

## Ratings of Competence: From New Freshmen to Ten-Year Alumni

Gerald M. Gillmore  
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### OVERVIEW

Surveys were administered to six distinct student and alumni groups during 1998, from new freshmen to alumni ten years after graduation from UW. Each survey asked respondents to rate their competence on seventeen abilities. The purpose of this study was to examine differences among the six groups in their average ratings these abilities, most of which showed a significant increase in average perceived competence. A common pattern was that of growth from new student to senior, a leveling off for the first post-graduate year, and then more growth as alumni are out of UW five and ten years. It appears that UW is succeeding in building competence in students, but not uniformly on all dimensions, and perceived competence on most abilities continues to grow after college.

### METHOD AND PURPOSE

During 1998, surveys were administered to the following groups of UW undergraduate students and alumni with UW bachelor degrees. The reports listed with each survey describe the specific methodology, response rates, and the frequency of responses to each survey item. The number of respondents is also listed.

- New Freshmen ([98-4](#)) [n = 3158]
- New Transfers ([98-4](#)) [n = 893]
- Seniors ([98-5](#)) [n = 629]
- Alumni, one year after graduation ([98-7](#)) [n = 2271]
- Alumni, five years after graduation ([98-8](#)) [n = 1742]
- Alumni, ten years after graduation ([98-8](#)) [n = 1393]

New freshmen and transfer students were surveyed during new student registration. For the seniors, a random sample of 1500 students was surveyed via mail. All bachelor-degree-level alumni from the three distinct graduating classes were also surveyed via mail.

Among the many questions asked, all groups were asked to: *Rate yourself on each of the following abilities. We want your most accurate estimate of how you see yourself.* This request was followed by a list of 17 abilities. The response scale used, and the weight given each, was:

- Excellent (5)
- Very Good (4)
- Good (3)
- Fair (2)
- Poor (1)

The purpose of this study is to examine differences among the six groups in their average ratings of the 17 items. Do we see increases from freshman to seniors? Is there continued growth after graduation?

## ANALYSES

One-way analyses of variance were conducted on each of the 17 abilities, with respondent's group membership (freshman, transfer, etc.) as the independent variable. All of these analyses were significant beyond the  $p < .001$  level except one which was significant beyond the  $p < .005$  level. The eta-squared statistic was also computed. Eta squared indexes the percent of total variance that is explainable by differences in the independent variable. For these analyses, one can view the total variation as coming from two sources - differences among individuals within survey groups and differences among survey groups. The eta-squared values indicate the proportion of the latter relative to the sum of the two.

The 17 abilities are listed in Table 1 below, in the order of the magnitude of their associated eta-squared values. By clicking on the figure number, one can see the corresponding graph of the group averages.

**Table 1. The Abilities, Eta Squared and the Corresponding Figure**

Ability	Eta Sq	Figure
Locating information needed to help make decisions or solve problems	11.4%	<a href="#">1</a>
Critically analyzing written information	10.6%	<a href="#">2</a>
Defining and solving problems	8.1%	<a href="#">3</a>
Understanding the interaction of society and the environment	5.7%	<a href="#">4</a>
Writing effectively	5.1%	<a href="#">5</a>
Using a foreign language	4.7%	<a href="#">6</a>
Working and/or learning independently	4.5%	<a href="#">7</a>
Working effectively with modern technology, especially computers	4.4%	<a href="#">8</a>
Speaking effectively	3.5%	<a href="#">9</a>
Understanding and appreciating diverse philosophies and cultures	2.9%	<a href="#">10</a>
Working cooperatively in a group	1.4%	<a href="#">11</a>
Understanding and applying quantitative principles and methods	1.0%	<a href="#">12</a>
Using management or leadership capabilities	0.9%	<a href="#">13</a>
Using knowledge gained from outside of your major field	0.9%	<a href="#">14</a>
Using the knowledge, ideas or perspectives gained from your major field	0.4%	<a href="#">15</a>
Understanding and appreciating the arts	0.3%	<a href="#">16</a>
Understanding and applying scientific principles and methods	0.2%	<a href="#">17</a>

## RESULTS

In viewing the results, some general patterns are evident. First, there was a statistically significant linear trend for all abilities but one, with the lowest average tending to come from the freshmen and the highest from the ten-year alumni. This pattern is perfectly illustrated for the ability *Working and/or learning independently* (Figure 7). Each successive mean is greater than the one preceding it. For *Using a foreign language* (Figure 6) and *Using the knowledge, ideas or perspectives gained from your major field* (Figure 15), the trend was in the opposite direction. For the former, freshmen and seniors were essentially equivalent in their averages, while the mean of each successive alumni group shrunk. For the latter item, there was also a small tendency for the means of each successive alumni group to shrink (New freshmen and transfers were excluded from this analysis because they had not yet studied in a major field). The one ability that showed no linear trend was *Understanding and appreciating the arts* (Figure 16), for which the means peaked at the senior and one year alumni ratings.

For about half of the abilities the positive linear trend was also characterized by similarity in averages among pairs of groups: new freshmen and transfers, seniors and one-year alumni, and five-year and ten-year alumni. Items best exhibiting this pattern - three stages of progression rather than five -- were *Speaking effectively* (Figure 9) and *Writing Effectively* (Figure 5).

The data sets analyzed contained over one thousand cases, thus small differences can yield significant differences. For this reason, the eta-squared statistic may be a better indicator of the importance of the differences. Based on values of eta squared, one can see a substantial difference among groups for *Locating information needed to help make decisions or solve problems* (Figure 1), *Critically analyzing written information* (Figure 2), and *Defining and solving problems* (Figure 3). For each of these abilities lowest average is given by new freshmen. There is a larger mean for new transfers and a larger mean yet for seniors. The difference between seniors and one-year alumni is negligible, but the means for five-year alumni and ten-year alumni rise substantially.

At the bottom end of the list, the differences for *Understanding and applying scientific principles and methods* (Figure 17), *Understanding and appreciating the arts* (Figure 16), and *Using the knowledge, ideas or perspectives gained from your major field* (Figure 15) tend to be small. For the first, the change, while small, is positive, for the second, there is an increase followed by a decrease, and for the third the change is negative.

## DISCUSSION

Reported above are self-ratings of competence and one must carefully interpret the results in this way. It would be a mistake to assume that these ratings necessarily reflect actual competence by valid, objective criteria. Nonetheless, it is hard to imagine a set of objective measures both valid for such a heterogeneous group of individuals and abilities and feasible to collect. Another limitation is that the perspective and the standard against which the respondents are evaluating themselves may shift over time, even though the question is asked in absolute terms. For example, new freshmen may be evaluating their abilities relative to their high school classmates, while alumni use their fellow workers as a yardstick. Previous research has shown that new freshmen tend to be optimistic in their ratings of their academic ability (OEA Report N-96-2). Seventy-five percent of the new freshmen respondents agreed or

strongly agreed that they would achieve a UW grade point average of 3.5 or above. We suspect that all groups may share this optimism, to a greater or lesser extent, though certainly not all individuals. One-year alumni have been surveyed regularly by OEA over the last decade. There has been a tendency for successive graduating classes to show greater satisfaction with their UW education with regard most of the abilities ([OEA Report N-96-6](#)). (Note that the previous surveys have not asked alumni to rate their abilities and the current survey added four items.) We infer from this result that the higher average ratings found for most abilities for alumni who graduated earlier are not a result of their leaving UW with more ability. Rather, we assume they are a result of increasing competence caused by the workplace and, for some, further education.

Many items fit a pattern that would be expected, which is of growth from new student to senior, a leveling off during the first post-graduate year where many alumni are in entry-level jobs, and then continued growth when one has had an opportunity to advance in the job market (plus graduate education for some). This general result validates the instrument. The abilities that show the strongest apparent growth following this pattern are those with the highest associated eta-squared values: *Locating information needed to help make decisions or solve problems* ([Figure 1](#)), *Critically analyzing written information* ([Figure 2](#)), and *Defining and solving problems* ([Figure 3](#)). One can conclude, based on these self-ratings, that it is in these areas that UW is doing the best job of improving student ability and preparing students for life-long learning.

At the other end, the areas of least impact on the student body as a whole are those with the lowest eta-squared values; in particular *Understanding and applying scientific principles and methods* ([Figure 17](#)) and *Understanding and appreciating the arts* ([Figure 16](#)). Apparently, these are abilities that are not being improved for most students during college and are not playing a large role in the post-graduate lives of most of the alumni.

The results of *Using a foreign language* ([Figure 6](#)) make sense. This item is the lowest rated item across all respondents, nonetheless the highest rating is by freshmen, who have just studied a language in high school, and again by seniors, most of whom have had to meet the UW foreign language requirement. Transfer students as a groups may be less likely to have studied or used a foreign language in recent years and thus lost confidence in their ability. Similar erosion is seen by alumni, progressively as they move farther away from their formal instruction.

One can conclude from these results that UW is succeeding in building competence in students, but not uniformly on all dimensions. One can assume that the greatest improvement during the years of college would be in the area of the major; but since new students do not have a major we cannot make this comparison. It is also encouraging that perceived competence in most of the abilities apparently continues to grow after college. It would be interesting to compare these results with results of similar surveys of non-college attendees to assess relative growth during the years of colleges and the effects of college on later growth.

## FIGURES













