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Rubrics for Assessing Oral Communication in the Capstone Design Experience: Development, Application, Analysis and Refinement*

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The importance of good communication skills is becoming increasingly relevant to engineers in today's globally competitive environment. The Accreditation Board for Engineering and Technology (ABET), recognizing this phenomenon, introduced six professional skills along with the various hard skills in their new accreditation criteria EC2000 for all engineering programs. At the Milwaukee School of Engineering (MSOE), rubrics were developed to aid in assessing the oral presentations made during the capstone senior design sequence. These rubrics have been applied by various senior design professors each quarter to assess all the mid-quarter presentations. The analysis (using the Spearman Rank Correlation Test and a Rater Disagreement Metric) of data collected over four quarters indicates that by repeatedly applying, analyzing and refining a rubric, it is possible to minimize the often subjective means of evaluating communication skills and move towards more objective evaluations. Over the past three years, multiple evaluators have shown strong agreement in the quality of student presentations. However, they have not yet arrived at a complete consensus indicating that we as yet do not have a completely reliable and objective tool and more work needs to be done in this area.

Keywords: assessment; oral communication; rubrics; inter-rater reliability

INTRODUCTION

IN THE CURRENT ENVIRONMENT of rapid technological change, "real-time" information exchange, and stiff global competition, the importance of good communication skills, both written and oral, is becoming increasingly important for engineers. As a result, the number of engineering programs that are proactively taking steps to ensure that this is true of their graduates is increasing [1, 2]. This change coupled with the movement of accreditation, both regional and specialized, is creating some positive changes in academia [3, 4].

At the Milwaukee School of Engineering (MSOE), the first factor has led to establishment of program objectives and outcomes related to communication skills in the Computer Engineering (CE) and Software Engineering (SE) programs. The Accreditation Board for Engineering and Technology (ABET) accredited status of their programs has mandated that processes and procedures be in place to assess and improve program objectives and outcomes on a regular basis.

* Accepted 20 August 2007.

BACKGROUND

The academic community for engineering education is facing some serious challenges in the 21st century. The engineering labor pool that they help produce is increasingly being viewed as a commodity by the corporate world rather than a profession. Consequently, a growing number of developing countries with young, intellectual population and lower wages (*i.e.*, countries with a substantial labor pool) are successfully competing for highly skilled jobs [2, 6]. The repeated feedback from industry continues to be that the nation's colleges and universities are doing an inadequate job in preparing the next generation of professionals [1]. The industry contends that the gap between the communication skills that the industry expects and what our graduates possess is huge.

ABET recognized this phenomenon and made some proactive changes when developing the new engineering accreditation criteria. In EC2000, ABET reaffirmed a set of "hard" engineering skills while introducing a set of six "professional" skills for Criterion 3 [ABET (a)–(k)] [2, 5]. ABET's Criterion 3(g) specifically deals with "an ability to communicate effectively".

Accreditation needs at MSOE have led to the

establishment of program objectives and outcomes related to communication skills in the CE and SE programs. Because both programs are ABET-accredited, they are required to have processes in place to assess student achievement in these areas and ensure continuous improvement. This provided impetus for our work in this area.

The CE program has a program outcome which states that their graduates:

- will have strong oral and written communication skills (outcome #5).

On the other hand, the SE program has both an objective and outcome related to this important skill. The SE program objective states that graduates:

- of the software engineering program will be proficient in oral and written communication, and effective in team work (objective #3).

And the outcome states that:

- upon successful completion of the software engineering program, graduates will have strong oral and written communication skills (outcome # 9).

A detailed list of program objectives and outcomes for the CE and SE program respectively can be found at http://resources.msoe.edu/cdb/programs.php?major=CE&status=A and http://resources.msoe.edu/cdb/programs.php?major=SE&status=A

CURRICULAR CONTEXT

MSOE is considered a selective school and was ranked ninth in Best Undergraduate Engineering Programs for 2007 by *US News and World Report* [7]. The SE program at MSOE started in 1999 and is one of the first four ABET-accredited baccalaureate SE programs in the United States. The CE program at MSOE also enjoys a very strong reputation nationally. The academic schedule at MSOE is based on a quarter system with three quarters in an academic year. Each quarter involves ten weeks of instruction with the eleventh week devoted to final exams.

The program outcomes for both the CE and SE programs at MSOE are based on the ABET Criterion 3(a)–(k). ABET Criterion 3(c) requires the following hard skill of all engineering baccalaureate graduates:

- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health-safety, manufacturability and sustainability.

The senior design experience for the CE and SE programs at MSOE is the capstone design project where the students work in a multidisciplinary team for two or three quarters on a project that meets the ABET requirements mentioned above. The senior design project, in its current form, consists of two required courses. The course outcomes for these courses are:

Upon successful completion of this course, a student will:

- work effectively and demonstrate initiative as a project team member
- communicate project status and technical content in oral and written form to coworkers and management
- communicate appropriate project aspects to a variety of customers in a public forum
- manage project resources, risks, and contingency plans
- elicit and document project requirements
- perform research and investigate technologies to reduce project risks and support design and planning
- identify and address relevant engineering standards and constraints in a design project context
- prepare appropriate documentation for a complex project
- design, implement, and test hardware and software components and systems, if appropriate.

The senior design sequence is designed to help pull together all that the students have learned during their academic careers. The students also have the option of taking a third quarter of senior design in lieu of a program elective. Over the last few years, more and more student teams have opted for a 3-quarter senior design project sequence instead of the 2-quarter sequence. Starting with the fall 2006 freshman CE class, a 3-quarter senior design project is mandatory. The faculty in the SE program are currently evaluating the pros and cons of making a 3-quarter senior design sequence mandatory for the corresponding SE class.

The first quarter focuses primarily on feasibility, experimentation, research, requirements, and design, while the final quarter deals with implementation, testing, and final documentation. The teams meet with their advisors on a weekly basis for a status update. Along with providing technical advice and expertise, the advisor also acts as a project manager and helps the teams scope their projects appropriate to the team size and project duration.

Each team has to make one oral presentation during the middle of each quarter. The audience consists of all the senior design advisors and other senior design students, most of whom are relatively unfamiliar with each other's projects.

We require that our students, at the time of the presentation, think of the audience as a technically competent board of directors who are going to make a decision as to whether to continue funding the project. The goal of the presentations is to remind the board of directors of the project's purpose and convince them that a viable plan exists to deliver the product on time.

Because these presentations provide a key

Table 1. Evolution of the group presentation rubric. As faculty gained more experience with the rubric, the evaluation load was reduced from about 30 to about 17 scores per presentation, making continued use practical while maintaining sufficient depth of feedback

	Version 1	Version 2	Version 3
Introduced	Fall, 2004	Winter, 2004-2005	Fall, 2006
Quarters used	1	5	1 so far
Team categories	10	6	5
Individual categories	5	4	3
Total categories	15	10	8
Scores for a typical team of 4	30	22	17

opportunity to evaluate and assess oral communication skills, a rubric was developed and used by the senior design faculty to evaluate these presentations. All presentations are evaluated by all the advisors using the rubric. The results are then compiled by one person and the feedback delivered to the students.

The literature shows that the feedback processes have a positive impact on student development of communication skills [2]. Additionally, anecdotal evidence from the students and the faculty suggest that the communication skills of our students continue to improve. The more feedback the students' receive, the better they get.

RUBRIC DEVELOPMENT

The senior design presentation rubric, under discussion here and provided in the Appendix, was initially developed in fall of 2004. Several of its aspects were inspired by four rubrics that were found on the Web by doing a Google search for "group presentation rubric." They are listed below:

- http://www.scarborough.k12.me.us/middle/contribute/quest/grouprbr.html [no longer online, see http://preview.tinyurl.com/mza8n8 for an archived version] This rubric has a clear, four-point scale (beginning, developing, accomplished, exemplary) and is a solid, broad basis for almost any type of group, oral presentation. The authors added labels to the categories on this rubric and used it as the core.
- http://westy.jtwn.k12.pa.us/users/mjr/rubrics.html [no longer online, see http://preview.tinyurl.com/ylqox8 for an archived version] This rubric provided some additional insight and a prototype for how to evaluate the amount of time taken for the presentation.
- http://lrs.ed.uiuc.edu/Students/abeling/407/group_presentation_rubric.html [no longer online, see http://preview.tinyurl.com/kwgjw2 for an archived version] The major contribution of this source was the idea that multiple solutions should be considered and clearly identified through appropriate graphics.
- http://www.ncrel.org/mands/FERMI/prairie/9prairie/9rub1.html [no longer online, see http://preview.tinyurl.com/ye2dqo for an archived version] The general spirit of a final decision statement (called a "take home message" on our rubric) and consideration of multiple viewpoints (included under "questions or anticipation of" on our rubric) were borrowed from this rubric.

All other material on the rubric is the original work of one of the authors based on discussions with other senior design advisors. The rubric has been used for seven quarters now and has evolved during this time. We are currently using the third version of the rubric. Table 1 and Fig. 1 summarize the evolution of the rubric across the seven academic quarters. All three versions of the rubric are included for reference in the Appendix. After applying the rubric for the first time in the fall quarter of 2004, all four senior design advisors, who were also the complete set of evaluators, agreed that it took too much time to score presentations in all 15 of the categories. Five categories required individual scores, while a single team score was assigned for the other ten. For a typical team of four members, this meant that 30 scores were required from each evaluator for a typical presentation.

For the winter quarter of 2004–2005, a simpler version of the rubric was prepared, combining closely related categories. This resulted in having a total of ten categories, four of which required individual scores. For a typical team of four members, 22 scores were required. This second version of the rubric was used for five quarters, through the end of the 2005–2006 academic year.

For the fall quarter of 2006, a further simplified version of the rubric was prepared, based on the accumulated experience of faculty that certain categories were highly correlated. This resulted in eight categories, three of which required individual scores. For a typical team of four members, only 17 scores were required. Figure 1 illustrates the merging of categories across the three versions.

METHODS

Beginning with the fall quarter of 2005, the senior design faculty felt comfortable enough with version 2 of the rubric to begin a more in-depth pilot study of the rubric and its effectiveness in evaluating oral communication skills. During the 2005–2006 academic year the version 2 rubric was applied and analyzed three times (*i.e.*, once each quarter) and since then the version 3 rubric has been applied and analyzed once. Table 2

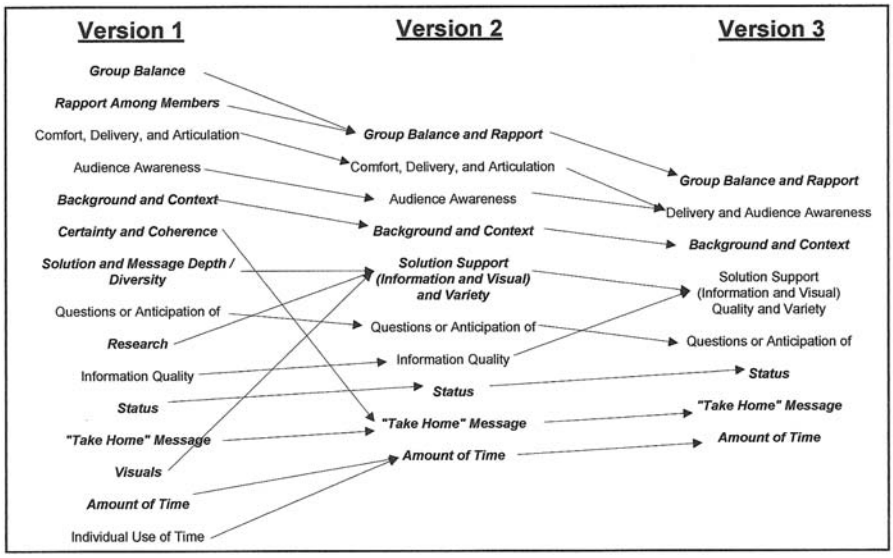

Fig. 1. Merging of categories as the rubric evolved. Bold, italic text for a category indicates that the team as a whole was evaluated while plain text indicates that each individual member was evaluated. Categories were merged based on evaluator experience to lessen the time required to rate each presentation, which had to be kept to a minimum in order to allow students to proceed through their presentations with acceptably small delays. Categories were only merged after the evaluators agreed that having the separate categories was not adding value nearly sufficient given the overhead.

summarizes the logistics of each application. As shown in the table, the fall 2006 application used a different group of faculty. In an effort to determine the objectivity of rubric evaluations, extensive data were collected for each of these applications every quarter. The primary goal was to determine whether there was significant inter-rater reliability as an indicator that the rubric was actually giving a reliable objective evaluation of each student presentation rather than a subjective impression.

RESULTS AND ANALYSIS

At first only a general look was taken at the raw scores for each student on the absolute scale of 1.0–4.0 in each of the rubric categories. These results are summarized in Table 3. This figure shows the average rating given (Avg. Rating), the standard deviation of those ratings (Std.), the lowest average for a single student (Low Avg.), the highest average for a single student (High Avg.), the lowest rating given (Low Rating), and the highest rating (High Rating) given. To facilitate comparison between evaluators this data is also presented graphically in Fig. 2.

At first glance these data give the impression that the evaluators were using roughly the same amount of the rating range and obtaining a typical average rating of approximately 3.4 to 3.5. While this seems rather high for a 4-point scale it was the subjective opinion of all the evaluators that even the worst students were capable of making a competent presentation.

The small standard deviation in the ratings of some evaluators and observed variations between the ratings given to individual students and student teams, however, told a somewhat different story. To a large extent most of the evaluators appeared to agree with the relative rankings of the various presentations, but during most of the quarters there was often significant disagreement in the quality of a few (1–3) presentations. This strongly suggested that more analysis was required before making a determination that the rubric results were more than just subjective.

To examine this proposition the Spearman Rank Correlation Test was employed [8]. The Spearman Test compares the differences between ratings by using their ordinal position. It is a useful non-parametric statistic for determining whether the relative ratings from multiple sources correlate in a statistically significant way. If the computed

Table 2. Rubric Application Logistics. Although the number of evaluators and projects varied, a minimum of three faculty were recruited for each application so that significant conclusions regarding agreement and disagreement could be reached

Term	Version number of the Rubric	Axes	Total number of senior design groups evaluated	Faculty members evaluating the senior design presentations
Fall 2005	2	10	9	A, B, C, D
Winter 2005–2006	2	10	16	A, B, C, D
Spring 2006	2	10	16	A, B, C, D
Fall 2006	3	8	10	B, E, F

Table 3. Comparison of evaluator raw scores on 4-point absolute scale

Term	Evaluator	Avg. Rating	Std.	Low Avg.	High Avg.	Low Rating	High Rating
Fall 2005	A	3.5	0.13	3.23	3.67	2.5	3.9
	B	3.5	0.26	2.94	3.84	1.5	4.0
	C	3.0	0.33	2.53	3.67	2.0	4.0
	D	3.2	0.23	2.53	3.37	2.0	3.9
Winter 2005–2006	A	3.5	0.06	3.39	3.62	3.0	3.9
	B	3.5	0.12	3.21	3.72	2.0	4.0
	C	3.4	0.08	3.31	3.58	2.6	4.0
	D	3.4	0.12	3.04	3.69	2.0	4.0
Spring 2006	A	3.5	0.09	3.19	3.72	3.0	3.9
	B	3.4	0.24	2.46	3.68	2.0	4.0
	C	3.2	0.31	2.33	3.74	1.5	4.0
	D	3.4	0.18	3.03	3.64	2.5	4.0
Fall 2006	B	3.3	0.09	3.09	3.49	2.7	3.7
	E	3.0	0.15	2.65	3.20	2.0	3.5
	F*	2.9	0.23	2.50	3.25	2.0	4.0

* Evaluator F used only integer ratings while all other evaluators used the full 4-point scale.

correlation, r_s, is greater than the associated significance threshold, computed by Spearman and dependant upon the sample size, then it can be reasonably concluded that the two evaluators do have inter-rater reliability. Thus, a conclusion that the results do correlate significantly is an indicator that the rubric can objectively indicate which presentations are better than others.

The results of applying the Spearman Test are included in Table 4. The statistically significant results have been bolded. As can be seen from the results, there is generally a strong inter-rater reliability though there has never been a case where the same two raters have agreed all the time.

Without addressing the use of the absolute rating scale, the generally strong inter-rater reliability illustrated in Table 4 suggests that an analysis mechanism that looks at the z-score of how each student scored relative to each individual evaluator's average and standard deviation might be a way of comparing evaluations while simultaneously reducing the general bias an evaluator may have to the overall rating scale. This alternative is also desirable because there is some overhead in computing the full Spearman Test.

To examine this possibility a Rater Disagreement Metric (R_d) has been proposed. It is computed by examining the standard deviation across evaluators of the average z-score the members of a team received from a particular evaluator. The algorithm for this is as follows:

1) For each evaluator, using his or her mean and standard deviation, compute the average z-score for each team.
2) Compute the rater disagreement for each team.

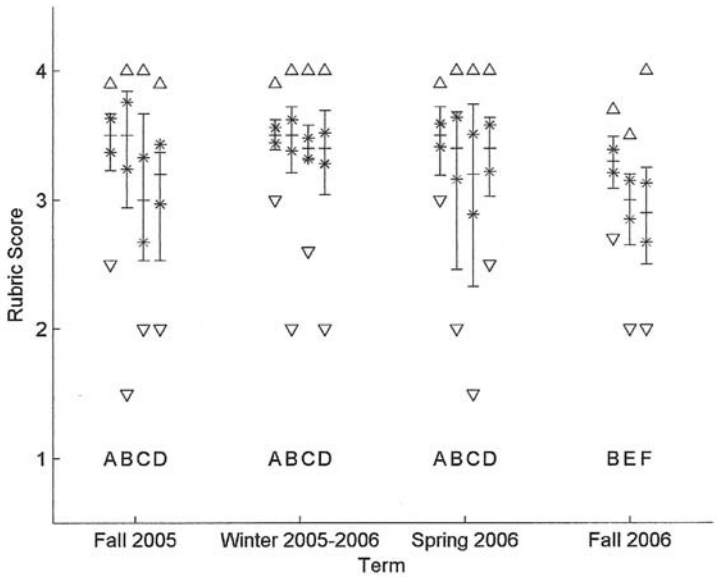

Fig. 2. Comparison of Evaluator Raw Scores on 4-Point Absolute Scale. *s show a ± one standard deviation range, triangles the high and low individual ratings, and bars the full range of average student ratings. Two indicators of an evaluator's use of the available range, average score, ranging from 2.9 to 3.5, and standard deviations of the individual scores, ranging from 0.06 to 0.33, both indicate that, in most terms, there was not high consistency in use of the absolute scale across evaluators.

Table 4. Spearman Rank Correlation Results. An $\alpha = 0.05$ significance was used. With the exception of the winter 2005–2006 quarter, most evaluators agreed with one another

Term				
Fall 2005	$\mathbf{r_s}$	B	C	D
9 Teams	A	**0. 833**	**0.717**	**0.667**
$r_s = 0.600$	B		**0.833**	0.433
	C			0.500
Winter 2005–2006	$\mathbf{r_s}$	B	C	D
16 Teams	A	0.031	**0.457**	–0.047
$r_s = 0.425$	B		0.268	–0.231
	C			–0.084
Spring 2006	$\mathbf{r_s}$	B	C	D
16 Teams	A	0.375	0.422	**0.503**
$r_s = 0.425$	B		**0.873**	**0.766**
	C			**0.743**
Fall 2006	$\mathbf{r_s}$	E	F	
10 Teams	B	0.515	**0.618**	
$r_s = 0.564$	E		**0.667**	

For example, if the z-score for a team by four different evaluators were computed as 0.58, 0.18, –0.41, 0.83, the rater disagreement (R_d) would be computed as R_d = stdev(0.58, 0.18, –0.41, 0.83) = 0.541

The R_d values have been computed for each of the four rubric applications and the scores were divided into three ranges. Those values below 0.350 indicate strong general agreement between evaluators. Those values between 0.350 and 0.700 show lesser agreement, and those above 0.700 show indications of disagreement. The results are included in Fig. 3.

Figure 3 suggests a general rule that if none of the R_d values is above 0.700 that we can reasonably conclude that there is general inter-rater reliability between evaluators. This is, as yet, an unproved (or even demonstrated) conclusion and will become the basis for further study.

CONCLUSIONS

Despite the often subjective way in which individuals evaluate oral communication skills it is possible to use a rubric to make this a more objective process. By repeatedly applying, analyzing, and refining a rubric it is possible to minimize the subjective elements in the rubric and move toward the objective evaluations that can be very valuable in program evaluation and assessment. The oral communication rubric developed at the Milwaukee School of Engineering has shown great promise as a mechanism for doing just that. Over the past three years we have successfully developed a rubric for which multiple evaluators are showing strong agreement in the quality of student presentations as demonstrated by statistically significant measurements of inter-rater reliability using the Spearman Rank Test and other metrics.

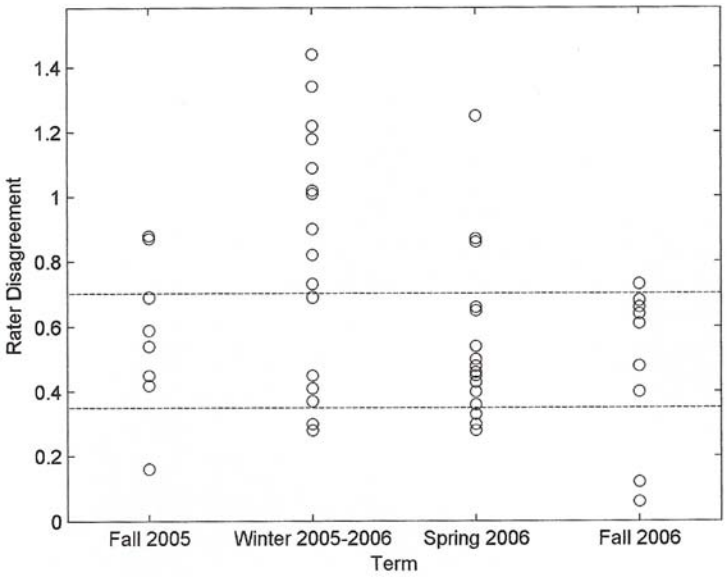

Fig. 3. Rater Disagreement Metric Results. The dashed lines separate what were subjectively determined to be thresholds between low, medium and high disagreement. This is consistent with the Spearman Rank measures from Table 4.

FUTURE WORK

Despite our successes, to date, with our oral evaluation rubric we realize that we as yet do not have a completely reliable and objective tool. The extensive lack of inter-rater reliability in winter 2005–2006 shows that continued work needs to be done to monitor and perhaps further refine the rubric. Possible areas for this research include further examination of the rater disagreement metric as a means of evaluating inter-rater reliability. Further, it may be possible to develop a norming exercise before each use so that the individual evaluators can better calibrate their use of the absolute rating scale and appropriate analysis tools would need to be developed to determine whether these ratings do, in fact, show inter-rater reliability on the absolute rather than relative scales. Once this is achieved it is likely that the rubric will be a truly objective evaluation of oral communication skills.

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APPENDIX

MSOE CE/SE Senior Design Group Presentation Rubric 1

Date and Time: Tuesday 12 October 2004 12:00 AM
Team: Wondrous Widget
Advisor: Dr. Jekyl
Evaluator: Professor Hyde

	Beginning - 1	Developing - 2	Accomplished - 3	Exemplary - 4	Team or Individual?	Weight	Name: Alpha Member 1 Score	Beta Member 2 Score	Gamma Member 3 Score	Delta Member 4 Score	Epsilon Member 5 Score
Group Balance	One main speaker; little participation from other group members	Most group members participate	All group members have significant participation	Well-balanced participation by all group members	*Team*	5%		0	0	0	0
Rapport Among Members	Members, perhaps inadvertently, show annoyance or dissatisfaction with other members	Members are civil but uncoordinated or awkward	Members are comfortable with each other	Members are in sync and their interactions do not distract from the presentation	*Team*	5%		0	0	0	0
Comfort, Delivery, and Articulation	Speech and physical mannerisms clearly indicate nervousness or extreme discomfort	Reasonably fluid, but noticeably nervous, fidgeting, some distracting speech mannerisms	Fluid, few nervous mannerisms, little to no fidgeting	Confidence-inspiring comfort, articulation, and flow	Individual	5%					
Audience Awareness	Mostly unaware of audience	Minimal eye contact	Presence and direction shown towards audience	Audience is involved (at least mentally) in presentation	Individual	10%					
Background and Context	Minimal background pertaining to group point-of-view presented	Some background given but significant pieces missing	Background adequate but lacks flow	In-depth background information	*Team*	5%		0	0	0	0
Certainty and Coherence	No message / decision, or no evidence given	No consensus among group members, or no explanation given for group message / decision	Message / decision given, but not fully supported by evidence	Message / decision given, evidence well-chosen, explanation thorough	*Team*	5%		0	0	0	0
Solution and Message Depth / Diversity	An insufficient number of solutions / approaches were considered in the presentation.	Excessive use of straw man solutions and approaches.	Each of the solutions and approaches were clearly identified in the presentation	Each of the solutions and approaches were clearly identified through charts, diagrams, etc. in the presentation.	*Team*	5%		0	0	0	0
Questions or Anticipation of	No consideration of another point-of-view	Response shows lack of understanding	Adequate response given	Response to another point-of-view shows insight	Individual	10%					
Research	Minimal or irrelevant	One or perhaps two essentially undigested sources	Multiple sources and basic comparative analysis	Critical and pragmatic comparison of multiple sources	*Team*	5%		0	0	0	0
Information Quality	Inaccurate information given	Most information accurate	Information accurate	Accurate, in-depth information enhances presentation	Individual	10%					
Status	Absent, confusing, or misleading	Basic summary with key components missing	Thorough, factual status report	Concise, digested, relevant status report	*Team*	10%		0	0	0	0
"Take Home" Message	Contradictory or ambiguous	Acceptable message with limited support and integration	Strong, logical support of clear message	Thematic integration of clear message	*Team*	10%		0	0	0	0
Visuals	Very weak visual component	Some pictures or diagrams, but poorly planned	Adequate visuals, but not very interesting	Visually attractive, uses space well	*Team*	5%		0	0	0	0
Amount of Time	< 55% of nominal or cut off abruptly	< 65% or cut off	< 75% or rushed at end	75-100%	*Team*	5%		0	0	0	0
Individual Use of Time	Some topics omitted or excessively dwelled upon	All topics covered at least minimally, none to excess	Appropriate balance	Balanced and engaging	Individual	5%					
						100%	0.00	0.00	0.00	0.00	0.00

Notes

Fig. 4. Version 1 of the rubric.

MSOE CE/SE Senior Design Group Presentation Rubric 2

Date and Time:	Monday 10 October 2005 11:00 AM
Team:	Wondrous Widget
Advisor:	Dr. Jekyl
Evaluator:	Professor Hyde

	Beginning - 1	Developing - 2	Accomplished - 3	Exemplary - 4	Team or Individual?	Weight	Name: Alpha Member 1 Score	Beta Member 2 Score	Gamma Member 3 Score	Delta Member 4 Score	Epsilon Member 5 Score
Group Balance and Rapport	One main speaker; members show annoyance or dissatisfaction with other members	Most group members participate; members are civil but uncoordinated or awkward	All group members have significant participation; members are comfortable with each other	Well-balanced participation by all group members; members are in sync with each other	***Team***	10%		0	0	0	0
Comfort, Delivery, and Articulation	Speech and physical mannerisms clearly indicate nervousness or extreme discomfort	Reasonably fluid, but noticeably nervous, fidgeting, some distracting speech mannerisms	Fluid, few nervous mannerisms, little to no fidgeting	Confidence-inspiring comfort, articulation, and flow	Individual	10%					
Audience Awareness	Mostly unaware of audience	Minimal eye contact	Presence and direction shown towards audience	Audience is involved (at least mentally) in presentation	Individual	10%					
Background and Context	Minimal background pertaining to group point-of-view presented	Some background given but significant pieces missing	Background adequate but lacks flow	In-depth, appropriate background information	***Team***	10%		0	0	0	0
Solution Support (Information and Visual) and Variety	An insufficient number of solutions / approaches were considered; very weak visual component	Excessive use of straw man solutions and approaches; some pictures or diagrams, but poorly planned	Each of the solutions and approaches were clearly identified; visuals were adequate, but not very interesting	Each approach was clearly identified through visually attractive charts, diagrams, etc.; space was used well	***Team***	10%		0	0	0	0
Questions or Anticipation of	No consideration of another point-of-view	Response shows lack of understanding	Adequate response given	Response to another point-of-view shows insight	Individual	10%					
Information Quality	Inaccurate information given	Most information accurate	Information accurate	Accurate, in-depth information enhances presentation	Individual	10%					
Status	Absent, confusing, or misleading	Basic summary with key components missing	Thorough, factual status report	Concise, digested, relevant status report	***Team***	10%		0	0	0	0
"Take Home" Message	Contradictory or ambiguous	Acceptable message with limited support and integration	Strong, logical support of clear message	Thematic integration of clear message	***Team***	10%		0	0	0	0
Amount of Time	< 55% of nominal or cut off abruptly	< 65% or cut off	< 75% or rushed at end	75-100%	***Team***	10%		0	0	0	0
						100%	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

References

http://www.scarborough.k12.me.us/middle/contribute/quest/grouprbr.html
http://westy.jtwn.k12.pa.us/users/mj/rubrics.html
http://frs.ed.uiuc.edu/Students/abelling/407/group_presentation_rubric.html
http://www.ncrel.org/mandala/FERM/prairie/Sprairie/Srub1.html
Original material by Dr. E. Durant

Notes

Fig. 5. Version 2 of the rubric.

MSOE CE/SE Senior Design Group Presentation Rubric 3

Date and Time:	Friday 6 October 2006 12:00 PM
Team:	Wondrous Widget
Advisor:	Dr. Jekyl
Evaluator:	Professor Hyde

	Beginning - 1	Developing - 2	Accomplished - 3	Exemplary - 4	Team or Individual?	Weight	Name: Alpha Member 1 Score	Beta Member 2 Score	Gamma Member 3 Score	Delta Member 4 Score	Epsilon Member 5 Score
Group Balance and Rapport	One main speaker; members show annoyance or dissatisfaction with other members	Most group members participate; members are civil but uncoordinated or awkward	All group members have significant participation; members are comfortable with each other	Well-balanced participation by all group members; members are in sync with each other	*Team*	15%		0	0	0	0
Delivery and Audience Awareness	Mostly unaware of audience, speech and mannerisms clearly indicate nervousness or extreme discomfort	Minimal eye contact, reasonably fluid, but noticeably nervous, fidgeting, some distracting mannerisms	Presence and direction shown towards audience, fluid, few nervous mannerisms, little to no fidgeting	Audience is involved (at least mentally) in presentation, confidence-inspiring comfort, articulation, and flow	Individual	15%					
Background and Context	Minimal background pertaining to group point-of-view presented	Some background given but significant pieces missing	Background adequate but lacks flow	In-depth, appropriate background information	*Team*	15%		0	0	0	0
Solution Support (Information and Visual) Quality and Variety	An insufficient number of solutions / approaches were considered; very weak visual component; inaccurate information	Excessive use of straw man solutions and approaches; some pictures or diagrams, but poorly planned; most information accurate	Each of the solutions and approaches were clearly identified; visuals were adequate, but not very interesting; information accurate	Each approach was clearly identified through visually attractive charts, diagrams, etc.; space was used well; information chosen enhanced presentation	Individual	15%					
Questions or Anticipation of	No consideration of another point-of-view	Response shows lack of understanding	Adequate response given	Response to another point-of-view shows insight	Individual	10%					
Status	Absent, confusing, or misleading	Basic summary with key components missing	Thorough, factual status report, but without significant intrepretation	Concise, digested, relevant status report explaining the planned timeline and where the team is today, including effects of key risks	*Team*	15%		0	0	0	0
"Take Home" Message	Contradictory or ambiguous	Acceptable message with limited support and integration	Strong, logical support of clear message	Thematic integration of clear message, no ambiguity at end of presentation	*Team*	5%		0	0	0	0
Amount of Time	< 55% of nominal or cut off abruptly	< 65% or cut off	< 75% or rushed at end	75-100%	*Team*	10%		0	0	0	0
						100%	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

References

http://www.scarborough.k12.ri.us/middle/contribute/quest/grouprbr.html
http://westy.bwn.k12.pa.us/users/mjm/rubrics.html
http://rs.ed.uiuc.edu/Students/abe/engl407/group_presentation_rubric.html
http://www.ncrel.org/msands/FERM/Iprairie/9prairie/9rub1.html
Original material by Dr. E. Durant

Notes

Fig. 6. Version 3 of the rubric.