	82%
<i>Comm Art 100</i>	541	140	102	73%
<i>Life Science 100</i>	104	100	69	69%
<i>EPD 155</i>	202	100	88	88%
<i>Non-Comm A stratum</i>	1447	160	141	88%
<i>Total</i>	2988	640	515	80%

Table 2 Observed and Adjusted Rates of Response to Survey, by Stratum, 2006-07.

	<i>Observed Response Rate</i>	<i>Adjusted Response Rate*</i>
<i>Comm A stratum</i>	78%	78%
<i>English 100</i>	82%	81%
<i>Comm Arts 100</i>	73%	73%
<i>Life Science 100</i>	69%	69%
<i>EPD 155</i>	88%	89%
<i>Non-Comm A stratum</i>	88%	89%

Table 3 Observed Rates of Survey Response, by Comm-A Course Grade, 2006-07.

<i>Comm-A Grade</i>	<i>Observed Response Rate</i>
<i>A</i>	87.6% (169)
<i>AB</i>	78.0% (182)
<i>B</i>	73.4% (94)
<i>BC</i>	63.6% (22)
<i>C-F</i>	33.3% (18)

Table 4 Observed and Adjusted Means on General Communication Skills Scale, by Comm-A Status, Fall 2006-07.

<i>Comm-A Status</i>	<i>Observed means</i>	<i>Adjusted Means*</i>
<i>(1) Satisfied Requirement</i>	3.08	3.08
<i>(2) Did Not Satisfy Requirement</i>	2.40	2.41
<i>Difference (1) - (2)</i>	0.68	.68
<i>t-ratio (p-value)</i>	11.59 (.000)	11.46 (.000)

Note: The statistics reported in this table take account of the disproportionate stratified random sampling scheme that was applied to the Comm-A subpopulation..

**These means adjust for differences in gender, UW English Placement Test scores, and fall semester grade point average.*

Table 5 Mean Communication Scale Scores by Grade in Comm-A Course, Fall 2006-07.

<i>Comm-A Grade</i>	<i>Communication Scale Mean</i>
<i>A</i>	3.12 (147)
<i>AB</i>	3.12 (140)
<i>B</i>	3.06 (67)
<i>BC</i>	2.95 (14)
<i>C-F</i>	3.07 (6)

Note: Test for difference among means yields $F=.72$ ($p\text{-value}=.58$).

Table 6 Communication Scale Means, by Course, Fall 2006-07.

<i>Courses</i>	<i>Communication Scale Mean</i>	<i>Difference (1) -(2)</i>	<i>t-ratio¹ (p-value)</i>
<i>(1) Comm A Course</i>			
<i>Life Science 100</i>	3.22	.82	11.21 (.000)
<i>Comm Arts 100</i>	3.17	.77	11.90 (.000)
<i>English 100</i>	3.01	.61	9.76 (.000)
<i>EPD 155</i>	3.07	.67	9.85 (.000)
<i>(2) Non-Comm A Students</i>	2.40		
<i>Total</i>			F=53.97 (.000)

Table 7. Estimates of the Effect of Comm–A Requirement on Individual Items Tapping Selected Dimensions of Communication Skill, Fall 2006-07.

<i>Items</i>	<i>Means</i>		<i>Diff (1)-(2)</i>	<i>t-ratio</i>	<i>p-value</i>
	<i>Comm--A (1)</i>	<i>Not Comm–A (2)</i>			
<i>Very Strong</i>					
<i>Use library databases to locate research materials specific to the topic of a paper or speech/presentation?</i>	3.22	1.87	1.35	14.99	.000
<i>Retrieve and analyze information from library databases?</i>	3.05	1.92	1.13	13.40	.000
<i>Deliver a speech or oral presentation?</i>	2.87	1.77	1.10	14.97	.000
<i>Strong</i>					
<i>Cite sources and avoid plagiarism?</i>	3.34	2.35	0.99	10.01	.000
<i>Produce papers or speeches/presentation for a specific audience?</i>	3.13	2.27	0.86	8.49	.000
<i>Write and revise drafts of a paper or speech/presentation?</i>	3.35	2.50	0.85	8.68	.000
<i>Critique speeches/presentations or papers?</i>	2.91	2.11	0.80	9.24	.000

Table 7. Estimates of the Effect of Comm–A Requirement on Individual Items Tapping Selected Dimensions of Communication Skill, Fall 2006-07. (Continued)

<i>Items</i>	<i>Comm--A (1)</i>	<i>Not Comm--A (2)</i>	<i>Diff (1)-(2)</i>	<i>t-ratio</i>	<i>p-value</i>
<i>Moderate</i>					
<i>Organize ideas for a paper or speech/presentation?</i>	3.28	2.66	0.62	6.68	.000
<i>Select and focus topics for a paper or speech/presentation?</i>	3.24	2.66	0.58	6.55	.000
<i>Support ideas in a paper or speech?</i>	3.33	2.91	0.42	4.51	.000
<i>Judge the credibility and soundness of evidence?</i>	2.88	2.49	0.39	4.52	.000
<i>Improve your grammar, punctuation, and style?</i>	2.53	2.22	0.31	3.24	.001
<i>Weak</i>					
<i>Use language clearly and appropriately?</i>	3.10	2.97	0.13	1.50	.134
<i>Recognize logically sound arguments?</i>	2.93	2.85	0.08	0.88	.381

Table 8. Estimates of the Effect of Comm–A Requirement on Selected Dimensions of Communication Skill, by Comm--A Course, Fall 2006-07.

<i>Communication Dimensions</i>	<i>Difference in Means [Comm–A minus non-Comm–A]*</i>				<i>Test of equality F** (p-value)</i>
	<i>Life Science 100</i>	<i>Comm Arts 100</i>	<i>EPD 155</i>	<i>English 100</i>	
<i>Very Strong</i>					
<i>Use library databases to locate research materials specific to the topic of a paper or speech/presentation?</i>	1.44 (12.24)	1.21 (11.64)	1.35 (12.40)	1.43 (14.32)	1.77 (.151)
<i>Retrieve and analyze information from library databases?</i>	1.37 (12.07)	1.02 (10.16)	1.10 (10.50)	1.19 (12.29)	3.03 (.029)
<i>Deliver a speech or oral presentation?</i>	1.42 (14.23)	1.88 (21.40)	1.19 (12.97)	.50 (5.84)	78.37 (.000)
<i>Strong</i>					
<i>Cite sources and avoid plagiarism?</i>	1.15 (9.28)	1.03 (9.37)	1.08 (9.40)	0.91 (8.63)	1.34 (.261)
<i>Write and revise drafts of a paper or speech/presentation?</i>	.69 (5.67)	.66 (6.11)	.70 (6.17)	1.05 (10.08)	5.31 (.001)
<i>Produce papers or speeches/presentation for a specific audience?</i>	1.24 (9.87)	1.18 (10.65)	.88 (7.57)	.58 (5.43)	12.38 (.000)
<i>Critique speeches/presentations or papers?</i>	.86 (7.16)	.94 (8.85)	.60 (5.38)	.75 (7.34)	2.98 (.031)

Table 8. Estimates of the Effect of Comm–A Requirement on Selected Dimensions of Communication Skill, by Comm--A Course, Fall 2006-07. (Continued)

<i>Items</i>	<i>Difference in Means (Comm–A minus non-Comm–A)*</i>				<i>Test of Equality F** (p-value)</i>
	<i>Life Science 100</i>	<i>Comm Arts 100</i>	<i>EPD 155</i>	<i>English 100</i>	
<i>Moderate</i>					
<i>Organize ideas for a paper or speech/presentation?</i>	.63 (4.12)	.74 (5.40)	.59 (4.11)	.71 (5.41)	0.41 (.747)
<i>Select and focus topics for a paper or speech/presentation?</i>	.63 (5.52)	.51 (5.02)	.53 (5.06)	.64 (6.52)	0.70 (.554)
<i>Support ideas in a paper or speech?</i>	.58 (5.04)	.49 (4.81)	.38 (3.50)	.37 (3.73)	1.42 (.237)
<i>Judge the credibility and soundness of evidence?</i>	.52 (4.49)	.52 (5.03)	.50 (4.60)	.25 (2.49)	3.03 (.029)
<i>Improve your grammar, punctuation, and style?</i>	.67 (4.19)	.38 (2.67)	.45 (3.08)	.32 (2.36)	1.60 (.189)
<i>Weak</i>					
<i>Use language clearly and appropriately?</i>	.06 (0.51)	.30 (2.94)	-.05 (0.49)	.08 (0.83)	3.39 (.018)
<i>Recognize logically sound arguments?</i>	.31 (2.49)	.10 (0.91)	.14 (1.20)	.03 (0.26)	1.65 (.178)

*Absolute values of t-ratios appear in parentheses below the differences in means. T-ratios less than 1.96 are not statistically significant; those above 2.50 are significant at less than the .01 level.

**The F-statistic in last column tests the hypothesis that effect of all Comm–A courses is equal; i.e., each course mean exceeds the mean for non-Comm–A students by an equal amount.

**Table 9 Tests of Differences in Means on General Communication Skills Scale,
by Comm-A Status, Fall 2006-07.**

<i>Comm-A Status</i>	<i>Means</i>	<i>t-ratio (p-value)</i>
<i>(1) ESL Comm-A</i>	3.10	
<i>(2) Regular Comm-A</i>	3.11	
<i>(3) No Comm-A</i>	2.40	
<i>Difference (1) - (2)</i>	-0.01	0.02 (.99)
<i>Difference (1) - (3)</i>	.71	10.31 (.000)

Table 10. Estimates of the Effect of Comm–A Requirement on Scores of ESL Students on Selected Dimensions of Communication Skill, Fall 2006-07.

<i>Items</i>	<i>Means</i>			<i>t-ratio</i>	<i>p-value</i>
	<i>ESL Comm--A (1)</i>	<i>Not Comm--A (2)</i>	<i>Diff (1)-(2)</i>		
<i>Very Strong</i>					
<i>Retrieve and analyze information from library databases?</i>	3.37	1.92	1.44	15.53	.000
<i>Use library databases to locate research materials specific to the topic of a paper or speech/presentation?</i>	3.30	1.87	1.43	14.11	.000
<i>Cite sources and avoid plagiarism?</i>	3.50	2.35	1.16	11.06	.000
<i>Strong</i>					
<i>Deliver a speech or oral presentation?</i>	2.65	1.77	0.88	10.00	.000
<i>Write and revise drafts of a paper or speech/presentation?</i>	3.28	2.50	0.78	7.28	.000
<i>Critique speeches/presentations or papers?</i>	2.84	2.11	0.73	7.32	.000
<i>Improve your grammar, punctuation, and style?</i>	2.90	2.22	0.68	6.28	.000
<i>Organize ideas for a paper or speech/presentation?</i>	3.33	2.66	0.67	6.47	.000

Table 10. Estimates of the Effect of Comm–A Requirement on Scores of ESL Students on Selected Dimensions of Communication Skill, Fall 2006-07. (Continued)

<i>Items</i>	<i>ESL Comm--A (1)</i>	<i>Not Comm--A (2)</i>	<i>Diff (1)-(2)</i>	<i>t-ratio</i>	<i>p-value</i>
<i>Moderate</i>					
<i>Produce papers or speeches/presentation for a specific audience?</i>	2.89	2.31	0.59	5.43	.000
<i>Select and focus topics for a paper or speech/presentation?</i>	3.18	2.66	0.52	5.17	.000
<i>Judge the credibility and soundness of evidence?</i>	2.95	2.49	0.45	4.70	.000
<i>Support ideas in a paper or speech?</i>	3.24	2.91	0.34	3.22	.001
<i>Weak</i>					
<i>Recognize logically sound arguments?</i>	3.02	2.89	0.13	1.35	0.18
<i>Use language clearly and appropriately?</i>	3.01	2.97	0.04	0.36	0.64

Table 11. Comparison of ESL and Other Comm–A Students on Individual Selected Dimensions of Communication Skill, Fall 2006-07.

<i>Items</i>	<i>Means</i>			<i>t-ratio</i>	<i>p-value</i>
	<i>Comm--A (1)</i>	<i>ESL Comm–A (2)</i>	<i>Diff (1)-(2)</i>		
<i>Moderate difference</i>					
<i>Deliver a speech or oral presentation?</i>	2.98	2.65	.33	4.13	.000
<i>Retrieve and analyze information from library databases?</i>	3.08	3.37	-.29	4.06	.000
<i>Produce papers or speeches/presentation for a specific audience?</i>	3.21	2.89	.31	3.86	.000
<i>Improve your grammar, punctuation, and style?</i>	2.61	2.90	-.30	3.43	.001
<i>Small difference</i>					
<i>Cite sources and avoid plagiarism?</i>	3.38	3.50	-.13	1.74	.082
<i>Support ideas in a paper or speech?</i>	3.35	3.24	.11	1.57	.120
<i>No difference</i>					
<i>Use library databases to locate research materials specific to the topic of a paper or speech/presentation?</i>	3.22	3.30	-.08	1.03	.300
<i>Use language clearly and appropriately?</i>	3.08	3.01	.07	0.91	.360

Table 11. Comparison of ESL and Other Comm–A Students on Individual Selected Dimensions of Communication Skill, Fall 2006–07.

(Continued)

<i>Items</i>	<i>Means</i>			<i>t-ratio</i>	<i>p-value</i>
	<i>Comm–A (1)</i>	<i>ESL Comm–A (2)</i>	<i>Diff (1)-(2)</i>		
<i>Select and focus topics for a paper or speech/presentation?</i>	3.24	3.18	.06	0.84	.403
<i>Critique speeches/presentations or papers?</i>	2.90	2.84	.06	0.72	.472
<i>Recognize logically sound arguments?</i>	2.98	3.02	-.05	0.61	.544
<i>Organize ideas for a paper or speech/presentation?</i>	3.28	3.33	-.05	0.67	.672
<i>Judge the credibility and soundness of evidence?</i>	2.92	2.95	-.03	0.33	.744
<i>Write and revise drafts of a paper or speech/presentation?</i>	3.29	3.28	.01	0.16	.867



General Education Assessment

Please think about the courses that you took at UW during the fall semester. This includes the lectures, readings, discussion sections, and assignments, as well as any other experiences you had as part of these courses.

How much did any of these courses teach you to do each of the following:

(Please circle one answer for each item)

	Not at all	A little	A fair amount	A lot
1. Deliver a speech or oral presentation?	1	2	3	4
2. Retrieve and analyze information from library databases?	1	2	3	4
3. Select and focus topics for a paper or speech/presentation?	1	2	3	4
4. Recognize logically sound arguments?	1	2	3	4
5. Use language clearly and appropriately?	1	2	3	4
6. Support ideas in a paper or speech/presentation?	1	2	3	4
7. Produce papers or speeches/presentations for a specific audience?	1	2	3	4

(Please continue on the next page)

How much did any of these courses teach you to do each of the following:

(Please circle one answer for each item)

	Not at all	A little	A fair amount	A lot
8. Judge the credibility and soundness of evidence?	1	2	3	4
9. Organize ideas for a paper or speech/presentation?	1	2	3	4
10. Improve your grammar, punctuation, and style?	1	2	3	4
11. Cite sources and avoid plagiarism?	1	2	3	4
12. Use library databases to locate research materials specific to the topic of a paper or speech/presentation?	1	2	3	4
13. Write and revise drafts of a paper or speech/presentation?	1	2	3	4
14. Critique speeches/presentations or papers?	1	2	3	4

Thank you for your help!

Please return this completed questionnaire in the postage paid envelope provided,
or send it to:

UW Survey Center, 630 W Mifflin St. Room 174, Madison, WI 53703-2636.

