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A LIVING HISTORY OF WPI – PART III

An Interactive Qualifying Project Report
submitted to the Faculty of
WORCESTER POLYTECHNIC INSTITUTE
in partial fulfillment of the requirements for the
Degree of Bachelor of Science

by

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Abstract

The objective of this work is to create a unique first-person history of Worcester Polytechnic Institute by interviewing individuals who played key roles in the university's recent history. These interviews were videotaped, thematically organized, and edited using nonlinear computer techniques. Particular thematic emphasis is placed the WPI social community and how it has changed. The conclusions and recommendations focus on changes in student / faculty interaction, and the emphasis on research and tenure over the best interests of students.

Authorship

This project report is the joint work of John R. Pattison and Amish A. Patel.

The Background section was the primary work of Amish A. Patel. The Procedure, Results, and Analysis of Results sections were the primary work of John R. Pattison. All sections are the result of joint effort, regardless of the primary author.

The video documentary associated with this project report contains footage from a series of interviews produced by Allison Berube, Christopher P. Bitzas, Jared P. Hill, Jeffrey D. Moore, Amish A. Patel, and John R. Pattison.

Planning for the video documentary was performed by Allison Berube, Christopher P. Bitzas, Amish A. Patel, and John R. Pattison.

Editing and post-production were performed by John R. Pattison and Amish A. Patel, in conjunction with the Instructional Media Center at Worcester Polytechnic Institute.

Attached Media

This project write-up is intended to be viewed along with the attached video documentary, "The Living History of WPI: Spring 2000."

The WPI Undergraduate Catalog, in discussing qualifying projects with outputs such as videotapes, states:

> "It is reasonable to expect that the scope of the written report in such instances may be narrower than would be the case if the documentation were by written report only... The written report portion of the project documentation should provide the reader with a history of the student's involvement with the project, its aims and objectives, its rationale, the role played in the project by the material in the other medium, and the conclusions reached and recommendations framed by the student." (WPI Undergraduate Catalog 2000)

In light of these statements, the team has developed its output so that neither the video documentary nor this written report can alone represent the complete project findings. The scope of each form of project output reflects the necessity of the other.

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I. Introduction

"The Living History of WPI" is a continuing effort to capture first-person accounts of Worcester Polytechnic Institute's recent history, and thematically organize the results into a unique video documentary. The project focus is WPI's changing academic structure and social community in terms of students, professors, the interactions between them, and how this highly technical society interacts with technology. The resulting video documentary is intended for a wide audience, providing insight while including necessary detail for even those with limited familiarity with the college or its history.

The WPI Undergraduate Course Catalog states that an IQP should focus on a topic "examining how science or technology interacts with societal structures and values." This project focuses on WPI as a university – a place of scientific work – with complex social structures having evolved in a highly technical environment. It is impossible to evaluate WPI's society without including the technological influences that have given the institution its unique character. To accomplish the investigation of the project themes, the team applied a technical solution – video interviewing and documentary creation. Therefore, this project addresses an appropriate societal focus through a technological process, which adequately satisfies the goals of the Interactive Qualifying Project program.

The rationale of this project is that there are many individuals associated with WPI who posses unique knowledge that has not been historically documented. If left

undocumented, this knowledge will be lost forever. Interviews of these individuals provide sources for this historical analysis, and increase the availability of primary sources for future historians. To assist the latter, all interviews have been transcribed in the appendices.

Existing histories of WPI are primarily literary in form. The two major historical accounts are Two Towers: the Story of Worcester Tech, 1865-1965 (Tymeson 1965), and Seventy Years of the Worcester Polytechnic Institute (Taylor 1937). Both give in-depth historic accounts, but neither focuses on the development of societal structures in a highly technological and scientific environment. Other literature includes previous Interactive Qualifying Projects, none of which provide adequate focus on our project's themes, and articles in *Newspeak* and the *WPI Wire*, which do not provide the broad scope that this project attempts to accomplish.

There are two recent videos focusing on WPI. The first, produced in 1995 for recruiting, is simply an introduction to WPI with an emphasis on The WPI Plan in its current state. It is out of date and does not portray major campus changes such as the closing of West Street. The second, created in 1999 as part of the "Campaign for WPI" initiative, contains a major focus on WPI's past but provides little historic significance, as it was primarily intended to assist fund-raising. Rather than capturing the voices of many members of the WPI community, the "Campaign for WPI" video features one professor's scripted commentary with video and photographs to match the rapidly introduced topics.

The approach of this project is unique from these previous works in its focus, scope, and form. The project combines the goals of previous videos to focus on how WPI's recent history has created its current state. The scope begins where the most

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recent major literary work stops, and continues through the most recent and significant

events. No previous work conveys conclusions regarding WPI's history through the

voices of those who experienced it first-hand.

II. Background

Development of Worcester Polytechnic Institute

The goal of WPI's creation was to form a special kind of school, different from public schools, for boys who planned to be manufacturers, mechanics, or even farmers (Tymeson 1965 p2). The school had a three-year curriculum consisting of freshman, middlers, and juniors. By 1894, the technical school had become a college of engineering, and by 1896 had changed to a 4-year college (Tymeson 1965 p70).

The development of The WPI Plan began in 1968. In March 1969, the Planning Group submitted its first report, containing a partial analysis of the present status of the college and twelve possible objectives for the college. In June 1969, the Planning Committee completed a second report, which further discussed these objectives. The formation of *Two Towers III: a Model* was completed in October 1969, and presented and endorsed by the faculty in December 1969. The foundation of the Plan read as follows:

> "It is the goal of the Worcester Polytechnic Institute to bring into the second century of its existence a new, dynamic version of its 'Two Towers' tradition" (WPI Journal 1973 p2).

The planning committees recognized the need to find a balance between education and training, and that the school should recognize the need for more of a sociological orientation to its technically oriented curriculum (WPI Journal 1973a p2).

The WPI Plan in its Original Form

The original WPI Plan stated that each student's academic program would consist of a mixture of *Independent-Studies/Projects, Studies* and *Study-Conferences*, selected to meet his or her individual goal and the College degree requirements (WPI Journal 1970).

Independent-Studies/Projects are a basic educational tool of the college requiring individual motivated study of a problem or sub-problem under the guidance or staff member or an advanced student. The emphasis is on self-learning as the path to a problem's solution. The investigation culminates in a written report, possibly accompanied by an oral presentation or piece of equipment with a working manual.

Studies refer to basic elements of instruction that involve four class meetings and 13 hours of student work outside of class, totaling 17 hours of student commitment per week for one term. A term is defined as a basic period of study, which lasts seven weeks and includes 35 class days.

Study-Conferences are a basic element of instruction that involve three hours of lecture, 2.5 hours of *Conference*, and 12 hours of outside work, for a total student commitment of an average of 17 hours per week for one term.

The overall education program was conducted as follows: *Studies* and the lecture portion of *Study-Conferences* were given to relatively large groups and formally scheduled. The *Conference* portion of *Study-Conferences* were conducted in small groups and provided for close personal contact between students and faculty.

The Plan called for four requirements for a Bachelor of Science degree: a required residency of 16 terms, an Acceptable or Distinguished completion of the Competency exam, qualification in a minor field of study through Sufficiency Examination or two

units of work in the area, and at least two units of Acceptable or Distinguished Independent-Study or Project work. In the last requirement, one of the units had to be in the student's major field of study, while an activity relating science or technology to society was recommended for the second unit.

Implementing The Plan

Recommendations for the implementation of the Plan stated that a Dean of Program Operations should be appointed as soon as possible – no later than September 1, 1970 – to help direct the development of a pilot program. Plan organizers recommended that each department at WPI begin a detailed study – to be completed no later than April 1, 1971 – on the content of its programs, as to design new courses meeting the requirements of the Plan. WPI was to seek the advice of consultants from industry, government, and other colleges and universities on the development of the pilot program. At that point, recommendations called for the appointment of ten new faculty members, selected by the contributions they could make to the Plan as shown in their previous experience. Alongside the implementation of the Plan by the faculty, the Admissions and Public Relations Offices developed detailed brochures regarding the new academic program of the College and embarked upon an extensive campaign to educate guidance counselors and other school officials regarding its operation.

Administrators appointed Prof. William R. Grogan to the post of Dean for Undergraduate Programs at Worcester Polytechnic Institute (WPI Journal 1973b). Prof. Grogan was given the responsibility of the undergraduate curriculum and curricular

planning, summer school, and coordination of academic matters with the Worcester Consortium for Higher Education. Former President George W. Hazzard stated that Professor Grogan's service as chairman of the faculty curriculum study committee and other activities in this area had proven the existence of the special skills necessary for the post (WPI Journal 1973b).

The implementation of the plan came into full effect during 1970. The Implementation Committee, consultants, and administration developed complete plans for a pilot program, including the administrative structure, advisory procedures, allocation of faculty, generation of on-campus and off-campus projects, and utilization of the physical plant of WPI for both education and living (WPI Journal 1973b p5).

The 1971-72 academic year was the first year of the pilot program. Faculty members were involved on both full-time and part-time bases. Approximately ten to fifteen percent of the undergraduate student body was involved, proportionately distributed by classes other than seniors.

The pilot program grew exponentially in the 1972-73 academic year with the addition of a large portion of the entering class, as well as upper-class transfers from the regular program. At that time, approximately two-thirds of the faculty were involved at least part-time. By the 1973-74 academic year, all faculty were involved to some extent, and approximately two-thirds of the students were under the new program.

The final year of the pilot program was 1974-75, when all entering students and most upperclassmen were on the new program. At that point, any upperclassmen under existing programs could continue until graduation, but no new students were accepted under the former graduation requirements.

Over 90 percent of the 1976 senior class graduated under the new program. By Fall 1977, all students at WPI pursuing their degrees were under the new plan (WPI Journal 1990 p35). Upon the completion of implementation, the Plan called for the elimination of all required courses and the implementation of four performance-based requirements for graduation: the Sufficiency, the Interactive Qualifying Project, the Major Qualifying Project, and the Competency Exam.

The Sufficiency is study in an area of the humanities, consisting of five thematically related courses followed by an independent research activity that combines them through a mini-thesis.

The Interactive Qualifying Project lasts for a minimum of one-quarter of the year. It is a project that relates science or technology to social concerns or human values and interaction with people other than scientists or engineers.

The Major Qualifying Project also lasts for a minimum of one-quarter of the year. It is a project that involves the solution of a significant problem in the student's major field, usually with industrial cooperation.

The Competency Examination was a weeklong written and oral exam of a student's ability to perform in his or her discipline. This was considered the true test of knowledge, and was one of the main goals of achievement of every student on campus.

Changes to The Plan

There were three major changes to the Plan: a grading change, distribution requirements, and the elimination of the Competency Exam.

Early Plan authors proposed that WPI have only pass/fail grades. However, opponents thought that such grades would doom graduate school applicants and fail to recognize the accomplishments of outstanding students. This led to the development of two passing grades – Distinction (AD) and Acceptable (AC) — leaving unacceptable work with no record (NR). Plan implementers soon realized that the grading system involved communication with external agencies, where there would be a problem explaining what the meaning of AD/AC. It was also evident that graduate schools, which were not familiar with WPI, were not giving WPI students the consideration that they deserved. In addition, the lack of a B grade meant that many students who were not intending to strive for an AD would reduce their effort to simply pass with an AC. To solve the dilemma, the Planning Committee suggested changing the AD/AC designations to the widely understood A/B/C notation, while still only recording passing grades. The A/B/C/NR grading system was implemented in Fall 1986 (WPI Journal 1990 p36).

Another problem appeared in the lack of distribution requirements. While this had the advantage of allowing students to design creative and unique educational programs, the faculty found that many students took few fundamental courses, as they were not always necessary to do well on the MQP and Competency Exam. As the number of students satisfactorily completing science courses started to drop, the Accreditation Board of Engineering and Technology (ABET) identified the lack of required courses as a problem. A 1976 review of The WPI Plan accredited WPI as an experimental program. During a second ABET visit in 1982, the committee cited major differences between student transcripts and established ABET distribution guidelines. In response, the WPI Committee on Academic Policy led a motion to allow all WPI

departments the option of establishing 10 units in designated areas for their programs (WPI Journal 1990 p37).

In their 1984 visit, ABET called for further changes in distribution requirements, expressing concern that the faculty took two years to establish distribution requirements following the 1982 findings. The second round of changes led to further emotional reaction from campus, as the flexibility of the overall program was greatly reduced. After the 1984 visit, ABET reaccredited all WPI engineering programs.

The third major change to the original Plan was the elimination of the Competency Examination. The original goal of the Competency was to individually test students' problem solving skills and assure breadth of learning. In reality, it proved to be the most difficult degree requirement to handle effectively due to the large time requirements it placed professors (WPI Journal 1990 p38). The exam's failure rates of up to 30-percent were never satisfactorily resolved. Also, students who passed the Competency Exam felt little motivation to seriously continue their studies. The addition of degree requirements amplified student dislike towards the Competency, as their colleagues at other universities had only to pass classes to graduate. In response, the faculty voted to phase out the Competency Examination for students who met the distribution requirements of their respective programs. The change was implemented during 1986 and 1987.

III. Procedure

Selection of Interviewees

The goal of interviewee selection was to solicit participation from a wide array of areas in the WPI community, including faculty, staff, and administrators. The team identified prospective interviewees from previous interactions, suggestions by the project advisor, and department listings of faculty members and their seniority.

The final group selected for interviews consisted of seven people:
- Professor Emeritus Bluemel
- Professor Graubard
- Dean Emeritus Grogan
- Professor Hoffman
- Professor Polizzotto
- Bill Trask
- Professor Vassallo

Thematic development of questions

The project team developed questions intended to provide thematic. A copy of the primary interview questions is included in Appendix A. The base set of questions is the result of background research. The primary guideline for questions was that they are open-ended – could not be answered by a yes or no – and would therefore prompt useful answers from interviewees.

The base questions do not represent the exact question sequence posed to each interviewee, but rather the general points that the group attempted to probe. Some questions were not appropriate or applicable with each interviewee. Some professors had specific knowledge that prompted questions not asked of others. For example, both Professor Vassallo and Professor Graubard are in the Department of Management, and therefore were questioned of their involvement in the "Management of Technology."

Interview techniques and style

Before beginning the interviewing process, the group examined literature regarding interview techniques and style. This proved useful for ways to ask questions, how to frame the video shoots, how to relax subjects, and what decisions must be made before any interviewing commences.

The primary initial decision was whether the interviewers would be part of the final documentary. The resulting decision was that interviewer responses should be self-sufficient, and therefore the questioning should be irrelevant to the results. This decision prompted the group to give instructions to interviewees that they should pause after a question is asked, and then answer the question in self-sustaining statements. A direct answer without reiterating the question was unusable.

Before each interview began, the interviewee was shown the base list of questions that the team developed, so he or she could begin thinking about answers. To relax tension, the interviewers encouraged subjects to stop, regroup their thoughts, and start

again whenever needed, as the resulting footage would be edited. The group also established an interview timeframe with the subjects, so as to avoid possible frustration.

Other interview style decisions primarily regarded videotaping. The group conducted each interview in a different location to vary the feel of the edited documentary. The camera was placed as close as possible to the subject, so that a lapel microphone was not necessary, and the camera microphone could be used instead. The scene was then framed using the standard "rule-of-thirds" concept, which places eyes one-third down the screen. Reframing of shots for variety was done between questions, to minimize movement effects in the final documentary.

Documentary planning and formation

The team divided the documentary into fourteen chapters, corresponding to the project themes. These chapters were the result of the literature review and the breadth of knowledge gained from interviewing. The video chapters in the documentary are:

- Forming the Plan
- The Plan in its original form
- Removing the Competency
- Women at WPI
- A broadening and changing university
- Administrations at WPI
- Becoming a world-class research institution (rankings)
- The effects of research and tenure
- Interactions between professors and students
- Sports at WPI
- Technology in the WPI curriculum
- Technology as part of WPI operations

The team produced full interview transcriptions, from which clips that gave the most detail and insight were selected. These were then reviewed in video form to confirm suitable tone. The clips in each chapter were then logically organized, avoiding cuts between the same interviewee and trying to maintain a flowing tone. At the end of documentary planning, a comprehensive storyboard was ready, including what titles needed to be created, what scenes were to be included in the final product, and in what order the scenes needed to be placed.

Documentary production

The final documentary was produced using nonlinear editing. Traditional, or linear, editing entails copying each scene in order from the source tapes to the final edited master tape. Linear editing is rigid and precludes making changes after later scenes are added. Nonlinear editing, in contrast, consists of copying each scene from its linear videotape format into a digital computer format, and then manipulating these extracted scenes into a final edited product. Nonlinear editing decreased production time enough to allow a high-quality final product, produced in an amount of time appropriate for both the project team and the staff at the Instructional Media Center.

Scenes from the original interviews were extracted into the editing computer, as marked in the storyboard. Once all scenes were extracted, they were trimmed appropriately and placed onto a computer-based timeline. The team then performed slight rearrangements and additional trimming to match interviewee tone and emotion, so

as to create a suitable flow through the video. Titles were added for the video's beginning, chapter markings, and end credits. The final step in post-production was to transfer the nonlinear product to a linear videotape format, during which sound levels were manually equalized for consistency.

The final edited video documentary is forty-one minutes in length, featuring fourteen chapters from the combination of seven source interviews. Each source interview was approximately one hour in length. The final video is titled "The Living History of WPI: May 2000," so as to leave open the strong possibility that this project will be ongoing, and there will other "editions" of this video by future project teams.

IV. Results

This result section attempts to briefly describe the importance and significance of each interviewee's responses. The final video documentary is provided as the primary representation of the project results.

Interview of Professor Hoffman

Professor Hoffman was an undergraduate at WPI from 1959 through 1963, and therefore possesses knowledge of what WPI was like before the Plan. Of particular interest was his description of sporting event attendance by the staff and faculty during his undergraduate years. In 1970, after the formation of the Plan and in the midst of implementation, Professor Hoffman returned to WPI as a professor. Because of the long period of time that he has been at WPI, Professor Hoffman's descriptions of past administrations were particularly useful.

Interview of Dean Emeritus Grogan

Dean Emeritus Grogan graduated from WPI in 1946, returned for his master's degree in 1949, and has been a member of the WPI faculty since. Dean Grogan was instrumental in the implementation of the Plan, making his answers to questions regarding the Plan's early years were of particular interest. He also provided extremely

useful information regarding the Pub, the general evolution of faculty-student interaction, and WPI's status in relation to other schools in terms of research and athletics.

Interview of Bill Trask

Bill Trask was a member of the WPI staff from 1958 through 1992, and was extensively involved with both students and faculty. This is evident through his accounts of events to honor both his 25 years of service and his retirement. This level of involvement gives Bill Trask a viewpoint on many aspects of campus changes, including the Pub, sporting events and attendance, changes to the physical plant at WPI, the interaction of fraternities with campus life, tenure, and rankings.

Interview of Professor Polizzotto

Professor Len Polizzotto graduated from WPI with a BSEE in 1970, and an MSEE in 1972. In 1999, at the age of 50, Professor Polizzotto joined the WPI faculty to fulfill a lifetime dream of teaching at WPI. Because of Professor Polizzotto's recent incorporation into the faculty, he offered unique insights into conflicts between research, advising, teaching, and tenure. In addition, because of his great deal of industry experience, he offered several parallels between the way WPI and the business world.

His comparisons between WPI when he was a student and WPI now paid particular emphasis to interactions between faculty and students.

Interview of Professor Emeritus Bluemel

Professor Emeritus Bluemel came to WPI in 1966 after graduate school, two years before formation of the Plan began. Professor Bluemel gave an account of the original Plan, with particular emphasis on the Competency, and an in-depth description of the various administrations at WPI. He then continued with descriptions regarding faculty-student interaction, research, and tenure. Of particular interest were his comments regarding WPI's tendency to go after academic "fads."

Interview of Professor Graubard

Professor Graubard was brought to WPI in 1969 after the formation of the Plan and in the initial implementation phase. As it was the Plan that initially caught Professor Graubard's attention to examine WPI as a place of employment, he offered interesting comparisons between the original WPI Plan and other educational initiatives that were occurring at the same time. In particular, Professor Graubard gave in-depth descriptions of opposition to the Plan, the Competency, WPI's situation with ranking and research, the introduction of women into WPI, and the Management of Technology initiative.

Interview of Professor Vassallo

Professor Vassallo began teaching part time at WPI in 1967. She then joined the WPI faculty as a full-time professor in 1982, after completing her MBA. In 1967, there was only one other female faculty member, giving Professor Vassallo a unique viewpoint regarding the introduction of women at WPI, which she described in her interview. Since Professor Vassallo teaches organizational science, she also provided unique insight into the WPI social community and interactions between departments. As a member of the faculty in the Department of Management, she provided useful information regarding the "Management of Technology" initiative.

V. Analysis and Discussion

Forming the Plan

The WPI Plan was a remarkable achievement that was a direct result of proper project management techniques. Project management processes vary by method, but essentially involve forming goals, creating ways to evaluate alternatives, viewing all alternatives, fairly judging them, and selecting the proper solution.

Professor Bluemel described the initial step of developing the plan as the formulation of a goal. He paraphrased this goal: "...every student at WPI would be literate in the fundamentals of his or her discipline and would become aware of the effects of science and technology in the society at large, and would be familiar with some segment of the humanities... with special emphasis on being a self learner." By beginning the Plan formation process with a clear goal, alternatives could be judged against their fulfillment of this goal, resulting in a clear method of evaluation.

The success of the Plan was certainly a result of detailed study over a period of two years, with committees on all aspects of the university, from student life to academics. By forming these committees from a combination of faculty, staff, and students, all members of the WPI community were equally represented, and the result was a successful plan that satisfied university needs.

These committees also fulfilled another key area of project management, which is team involvement. During project initiation, forming committees or focus groups allows

involvement from many more individuals, raising the level of understanding and excitement, and lowering the inhibitions of those intimidated by changes. Several professors commented that there was some resistance to the Plan, particularly by department heads who feared the proposed removal of departmental divisions. By involving these individuals in planning, conflict was minimized and the plan was more widely and quickly implemented.

The Plan in its Original Form

Professor Polizzotto described the Plan as "an extension of the original concept of how the school was founded," in that the original foci of WPI were learning and applications of that learning. The original Plan attempted to drastically change school operations, transitioning from a required lock-step curriculum to a program that was individually tailored to each student.

Professor Graubard praised the original Plan's emphasis on cooperation over competition. However, some critics argued that the Plan was too lax and flexible. Professor Grogan recalled analyzing the original Plan and realizing that after the first or second year, no major fundamentals were taught to students. These realizations identified the Plan's lack of rigidity as a problem, in that perhaps the Plan had made too drastic of a change from set curriculum. Discussions on these topics led to the changes that created the revised WPI Plan used currently.

The Removal of the Competency Examination

All interviewed professors agreed that the Competency Examination was an extremely powerful and personal tool for evaluating students. The exam forced students to show that they could comprehensively evaluate a problem though the application of their knowledge in the field. Since three faculty members evaluated Competencies, students received a high level of interaction and evaluators got a chance to truly gain a feel for the students' knowledge.

However, the Competency had problems along with its benefits. Professor Hoffman described that while the Competency was useful in its intensive examination purposes, some felt it was too traumatic to students. Another concern was that as the student body grew, it became logistically difficult to allocate three faculty members to comprehensively evaluate each student. The most important reason for Competency phase-out was that it did not provide a mechanism for certifying that a student had gained sufficient knowledge in his or her field to earn a degree.

Dean Emeritus Grogan stated a wish that more could have been learned from the Competency, instead of simply phasing it out completely. He sited the primary reason for failure as a lack of fundamental knowledge, thus suggesting that if more fundamental knowledge had been taught to students, perhaps the Competency could have been a more useful and surviving tool.

When the Competency Exam was phased out, distribution requirements were put in its place. These provided that each student gained necessary fundamental knowledge, and allowed the school a mechanism of definitively certifying a student's acquirement of his or her degree.

The Addition of Women at WPI

In 1971, the first woman graduated from WPI, marking a significant change in the WPI student body. Professor Vassallo stated that before the addition of women, the WPI male had to look elsewhere for companionship – to other universities in Worcester. When women joined the student body, intra-WPI society developed, marked by a greater number of social activities on-campus. In addition, women marked a broadening of WPI athletics, as sports were added to accommodate female athletes.

One could also claim that the addition of women to the WPI administration, and the increase in women faculty, marked a general broadening of the university from its traditional technical basis. Female professors naturally and in general bring a softer side of education into their teaching. This shift from tradition hard engineering marked a change in WPI as significant as the social change that female students induced.

WPI as a Broadening and Changing University

All interviewees agreed that WPI has been a changing entity that has kept up with the times through the addition of new majors and the modification of existing departments. Professor Hoffman recalled that there were formerly only eight departments, and this has spread today to a vast array of departments and majors.

Professor Vassallo pointed out that while many very artistic or "softer" majors have been added, the university's basis has always been engineering and science. This focus is the backbone of WPI, and reflects in every major at the university. Even theater-

related programs at WPI are taught as "Theater Technology." WPI only offers Bachelor of Science Degrees. Thus the consensus of interviewees was that while many majors have been added to keep WPI up with the times, the scientific backbone of WPI has been maintained, and is a great strength to any technological institution.

WPI at the Forefront?

There was a sense among several interviewees that WPI has "sat back and rested on the laurels to be the first to get into this education," as stated by Professor Hoffman. This feeling stems from WPI's lack of continual change in the eyes of some. However, one could argue that if a system is good and it is being properly evaluated, then it should not be changed. Professor Vassallo pointed out that when people hear mention of WPI, they relate the university to its strong project basis and unique academic program. Even though some other universities have adopted project-heavy methods of education, the WPI Plan is still far from the norm in undergraduate education.

Other discussion of WPI at the forefront touched into the technical realm. Feelings on this topic were generally that because of WPI's size, the school could not be at the forefront of education. Professor Bluemel mentioned the widespread hypothesis that WPI "will hire some world class researchers" and move to the forefront, but in reality the professors at WPI do amazing research for the size of the school and the available resources.

Administrations at WPI

Professor Vassallo points out that "every administrator, particularly in the upper level, brings their own signature." WPI's development has progressed as a result of each administration's "signature" and their resulting primary foci.

The Plan was implemented as a result of the efforts of Harry Stork, a retired Army General that brought the necessary leadership traits to invoke the drastic change necessary to formulate and put into action the WPI Plan. Without this strong leadership combined with the compassion to be involved in and truly know the WPI community, the implementation of the Plan would almost certainly not have been possible or successful.

More recent administrations have been forced to raise money and meet the need to become a world-class research institution. Professor Polizzotto criticized recent administrations, both at WPI and throughout academia, for focusing on the push for money and funded research over the good of the college. However, Professor Vassallo reflected that the present administration possesses "a warmth... that indeed transcends the financial issue."

Becoming a World-Class Research Institution (Rankings)

Professor Bluemel stated that "there is a tremendous emphasis on reputation, ... brand recognition and salesmanship" in academia. Much of this push relates directly to scoring higher on rankings such as *U.S. News & World Reports*. The general assumption is that if faculty members are world-class researchers, they are world-class teachers.

Professor Hoffman criticized recent administration for focusing on national visibility and ranking without focusing on what can be done to make WPI a better place.

Professor Vassallo pointed out, however, that when WPI used to be very high on rankings, it was part of the regional New England rankings. Today, WPI is ranked on a national scale, and usually places close to fifty. To be in or even near the top fifty of all colleges in the nation is quite an impressive feat. More important than rankings is WPI's reputation, which is excellent among those who know of the university. WPI graduates become executives and leaders in their fields. Therefore, those who know of WPI usually know of it as an outstanding school that has a level of quality that far exceeds it national rankings.

The Effects of Research and Tenure

Dean Emeritus Grogan said, in regards to any university, that there are two goals, "One of the goals is to teach; the other is to advance knowledge," and that these goals are not always compatible. Professor Polizzotto pointed out that when he was an undergraduate at WPI, the focus was on good teaching and doing what was truly best for the student. Now he feels that professors are all-too-often judged by the weight of the publications that they produce. The primary conflict comes in terms of time, and whether research diminishes the amount of instruction and guidance that students receive.

Tenure often relates to the amount of research done, and can therefore place even more time pressures and dilemmas on professors. Professor Bluemel defined the three

criteria for tenure as service, teaching, and research. He also stated that he feels research is very high on the list. However, Bill Trask stated that at WPI, lack of publications does not translate to not receiving tenure. In agreement, Professor Graubard recalled being on tenure committees where the faculty members had done either almost entirely research or very little research at all, and still received tenure. Professor Vassallo agreed with these comments, stating that the students always feel that the truly best professors make time for them, even through their research and tenure efforts.

Interactions between Students and Faculty

The level of interaction between students and faculty has dramatically dropped since the early days of the Plan. Professor Polizzotto recalled people on campus knowing student names, and close personal levels of interaction with professors and staff. Professor Graubard pointed out that there used to be cross-department senior seminars, where students and faculty sat as colleagues. Today, student-faculty interactions are often limited to quick advisor signatures of project registration forms. Several professors commented that the advising program should be revised to replace short meaningless "signature requirements" with interactions where students receive the high level of interaction that is helpful in developing one's career.

One of the largest marks in the diminishment of student-faculty interaction was the elimination of the Goat's Head Pub, an on-campus location where the entire WPI community could interact. At the Pub, students and faculty members met more as equals,

in a casual environment with lively discussions. The administration was even at the Pub, increasing their interaction with faculty members and students. The pub had to be closed when the minimum legal drinking age was raised to 21 and the pub's student representation was limited to some juniors and most seniors.

Sports at WPI

Faculty and student interaction has also markedly decreased in regards to faculty attendance at student sports events. Bill Trask and Professor Hoffman recalled that Alumni Gymnasium used to completely fill for basketball events, with representation from professors, administrators, staff, and students. Faculty attendance at sporting events has declined coincident with a general distancing of the faculty from students, partly due to the large number of faculty members from outside the nearby area.

Professor Polizzotto offered a different explanation, pointing out that WPI really does not field top sports teams as it once does. If the school teams were to perform better, attendance would increase, raising school spirit. He recalled one suggestion years ago to eliminate the football program and devote the resources to other sports instead, to having winning homecoming games that are not necessarily football. He also suggests that WPI change who it competes against, since playing more competitive teams would likely increase attendance.

Technology as Part of Curriculum

Professor Graubard and Professor Vassallo, both of the Department of Management, spoke in length about WPI's focus on "The Management of Technology." Professor Vassallo describes this initiative as preparing students to manage organizations in a technological manner, to manage technological organizations, and to manage technology itself. This initiative is an example of WPI's scientific and technological backbone. Even management students are trained using an engineering and technological basis. This focus extends into other curricula as well, as seen by the vast array of high-tech facilities in every department.

Technology as a Growing Part of WPI Operations

Technology has become an inseparable part of WPI operations, as evidenced through the vitality of e-mail as a means of communication amongst WPI community members. As an example, Dean Emeritus Grogan described that he has an extremely large number of advisees with whom he uses e-mail to keep in contact and schedule meetings. Professor Hoffman said that he checks e-mail from home to increase his availability to students. He also touched on one other aspect of e-mail that is a bit negative – its potential to decrease direct faculty to student contact. However, as stated by Professor Vassallo, students say that the truly great professor make time for interaction. These professors recognize that e-mail is a tool to enhance student to faculty communication, not to replace direct person-to-person communication.

The Campus Center

The Campus Center marks one of the most significant stimuli to the WPI social community since The Goat's Head Pub. Professor Vassallo referenced studies that have shown the Campus Center to be the primary point of student interest in regards to socializing. Almost all interviewees agreed that the building has been needed for a long time. The Campus Center represents more than a new mail center, bookstore, food court, meeting spaces, student offices, and lounges; it will serve as a social hub to the university. By grouping many activity points in one area, the Campus Center will serve as a place where students, faculty, and staff will frequent and, therefore, increase contact and interaction. The Campus Center will be an improvement to the campus community much as the closing of West Street and the creation of Reunion Plaza gave a place for students to meet, pass each other, and socialize. This stimulus will hopefully provide a shot of vitality into the WPI social community and, along with other initiatives, help to move the community into a state as exciting and lively as those of the early Plan days.

VI. Conclusions

- The successful development and implementation of the WPI Plan was a direct result of the formation of a proper and comprehensive university goal, and adequate time allocated to creating and properly studying Plan alternatives.

- The original version of the WPI Plan represented a drastic change from the previous curriculum, which was extremely rigid and inflexible. However, it was too flexible, in that it did not ensure basic fundamentals.

- The Competency Examination had to be phased out because of the growing student body and, primarily, because of students' lack of basic fundamental knowledge. The exam proved unable to completely prove that a student had gained sufficient knowledge to acquire a degree, necessitating distribution requirements.

- The addition of women at WPI marked a significant change in the WPI society – a transgression from a purely engineering society to a more integrated and internally active student body.

- While WPI has added majors and concentrations to keep up with the times, the university's basis has always been engineering and science, and this basis remains forefront in even the most artistic of majors.

- While the WPI Plan has not dramatically changed recently, it still represents a cutting edge method of education, supporting professors that do cutting edge research appropriate for the size of the school.

- The signature of each administration has marked the development of WPI. The WPI Plan would not have been implemented if it were not for strong administrative leadership, and recent administrations have effectively addressed the financial issues that have become growing concerns in academia.

- The push for national visibility and rankings has at times created a discontinuity between administrative focus and the overall good of the school. WPI has a level of quality that far exceeds its rankings, and therefore should not be tempted into striving to be a world-class research institution, but rather an excellent small university that does research appropriate for its size and focus.

- The potential always exists for something, be it research or tenure, to divert attention from students and the best welfare of their education. However, the truly best professors manage an appropriate mix and make time for students and their other responsibilities.

- Faculty and student interaction has decreased since the early days of the Plan, as marked by the closing of the Goat's Head Pub. The current advising system could be changed to increase interaction.

- Attendance at WPI sporting events has declined, particularly in the level of faculty, staff, and administrative attendance. This has been a result of a more distanced faculty, as well as poorer performing sports teams and, consequently, an overall lower level of student interest.

- WPI's engineering and technological backbone shows in "The Management of Technology," which emphasizes preparing management students, who are not engineering students by nature, for technical careers in technical organizations.

- Technology such as e-mail plays a vital role in WPI operations and provides great potential for increasing professor availability to students, but must be used properly so as not to substitute for direct personal communication.

- The creation of the Campus Center represents the addition of a new social hub to the campus, which will increase contact between faculty, staff, and students, and help to revitalize the WPI social community.

VII. Recommendations

General Recommendations from Conclusions

- Do not rest on the laurels of being first in the a new style of education. Continue to reevaluate educational methods to ensure that they are still appropriate and the best option.

- While expanding and broadening the university, do not lose the scientific and engineering backbone that makes WPI unique. Incorporate technology into every major, and ensure that every graduate meets the original founding and Plan intentions of what qualities WPI graduates should possess.

- Focus on the quality of undergraduate education before publicity and national visibility. The primary purpose of the university is to educate; the secondary purpose is to increase knowledge. Ensure that research and tenure policies reflect these priorities and do not place misdirected pressure on the faculty.

- Revise the current advising system to provide more contact between advisors and advisees. Signatures are not the same as communication. Increase the number of mandatory meetings, as well as the level of instruction that faculty members receive for their roles as advisors to students.

- Encourage faculty and staff to become more involved in student life through increased participation in clubs, and increased attendance at sporting events. Create programs that encourage faculty and staff integration into the WPI community as it relates to students.

- Continue the implementation of technology that increases learning and communication between students and faculty.

- Utilize and promote the Student Center to its fullest potential as a new campus hub and a revitalization of the WPI social community.

Recommendation Regarding Project Continuation

It is the opinion of the team that this project represents a significant and valuable step in documenting the recent history of Worcester Polytechnic Institute, and therefore should be continued. Our team, in conjunction with the "Part II" team, interviewed seven professors from a wide array of the WPI community, but there are still many other opinions, stories, and accounts that should be captured for the sake of future researchers.

In particular, there were several older members of the faculty that did not respond to e-mailed invitations, but would certainly provide very useful and meaningful interviews. These individuals should be personally approached and offered the opportunity to participate in the project.

The documentary could also be expanded to include, in addition to footage from other interviews, photos and video of WPI's past and present. For example, when discussing the campus center, it would be interesting to see footage of the center under construction. When discussing sporting events in the past, it would be useful to see photographs of a packed Alumni Gymnasium, to help emphasize the point. These were goals of the project team that could not be accomplished due to limited time and resources in the editing process.

"The Living History of WPI" project marks an important duty to document the present so that those in the future can create accurate portraits of the past.

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Appendix A: Standard Interview Questions

1. How do you see academics changing over the years? Are values and requirements changing?

2. Have you noticed much of a change in the methods of teaching? How has scheduling changed? Have these changes been for the better or worse in your opinion?

3. Do you think the quality of teaching has changed?

4. In your own words, what is the plan? Do you think it has been beneficial?

5. Do you think the plan has brought WPI closer to real life situations compared with other schools?

6. Do you see any difference in the way the administration ran the school, varying among presidents?

7. How has the number of undergraduate majors changed? Does WPI do a better job in preparing students for the engineering world?

8. Can you describe the social structure of the school over the years comparing then and now? Do you remember any campus wide event, concerts, or performers?

9. Has student activity changed both on and off campus? Can you describe Greek life as you saw it or experienced it?

10. Can you describe the athletic program when you were here?

11. During the 60's and 70's were the students of WPI performing any protests? Were they socially active? If so, does it surprise you that there were no activists opposing the campus center and the way the trees were torn down and the land overturned?

12. Can you describe an event at WPI that stands out in your mind?

13. How has the campus changed over your time here? Were there any renovations or new buildings?

14. How has the faculty student interaction changed? Do you think online enrollment, registration, or other Internet activity has taken away from student coming to professors on campus looking for advice?

15. Do you think the advising program is working to the extent it should be?

16. Do you think teaching is the first priority of professors or is it aspiring to reach tenure?

17. Is there more of a push towards research today, than there was in the past? Do you think this takes away from student faculty interactions?

18. Do you know of any WPI alumni that have had a significant effect on technology and society? If so, what are their names and what have they done?

19. Has WPI kept up with the times and technology or is it just following it?

20. Did you know Carl Gunnard Johnson? If so, describe your relationship with him.

21. As a freshman, WPI was one of the top 50 schools in the nation. This fall, Newsweek did not have WPI even close to that. Why do you think that is?

Appendix B: Transcript, Professor Hoffman

How do you see academics changing over the years and are values and requirements changing?
Well, I think values and requirements have changed. I was an undergraduate from '59-'63. At that point, the programs of all students were highly structured. I believe I had two electives my senior year and that was about it. So everything was prescribed. I think certain advantages of that were, at those times, we had a lot of required laboratories, a lot of hands on laboratories. We went to school a lot more. When I was a freshman, I had 28 hours a week of classes and labs. So we were in class with hands on type things,a lot more than current day students. Then the plan came in. The plan was voted in the spring of 1970. I came back as a faculty member in the fall of 1970. So I wasn't here when the plan was evaded but here immediatelythere after it was voted. So we went through a period in the 70's when there was no structure, effectively no required courses and that was pretty much strictly enforced. There were four-degree requirements. You've probably come across this with others. You had the sufficiency, the IQP, the MQP, and the competency exams. The competency exam was generally taken as a senior, was kind of a mini design project. In this department, it was a two-day exam followed by a 1-hour oral exam on the 3rd day. So that was really the quality control in the program, the competency exam. That had certain advantages. Number one, it was pretty real life. Some said too traumatic. It had advantages from the structure of the program, in that examining committees were based upon three faculties. So there were, after every term, there was a competency exam period. You got to work with and collaborate with people from all aspects of the department. Something you don't do now. When the faculty voted out the competency exam, distribution requirements came in. They've changed some over the years but that creates structure. You have to basically take, maybe not certain specific courses, but basically your choices are limited in certain areas. And that has gradually become more structured as time has gone on. Originally, it was pretty bare bones, now each year, I think it becomes more structured. The other thing that has happened, concentrations and minors and things like that. So it's changed quite a bit. You went from a very high structured program to essentially an unstructured program, student structured. Now it's creeping back more and more towards structure.

Have you noticed much of a change in the methods of teaching and how scheduling has changed and have these changes been for the better or worse in your opinion?
Well, I think from the classroom standpoint, teaching is swinging back a lot toward what it was like when I went to school. It is kind of gone from reasonably regimented to learn on your own type philosophy, which is still the plan philosophy, but was really in effect for a decade or more in the initial years of the plan. Now, I think the classroom philosophy is not a lot different from the '60's. I think there is a lot of flexibility in the program in terms of the projects and the sufficiency. I think the problem that has occurred is the students don't do as well in courseA, say statics, so we want to remedy that by having more hours per week for thestatics class. Thestatics class I had last term, we met 35 times. In the semester system, you had 14 weeks, 3 classes a week, and you

met 42 times. So we are not all that far apart. I think there has been a removal of responsibility of students outside the classroom which was one of the under opinions of the plan. I think we are back to, we are going to do it in class, and we are going to assess it in class. You can see courses that originally, under the plan, started out as a 7 week course, is now 2-7 week courses. They are not teaching twice the material. They are just spending twice the time, so methods have changed. I think the classroom methods have become very conservative.

Do you think it is for the better or worse?
It's for the better. When you grow up, in the real world, the responsibility for doing things is on you, not on someone telling you and not on someone structuring it so they keep tabs on you. A system that stresses the responsibility of students and sets a course and says here is how we are going to do it, here is how we are going to move on, and if you fall by the waste side, there is another term, another time. That perhaps is the best learning environment. But unfortunately, we have moved back to a much more structured system. But you have to do what is prevalent. You can't swim upstream.

Can you describe the social structure of the school over the years, such as campus wide events, concerts, performers, student activities, Greek life as you saw it or experienced it, intramural participation, athletic events, attendance of the school, ratios of men and women, racism, and religion involving students and faculty?
WPI didn't become co-ed until '69 or '70. So it was an all-male smaller school. I think from the standpoint, Greek life was more important because about 80% of undergraduates were participants in Greek life. It was the predominant social vehicle. The other thing is because the school wassmaller, you got to understand we had Saturday classes and compulsory ROTC right up to about '68. That disappeared between thetime I left and the time I came back. Everyone knew everyone else. The school was bigger, you knew the entire faculty pretty well, and classes were small. Typical class sizes were 15-20 once you got beyond freshman physics and chemistry. Math classes were small. Literally freshman year, we were assigned alphabetically. Section L, my friends were people like Kennedy, Lako, and McGraff because they were close to H. So in that sense, it was a closer knit community but that might be just because it was small. Activities-wise, there were always a lot of activities. Activities had expanded as the school had gotten bigger but, WPI going way back, had ample out-of-class activities. So that really hasn't changed except the mix is bigger because there is more undergraduate and graduate students.

Any interesting people visit or concerts or anything?
There were formal weekends. The women, the dates, took over the fraternities. The guys moved to the dorms with the freshman usually. Concerts weren't too prevalent then. They were not too prevalent anywhere yet. Rock concerts and stuff sprung up in the '70's. Again, I was an undergraduate in the '60's. I think the one thing that has really changed is Worcester itself. Worcester was a mill town when I went to school here. There was no Centrum and all the things that bring with it. Mechanics hall was used for pro-wrestling and roller skating prior to the time they rebuilt it. Worcester had a lot of color, which was lost. Senior hangouts, there used to be a senior walk, a right of passage

in, it used to be an all male school, was to walk from Boynton and have a beer at every bar down Main Street and back. It took a whole day. It had some real colorful places, like the Val Halo, was one of the real colorful places. It's long gone. It's on the side of the police station. It was a mill, an old New England City. Now it is a very dynamic place. There is a lot to do. There wasn't a lot of interaction with other colleges other than Becker. All the social life was in the fraternities, virtually, all except formal weekends. Now, it is a much more diverse campus. I perceive Greek life is less important, simply because there is simply less people involved. It's not the predominant social mode among upper classmen.

What about the athletic program? Anything form the success of individual sports teams to attendance, anything related to athletics, and what was it like then as compared with now?
I think success is a matter of who is there at a particular time. We had some very good teams. The track team, when I was a senior I was a co-captain of the track team. We were undefeated and we had some very, very good competition. So, I think from sports teams at that time, sports was not aligned division one, division two, and division three. It was aligned as large colleges and small colleges. It was really a two-tear. We competed in the small college division, which was really half of division two and division three. In some sense, we played football against, I would say, a better football schedule tan we play today. I think there was a lot more enthusiasm in certain sports. It was very common for faculty to be involved in either officiating in track and field, being coaches, or simply an attendant. They played basketball in the old gym for all they years I was here. They built the addition to Alumni, which nowstands down in between Alumni and Harrington, while I was an undergraduate. But, Harrington didn't occur until after I had left as an undergraduate. The gym would literally fill for basketball games. The faculty and administrators would all have chairs around the old track. The place would be jammed. It was standing room only for most basketball games. It would be jammed with people who were related to the campus in all aspects. I don't think you see as strong a faculty participation in athletics or clubs today. The faculty lives more distantly. It is just a place where you come to work. It's not a place that is the center of your social life. The big rivalry in basketball was Clark and WPI. And Clark had a gym, very similar to our old Alumni gym. It'd just be packed. You couldn't jam one more person in there usually. It was interesting.

It's almost the opposite of today?
I haven't been to a basketball game in probably a dozen years. But you go to Harrington and you could have your choice of any row for yourself. It was just kind of the opposite for that. The focal point was football games, basketball games, baseball, and track and field.

Do you see any differences in the way the administration ran the school? Especially varying among presidents?
It was traumatic, dramatic.

Traumatic or dramatic?

That was maybe a Freudian slip. Dramatic in all cases, and traumatic in many. When I was an undergraduate, Arthur Brommel was president. He was a low-key guy. He was a faculty member; he became president, and eventually was dean ofUconn after he left here. A low-key guy. He would, he basically knew an awful lot of the students. He was succeeded by General Stork, Harry Stork, who always used to speak of the WPI family. That was his thing. And that's the way the school was run. It was run as a family of administration, faculty, and students. He stressed that. He was really the initiator of the plan. Harry Stork, he formed the first planning committees that were led to the plan. And the, as we moved on and got more into graduate study and national prominence, I think the focus shifted. The focus is definitely much different. When Iwen to school here-I also got my master's degree here, so I went to graduate school here after traveling around to certain other graduates schools. But we had a reasonable graduate program but it wasn't a researching program. We actually had more TA's in this department, when I was a TA, than we got today by quite a bit. But that's because there were a lot of required labs that had to be covered. In ME2020, which is Materials Processing plus Grunge lab, was what it was when I was an undergraduate. We had sic hours of grunge lab of probably a higher quality grunge lab- because of six hours a week for 14 weeds we learned how to weld and do all kinds of stuff. We came away with better mechanical skills than a student does today. As the push to research and national prominence has transpired, which is really a sign of thetimes, that has created a much different focus. I think it's created a job in which the faculty job is definitely much different that what we started with. Although we still- even when I came we were required to do research-I don't think the push towards it was as strong. When I came here, the push was to get the plan on and ready. The plan didn't really come into operation until two years after I was here.

Could you actually describe what the plan is? Like, sum it up.

The plan was based upon teaching students to learn on their own. Which I still think I s a major part of this program. So it was structured to create and environment which would really facilitate life on learning. As much as you do in professional life you will never have the training to do exactly what you would be doing as a professional. You will never. Sot it is necessary for you to learn as you go along or even shift fields. I don't' have any educational qualifications for what I am doing today. None. Zero. And so because of that the focus was to prepare students to be into that mode. We did it through performance based criteria which I think still places very well amongst national leaders. I think that with the IQP, a lot of people are copying us with the MQP. I think the sufficiency is a semi-novel idea. I think we kind of got tired. We were the national leaders in the '70's in this kind of education. We were kind of laid back. Instead of pushing in that mode, we have moved back. I think some have become biased in educational innovation. It was really student centered learning. You need to know learning.

How has the number of graduate majors changed and is the school keeping up with the times?
Well, the number of undergraduate majors has changed quite a bit. It's gone up and then down. Well, it depends on the department. You have to realize there were only eight departments. There was no biomedical engineering, there was no fire safety, no management, there was no biology, and some others. The number of majors, I can only speak for the ME's, when I first came here there were about 150 majors in each class or between 100 and 150 which is exactly the same as today. Graduating number was 140 in the last class. At one time in the early '90's, we almost had 1000 undergraduates in this department. That was before the building was here. So its been very cyclic. There was no computer science, computer science was one of the biggest departments, didn't exist. So education changed with the times.

Do you feel it is doing a decent job of keeping up with the times?
I think it is decent in terms of traditional course work. We probably do as well as anyone else. I don't think we are at the leading edge. We really sat back in the undergraduate sense. We've sat back and rested on the laurels to be the first to get into this education. We are not at the forefront anymore. There is not a lot of innovation in undergraduate education going on out there. At least I don't think so. I speak from the perspective of having started out here when that's all therewas. It was innovation. When nobody had figured out how to run a project based program. It was very exciting. It's gotten pretty routine as to how the undergraduate program is run.

Describe an event at WPI that stands out in your mind.
Wow...hmmm...that's hard. It's probably a lot. AlSako, what he did, the general expansion of the campus, the buildings opening, the presidents coming and going. I actually never finished that question, did I? I got up to about Harry Stork. Maybe just to return a little bit, I think succeeding presidents have had their own twist on that, sometimes for the better and sometimes for the worse. The difficulty of the top administrators is that they come and go. Sot they leave their mark. Most of them have left good marks. I would say that people in the '70's left good marks. They did things that we still cover on.

You started to talk about buildings and I was curious as to how the campus has changed over your time here, such as renovations to the buildings and the land. Do you think the trade for West Street was beneficial in the long run?
I think the trade for West Street was, whatever they traded, beneficial. I think the school has always had a history of doing well by its physical plans. When I was an undergraduate, the Higgins House was a residence. Their gardener was very careful that no WPI students set foot on their properties. I think they have done really an excellent job on physical plans. That's one place they have really excelled. In general, the growth has been well directed. They've missed on a few things that could have been better but more or less, they have done a very good job. They've gone to renovation rather than building new buildings, which I think, preserves the character. You can even walk around to each building and every one of the buildings has been renovated.

Anything on any specific building and could you maybe touch on the new campus center?

Well, I think at the time each of the buildings was renovated they were successful at doing that. I do think that in some cases, you have to wonder about places like Perreault Hall, a place like that, because that really lived up to its original expectation. I never had to teach a course in there but I had to speak in there. You just wonder if it serves as good of a purpose as if it had been thought through better. I think the campus center is a necessity. I really do. In some sense, while we aspire for national prominence, we still operate like a small college in a lot of ways. If you come here in the summer, the library closes at night, you can't get a cup of coffee on campus, and there is no place open after 2 o'clock in the afternoon. You're in competition with places, like where I went to graduate school. The place ran 24 hours a day, 365 days a year. I'm hopeful the campus center, not only is it necessary as a focal point, but it also will promote a more 24 hour per day type college environment which I think you really need. So I think it's great.

Did you know Carl Gunnard Johnson?

Yes, I did. He was my metallurgy instructor.

He was?

Yes, he was.

Could you describe him or your relationship with him?

Well, actually when I was in graduate school here, my roommate, Chris Almay had a very close relationship with him. He became a friend of their family. Carl was a guy who had, I don't think he had beyond 8th grade education. Maybe he had a high school education. He was an esteemed professor; a very well recognized technical person. He was a fatherly figure, a tall fellow. He had poising stature. He must have been in his 60's when I was an undergraduate. Kind of that age, a tall white-haired guy. He was very student orientated. He used to have, when I was a junior, Saturday morning metallurgy lab. He'd be there. He was just a very friendly guy, full of energy. An esteemed technical guy who just learned it all on his own.

Interesting. This is kind of the last historical question. In the '60's and '70's, were WPI students performing any protests? Were they socially active? Anything along those lines?

I was in graduate school in Colorado in the late '60's so I don't really know, which would have been the height. In the early '70's when I was here, engineering scientific types tend to be more conservative. I think you saw individuals protesting with groups outside of campus. You saw some activities on campus during the Vietnam war but not at the level you saw on the other campuses. I think they were socially aware, I think all young people were socially aware at that time. But there was more the size, at that time it was still 99% male. I think there were some factors that tended to limit protests. But there were some. My understanding was there were some in the '60's but not like there were on other large campuses.

Does it surprise you that there were no real protests of the campus center about them getting rid of the trees over there?
Well, that's interesting because when, that land has been proposed for other uses, on was for a parking lot, that must go back 15 years. They proposed putting a parking lot back there. The students protested, the faculty protested, and the administration decided to pull it. I was a little surprised at, there wasn't much talk about preserving the open space. Maybe it was because the campus center has evolved over a number of years. It kind of developed it own following that said this is better than trees. I think it's necessary to have a campus center if you are going to be a first class college or university. I really think you do.

How has faculty and student interaction changed? Do you think online enrollment, registration and other Internet activity has taken away the relationship from student and teacher?
I think it's changed in a lot of ways from both sides. I think it is more impersonal. I think that's really the technology that has contributed to that. I get most of my Internet action outside of class through my computer. It has its advantages. I do my email at home at night or do it on the weekends. So access is much easier. I think it diminishes the direct faculty student relationship. The other thing I think is the sign of the times is that teaching is not the only thing that faculty members have to do. It's a component of what they have to do. It's a time squeeze. You are supposed to be doing more things than what you have time for. I think that's also true of the students. Given the choices of what you can spend your time on, is faculty interaction outside of the classroom higher on your list? I would say that that's not real high. On the other hand, what you do get in the program is a very very close student faculty interaction in the project realm. You find when you go talk to people from other campuses or in the professional world you find you have been spoiled. At that level, that's what I enjoy. But there isn't a lot of outside activity. I mentioned the basketball games and stuff. People knew your name. As an undergraduate as you walk across campus, it wasn't just professors that you had that knew your name, people knew your name. It was just a different place, a different time.

Would you rather go back to the way it was without internet and technological advances that we have now? Or would you rather have it the way it is now, where like you said, you can do email at home?
I think the opportunities are here. I'm not sure WPI does its best both from an administrator, faculty standpoint and from a student standpoint to promote additional student faculty interaction. I don't think you get a lot of interaction, project registration forms, you used to have to get your academic advisor's signature on the project registration form. Somebody lining up outside your door, saying, can I have your signature, you have a 15 second interaction, that's not really promoting faculty student interaction. That's not useful. I would prefer it now. I think there are some additional things that can be promoted like real social life.

One last question. When I was a freshman, at WPI, it was ranked one of the top 50 schools in the nation. This fall's Newsweek did not have WPI even close to one of the top 50 schools in the nation. I was wondering if you could give us some insight as to why or if you think this is unfair?

I think actually, it was ranked 5$1^{st}$ overall. So I don't think that's a big thing. I was a little disappointed. US News and World Report went back to ranking engineering schools. We weren't as high as I thought we would be. We were a little ways back. I think that was a little disappointing. Unfortunately I think the administration is too caught up in those kinds of numbers. I think if you are good, you will be judged to be good. Whether you are 50th or 60th, it makes no difference. I think in a sense, the administration is doing things to increase our national visibility and ranking without thinking about, are these the things you want to be doing from an educational standpoint, from what a college or university should be doing. I really think the focus on this, particularly at the higher levels of administration, has some detrimental aspects. They ought to be asking what can we do to make WPI a better place. I'd be more concerned if we were ranked 300. But we are going to ranked at a good level for our size. We aren't going to compete with the Stanfords and MITs, and places like that. We simply aren't that kind of institution; we are not that big. If you look at the criteria we use, we're not going to be way way up there. I worry that the focus on the number rank is really driving us into retrogression.

Appendix C: Transcript, Dean Emeritus Grogran

Will you please state your name and tell us a little about yourself.
My name is Bill Grogan I came to WPI, first, in 1942 and I was a freshmen, a civilian and about two weeks into my freshmen year I enlisted in the navy because the war was on at that point and the navy had a program that if you enlisted in it you could finish the year you were in so I was a navy reservist during my freshmen year the navy decided to have the people who were in the program have an national program called a b 12 and if you were in engineering or medicine or some of those things you could take these tests and if you passed it you would be able to go to college as a sailor you could go into active duty on the first of July end of your freshmen year and then you could attend college and you could get your degree for liberal arts people they could go for two years and then they would come out and become deck officers but we proceeded to get a degree in engineering so during the year the president of the college was an admiral, admiral Polarius and it resulted finally that WPI would have one of these b12 units it was also one at holy cross, Harvard, MIT, Dartmouth it was a rather select group of colleges that had them so we got in that. I went through college on a very accelerated program. The longest vacation I had took about ten days and that was at the end of my freshmen year. After that we went three terms a year, first of November, first of March, first of July, first of November etc. So I graduated a whole year ahead of schedule. Then I went to Columbia university and from there went on to the fleet and then the war ended and we were scheduled to be in the invasion in Japan, and the winter of 1945-46 and when the atomic bomb went off on august 6, the war ended, so on the 14th and so then we worked at the naval electronics laboratory in San Diego on some ships out there. So that was my background and when I came back I intended to work for at and t and I just happened to stop by Worcester on my way to Boston for my interview and I was given a job offer here which I never, never thought of coming here I thought about it. It was a chance to get my masters degree and teaching sounded like fun. So I got a deferment on the offer form at and t came here and been here ever since I was away for almost three years in the Korean war on the destroyer the one you see up there. So I started teaching and went on through and I was teaching EE. I became a full professor and I was the first chairman of the curriculum committee because up that point everybody took precisely the same program. There were no electives except a couple of humanities courses; you chose your dept. and bang that was it. So we wanted to loosen up the curriculum and that's what we did that was about 1965-66 that's when we started moving things and then PresidentStorck at that time asked that we take a look and see where the College is going. The faculty really wanted change. We were starting to lose ground. Ina vary rigid kind of program. We were no different than the University of Massachusetts or the University Lowell. They were charging a fraction of what we were charging tuition and there really wasn't any reason why we should continue to exist. We weren't doing anything different. Except we did things better but we weren't that different. Then they formed a planning committee. It was really to look ahead. We had no idea in getting involved the magnitude of change we got in. So I was elected to the planning committee. There were 6 of us on the planning committee. We worked for 2 years and developed a series of reports and plans. One was a

model and another one was the Plan. We worked very intensely for a couple of years and presented them to the faculty. In May 1970, the faculty voted to accept this program. It was voted up or down. It was a very brave thing for the faculty to do, because it was going to change life hear. What we did was want to make it a project orientated program, where qualifications for graduation will be based on projects. That's why you are doing what you're doing. We developed the Humanities.Humanities was rather pathetic up until then. We a couple good teachers in it. The courses were not organized. You took this you took that. I think you only took 3 humanities courses out of a total of 8. Now I don't know what we offer. It must be hundreds of humanities courses. It's a very limited kind of thing. The plan established a humanities sufficiency, and then we brought in the projects. We said that in education we wanted to provide a balance that was strictly technical. We wanted to provide a concentration, which we eventually called a sufficiency in the humanities. Then we said, "Well you got to show proficiency in your major field," what we now call the MQP. We weren't sure how we were going to pull it off. But we said we wanted to have a relationship between science and technology. On one hand, social concern and human values on the other. We wanted it demonstrate it through a project. That is the IQP. So you did those 3 projects. They were mandatory for everybody, plus we wanted to have the students and advisors essentially develop they're own curriculum. So we went 180 degrees from having an absolutely 100 percent mandated curriculum for everybody with practically no electives to having one where there were no course requirements, but you put together your own program with your advisor and to ensure the academic integrity of that, there was a week long Competency examination in your major field called the competency exam. And during this whole thing after the faculty voted the plan or while they were voting the plan, I was asked to become the Dean of Undergraduate Studies, which was the academic dean for all undergraduate activities and really to implement the Plan and make it happen, which took a 7 about a year implementation period. We had to create the projects. We had a handful. I used a few projects in EE in one course I had. Somebody in ME did one too. But that was about it. We had about every year maybe 60 projects. I used too wake up at about 4 am. I was the Dean in charge of seeing these things. So we're going to have about a 1400 project registrations. We figured where are we going to getthese from? We have a window between being trivial and nonsense projects, and being so sophisticated that it would just be an exercise and frustration for the students. So they had to get the right level and inte3nsity of the projects. Where were we going to getthem from? We wanted to do them with industry. We wanted to have a lot of industrial and off campus affiliations. We didn't have anything. We had to pull this off in a year. Yet of all the problems we had, that proved to be the least difficult because we soon had barrels and riches of projects. We had file cabinets full of them. Alumni created them, others said these are the things we'd like to do with yo9u. So we had lots of projects and that didn't prove to be a problem. That was the winner of the whole program, has been our project system. We all thought being professors we knew how to give exams. Well, we don't know how to give exams. We had no idea how to give exams

Yeah, in a comprehensive way, yeah we can say, tell you f=ma and then tomorrow we'll say if we have f, what else makes the equation. Very specifically, you can exam people to see what they know. But after 4 years, can you give an exam and see yes, you are ready to be a professional engineer or are ready to go to graduate school whatever and that was

a real challenge. That proved be a big thing. We ran it for 15 years...we ran the competency exam and about a 3rd failed it. It was a constant like pi. Just about a 3rd of all the students failed it. You could take it again, and again, and again. Every time you took it, again a 3rd failed. So you do converge, eventually you get most everyone to pass. But out in the world today are people wondering around that passed all kinds of courses, passed their projects, but were never able to pass their competency exam. And it was a ringer for both the faculty and the students. They had a big written part. For engineers, it was to design something to specifications. The chemical engineers used to have to design a sulfur plant or something to specification for example. And it was a very rough exam. And departments started to diverge. Computer science couldn't be long enough. It went on for 10 days and the committee of academic policy hadrate them in and say look this is a 5 day exam, not a 10 day exam. And then there was an oral part where you had to go up in front of a board of faculty from your department, where they could ask you any question about your field. And it was a very rough exam, but we finally phased it out for 2 reasons. One the accrediting organization, ABET, wanted to show that you had a certain amount of this and this, thermo or electrical fields or whatever the topics were. They wanted to see it and you couldn't show it with a competency exam. All you could show was that you had enough knowledge and enough knowledge of what to do with that specific knowledge in order to solve professional level problems. You could use books and references, but you had to solve them and that was a big problem. But the other was it was driving the system to hard. If students thought they were going to get a question on a problem on this big exam, they would really retain it, take the courses, and study like they were suppose to. And if they didn't think they were going to get a question on the exam, for example a civil getting a question involving electricity was highly improbable. So it got to the point they wouldn't even take EM or physics. They didn't know a volt from an amp or anything. That wasn't good education and the same thing with the others. It became very narrow. It's exactly what we didn't have want to happen. It just drove the system. People were failing it and we didn't know what to do with them. They'd take it again...and it was a terrible name, the competency exam. We should have called it the qualifying exam, because I used to get calls from fathers saying what do you mean I pay 18000 dollars to have my son declared incompetent. It was just a big...we had all kinds of problems. But at any rate, we fazed that out after about 15 years. We could've learned more from it than we did I think. That was one thing we, we didn't do well as we could have. To say why do students fail the exam? One reason, for example, they say they failed the exam they say they didn't understand fundamentals. Well, then we looked at our program...we didn't teach fundamentals. Maybe in the sophomore year or something, in the basic courses people relate what they're doing to real fundamentals. Later on, its all techniques and solving problems using things but people don't very often understand or remember what the fundamentals were applied to the problem. We'd ask, for example, electrical engineering what is inductance. Explain the concept of inductance. They had no idea what inductance was. It's a big L to put in equations, but it didn't go anywhere. Then we realized that, we said we wanted to have people understand fundamentals, but we never reinforced fundamentals. We may have mentioned them, but then we went straight off and never came back from reinforcing them. We should have addressed that. I think we missed the boat on that. The problem was solved in a very unsatisfying way. We stopped giving the exam so you didn't know people could do these things. So instead we

put in distribution requirements, which at first were very broad. That's what I was always afraid. They got more and more encumbered. So now you look at the distribution requirements in the catalog and they're about 3 or 4 of them. They look just the way they are suppose to look. Then under them are about a dozen notes, that say this must include this, this, this, and this but not this, this, and this and on and on and all these things. So in a way we've crept back more and more to a required curriculum. Some of it is not that bad, some of it has taken away from the kind of flexibility and freedom that the students were suppose to have under the original concept. Some establishing, some core in science and math is reasonable. But some departments have really gone out of their mind. The chemical engineering department as far as that aspect of the Plan is concerned, there are so many required courses in chemical engineering, there aren't that many electives. But you look at some other departments like electrical engineering, for example, there are all kinds of ways you can fashion your program and still maintain a very good and solid legitimate core. So that is the kinds of things that happened. When we went in to the Plan we had to change everything. We had 15, 14, 15-week semesters. We had, as I say a very fixed curriculum. People had to know how to advise. We had to bring in the projects. There was a big threat to some of the faculty to bring in projects. They came from the class and they had their notes and they lectured. And if you questioned what they were doing, like in a European university, that that was not tolerated. They were the aire professor. With projects, as you guys know, you sit around with project advisors. You sit around and work it out. At the end of the project, like at the end of a graduate thesis, if you've done your job, you know more about that particular topic than the professor because you've lived with it, you've worked with it. For some faculty it was very uncomfortable that the students would know what they did and also many people had been isolated. Remember, we were a pretty fixed institution and many people were rather isolated. They taught the same thing pretty much all the time. Now the people who were active in consulting and research, they were fine. They had a lot of ideas on what to do. They were exposed to the professional world. They had to deal with people in industry and so on. So they thought this was great. They loved it. But the people, who did not have that contact, were very threatened by it. That's why I say the faculty was brave to vote it in and it wasn't overwhelming. It was 92 to 46, 2-1. If you were an optimist, you'd say that the faculty voted in by the overwhelming majority, but ifyou're a pessimist, you'd say a 3rd of the faculty didn't want the damn thing. They didn't want anything to do with tit. And some people resigned. Some people left the college after it was over. Other people dragged they're feet, and hoped it would go away. And other people pitched in and said if we're going to do it let's do it right. They were great supporters after that. I had a very difficult job because I have always had the people that didn't want it. They were always foot-dragging and finding fault with everything…you can't do it, you can't do it. Honestly sometimes I would wonder if we were going to make it. There were a lot of problems, financial, we had to change loads, all sorts of things. I did not let on for one second that I had any doubts, as far as I was concerned this was going to go and your going to go with it one or the other.

Did you have any doubts about the plan?
Yes, various elements of it. As I said first where are we going to get all of these projects? How are we going to advise them? We didn't know how to advise projects, hundreds

and hundreds of projects. How are we going to form them? Now we have a tremendous lot of experience, but this was brand new territory in those days? How do you do it? How do you frame a project? What are your expectations? What is a good project? What's a lousy project and the whole support system? How do you write? How do the students? How do you go about it? Now its routine people write proposals we have coming up in a week or two-project presentation day. We have a whole system nowits really organized. In those days we had nothing we were just plowing ahead into unexplored territory. We had no idea how to do the IQP. We knew that we wanted to relate science and technology to society. So I put together a committee called theZwiebo committee. A guy named Zwiebo was the chairman of Chemical Engineering. We had very good people for that. We figured out what constituted an IQP. What areas were appropriate to go into? History and technology being kind of one. The reaction between science and technology. We ran a school for two summers for the faculty. We ran it out of the scout camp out in Plymouth Valley for four weeks. We brought in experts in environment and economics and government policy, and ran seminars solid to educate the faculty in environment and economics. It wasall new to them. They were going to advise these projects and it was very terrifying for faculty who were very comfortable in their fields of science and engineering or humanities or whatever to then go out and advise outside their field. But that's what all you guys will do it. You will be taking courses here. You will go out and with a year on your job you will be doing stuff that you never heard of here. That's what professional life is all about. Its being adaptable. So the faculty adapted to it. Again it was very, very hard for the faculty to do this and it caused a fortune. Part of our job and George Hazard, who was president of the college, who was a great fundraiser and we used to go out and give presentation and we got a ton of money. I guess about six million dollars to implement the plan and that helped a lot. Believe me because we hired faculty in the summer to write up the competency exam. There were all kinds of arguments on how to do that. You had theIQP, the MQP was fairly easy to do. We just had to assure the level and the cooperation of the industry was correct. We only had a handful of people in the humanities department, 6 or 7. They taught rather routine courses. Some of them were very good people. Claud Shikely worked very, very hard. We had to expand that develop it. We got big grants from the Melon foundations and others to create a humanities department that could handle this sufficiency. I'm sorry now that we didn't call it the humanities qualifying project so that it would have been parallel to the others. Becausesufficiencies, well the way that word came about the humanities program was to enable students to have sufficient background in a chosen area so they could carry it on as a life long avocation. Now they call it a sufficiency, abbreviated asuff, which doesn't really mean anything. It was really the humanities qualifying project. But it was only a 3rd of what the other projects' was worth. Then we changed the biggest thing we did…we changed the calendar. We went from a 2-semester calendar to a 7-week program. We almost went to an 8-week term. Looking back on it, I wish we had. What we had then was in January what was very popular, was an intercession, 1-week courses about 3 or 4 -day courses. We had about 400 of them, little ones. They were everything from free-body diagrams ProfessorHagglund used to teach, and they would teach something in engineering economy. People taught some mini-courses. So they taught everything from bread making to one that was very popular called crime and punishment. They went with the police. They went out and saw what

they did in some of the more challenging areas of the city. It was like Law and Order actually. Then the second week they went to the court and saw the judicial process. The 3rd week they went to jail and saw how the jail worked. That was pretty thrilling. We had all kinds of things. What wiped that out was that the competency exam. When the competency exam, the faculty became so engrossed in that, that couldn't teach all these mini courses, so it came down to the humanities who were not in the competency exam, taught a lot of them and eventually we got to the point where we couldn't carry the whole thing. That's the point were I wished that we went to the competency exam. Then, we phased out the competency exam. What we did was just move the term together, but we could have put in a divided, taken those 3-weeks in a term. But we didn't, so we're living with the 7-week terms. The first time that we did it was wild, absolutely wild. The faculty had always been teaching on semester and the students were used to it. It was well into September before some people found the bookstore. Well now by the end of September, you're about, over halfway through the term. It starts instantly and goes and people weren't used to that. It started slowly, then ended up in a great big rush. Well now, it's constantly a rush. So it was a different experience and the end of the first term was over and nobody knew what happened. It was just crazy.

How did that go? Was it a success at this time?
Oh no, the first time it was crazy. The first time we did anything it was awful. There were some faculty who looked at their work and said I got to teach this in 7 weeks, these are the things I want to enforce, and this is what we're going to do and part of the theory was that the students would carry more of the load. Some did, some didn't, but other faculty took the same thing and ran like one of those old fashion movies. You know they run like mad and jump from thing to thing all the time. They ran the course like that and ended up exhausted. They didn't know what they taught and neither did the students. It was just a mad scene. So they learned how to accommodate them. From the start, the incoming students loved the 7-week term and I think still in general liked it better then the other. The other one seemed to drag out indeterminately. If you got a great professor it was wonderful, but if you didn't, it was a long difficult experience. Why did we go to the 7-week term? The main reason we went to the 7-week term was partly because students were they were taking 5 to 6 concurrent courses and they said, "We're just running from course to course." They studied the course the exam was on the next day. Then, they dropped that and they go study something else. Just going constantly around between 5 or 6 courses. But if you only take 3 courses and really get into them, maybe meet them everyday or almost everyday, and do that it would be much better. But as they started to say projects were much better. Because the projects I started to run with Bob Hall and some others just never got critical mass. You can know with your project if everybody in your group wanted to have team projects just like you're doing, that's exactly what we'd hope to have, because we wanted to have people learn how to work with other people and be part of the socialization of getting ready for the professional life without a single contributor which you had to work with other people. We wanted to develop that. So we wanted team projects and the logistics of it made it possible to run them by having a 3rd the number that if everybody had a separate one. It was necessary to have them. What you guys must find hard, as everybody does, to get together for a significant period of time. And you're only taking 2 other courses. Imagine if you were taking 5 other courses

with labs and stuff. You would never get together. Maybe you'd meet from 9 to 10 at night or something. But you could never get together during the day, but that was to be part of the program. We wanted to have the project to have critical mass, because it's one of 5 things. All the other courses have quizzes, exams, homework, something else going on. The project you could do tomorrow or towards the end whenits to late to do anything anyway, so it collapses. It would be trivialized. So we wanted to avoid this trivialization and make it a minimum of 1/3 of your total activities so if you were doing a project, you only have 2 other classes and even then it's hard, but at least it's doable. That worked out very, very well. It was a tough sell for a lot of faculty, particularly the math department. They hated it maybe still do. They sure did in the beginning. They said you had to have settling time. You present an idea and you go let it settle. In a 7-week term, nothing settles. You're boiling all the time. I don't think the settling time is all that important. I've been teaching EE, you can go the next day and what people thought about, they thought about. They're not sitting, meditating on that particular idea for the next 3 days. They're doing a hundred thousand other things. So it was kind of an interesting concept in a way. Well that's how we got into it and so I was Dean for 20 years through the whole, but I taught EE for 20 years. I hated to leave teaching. I turned down the job the first time they offered it. Well, I'm doing so much committee work I'm really doing this stuff anyway. I always kept advisees all through the whole 20 years. I did a few projects, but I couldn't teach classes. I couldn't maintain the schedule or do all the other things required. So I was Dean for 20 years and got the whole plan running and then went through all the changes. So I was in the middle of the crossfire. We still had the people who didn't want it who were trying to get rid of it and get back to the good old days, which I didn't think were very good. They were old, but not very good. And then there were the purists, who wanted the pure ideas we voted in 1970. And we only had two grades: acceptable and acceptable with distinction, no record. We had no suspension. No anything. You could stay here for ever, and some people did, accumulating and just hanging around. That wasn't fair their parents were pouring money in and they weren't going anywhere so we had to put in acceptable standards. We don't have a QPA. A lot of things we dumped the QPA. It's an official thing we dumped class rank. We did a lot of things to try again to improve the project program. Because when we had class ranks, if I helped you in homework or did something, and you went off better than I did, I was relatively worse off for doing that. We wanted to eliminate that and we wanted to cooperate. So if you guys help each other, one of you may have a higher A, B, C, standing then the other you may calculate a QPA and it may come out higher than the other, but your class rank isn't going up or down depending upon what you do because we wanted to develop a spirit of cooperation on campus and I think we did. I think people will come here. Especially transfers have noticed that WPI is a very cooperative campus in terms of academics. People are willing to help other people or work together with them I was at the Naval Academy once kind of extreme. But they have a computer there near Bancroft Hall, which is a big residence building, and you go by they have a quiz in every course everyday and that's entered in the computer. It's like the Dow Jones average you can go and watch your class rank go up or down like the stock market depending on what happened everyday. So that is a whole different world. We don't want to do that. So I think we don't officially post or give to the recruiters a QPA. You can calculate one or you can ask the registrar to calculate one if you want to go to Med school or civil service

job if you really need it they'll calculate it. But we don't post a great big list of it. We don't post class rank because companies used to come and say we only want to interview people in the upper 15% of the class and if you weren't that, they wouldn't even interview you. It was terrible. How do people get there? Some people were improving all the time, some people came and did well freshman year from whatever background they had, and then got lazy and were going down the trail. So we got away from that. Oh, they were mad. The recruiters said they were never going to come here. We got to know class rank, we got to know QPA because they wanted to stamp on somebody's forehead a number. They really didn't have to interview them. Yeah, he's a 2.85, he's a 3.1, obviously a 3.1 is better. And they didn't even want to talk to them. So we just wouldn't even give it to them. We said we would give you abstracts of what they've done. Well, you're IQP, MQP, and sufficiency and there was an abstract of the comp. We did that and then it was General Electric who was the one who broke through. The fellow who was the northeast coordinator told all his recruiters, when you go to WPI, you recruit as though it is the student's second job, not the first. The first, you see what you did in this course and what you did in that course. In the second job, what is your experience, what can you accomplish? What did you do? So then you talk about your projects and in the MQP, they very often invite people on a secondary and a real expert in the field will ask them do they understand what they're doing in their MQP…and the placements have been excellent as a result. Now, they all love it. Again, we did a lot of things that were extraordinarily pioneering.

So do you think the plan was done well as far as adapting students to the real engineering world?
Oh, absolutely.

So it's been a success?
Oh, definitely. Not for everybody. We have people who come and take a program just as though they would have taken it before. They do whatever the minimum is in the humanities and IQP and do a rather narrow MQP. I think it's better in general, but they haven't really been affected. Then you look at the students who did a very exciting sufficiency. Which I think a lot of people don't get the most out of it they can. Then they go to someplace like Bangkok for their IQP, come back here and go over to Limerick for their MQP, and had a tremendous experience. That would have been totally impossible under the old system. It's totally impossible in most places today. And thekey are two things: one is the 7-week term. Half a year would beto expensive and the faculty couldn't go away that long. They couldn't and sometimes they had families, all kinds of problems and it would've been to far away. But7-week terms is manageable. You can do it. As we've seen now, more than half of the campus does it and we've been able to have these centers all over the countryside and now we're developing more of them for the MQP, like the Space Flight Center in Silicon Valley, where people are getting experience they've never could have had on the other program…never have ever had.

This goes along with learning and applying the skills. Do you think this exemplifies this a lot more than it did before the plan?

Oh, absolutely. There were no projects, as I said. A couple of us experimented with projects, but we only had a few. There was one course, probably about 30 people in it. But I tried working with industries, but it was only part of a course.And the same thing with the ME. There may have been some other honors projects that people had, but it was not a general thing. As I said, there were more than 60 students involved in projects. There were some projects in some departments, in-group projects, but it's nothing like we have now and they're only part of a course and a course is one of the five activities. So it got down to a fairly modest activity. Now it's totally different now. Totally.

In your opinion, would you rather see that less course requirements and some sort of competency exam come back?
I...the idea is great, but having gone through it, it is a tough tiger to ride. I'll tell you because the focus on the competency exam drowns everything out. I think we're getting much better MQP's now and much better results on the MQP's because we don't have the competency exam. It was our original focus to make projects qualifying. That's why for our honors graduation, you have to have the projects count. You have to have some A's. The A's...an A on the IQP, MQP, and sufficiency. You can graduate with distinction if you have just A's in the project. If you have A's in your course, you can graduate with high distinction. But it's strongly project based and I'm pleased that we've been able to keep the emphasis on the projects.

Do you think the projects that have been offered have kept up with the technology?
Oh, I think the MQP absolutely has gone way ahead of where they were originally. We didn't know what students could do. The same thing with the IQP. We have some lousy IQP's, but they're a few now. We're evaluating it, bit we've got some absolutely superb IQP's and some really masters level MQP's. I think there's no question that we've gone way up from before.

So you think the MQP's have helped society, almost as a business would?
I think, well, it depends on the topic. There is some where people have gone out and done some very first class things. I was involved for about four years, this was the first year I wasn't, but it was working with the Providence-Worcester railroads with the signal safety system. Using TPS on locomotives, so the locomotives would automatically interrogate the switches down the line, two miles away to determine if they were in the right position because they had some bad accidents...switches weren't closed right or vandals got at them. So that was a case of an MQP that had a very distinct advantage to society in terms of safety. And there have been a number of others that have had a very good effect improving safety or economic availability of a product.

What about as far as the curriculum courses and majors? Do you think that's evolving with the needs of society and in terms of technology?
It varies a lot with department. The whole exposure of bio-technology is a case where we have had the flexibility and enrollment to introduce a whole new area. We had biology, but it was a small science in the early days of the plan. Cell biology and all its derivatives, biotechnology, biomedical, and everything probably will be one of the largest operations in the college. It's no question. It's a giant growing field. So we've moved

with the times in terms of introducing computers. Computer Science was introduced about the time the plan came. Back then there was some courses that math taught on computers but it was up until about '70 or so was established as a separate department. And now it is probably the biggest, certainly one of the biggest departments with EE and computer science and biology is coming right up fast.

Do you think that professors' number one goal at this school is to educate their students or to, should I say do more research to acquire tenure?
I think most of them like to teach students, but they want even more to survive. This istru of every university. One of the goals is toteach, the other is to advance knowledge. It's not always to compatible. Sometimes a faculty members abilities and interests are research and they'll teach what they absolutely have to, especially at the undergraduate level. There are other faculty who really put their heart and soul into teaching, want to do a first class job on the undergraduate program, and their research may not be as prominent and sometimes they suffer because of that because teaching is more subjective. It's harder to evaluate. Where as research, you just look at the papers and citations that's there. But I think that WPI has done a remarkable job in trying to keep the balance between the two. I think it's an unstable. It's like putting a pin and saying it's going to stand on its point. I think maintaining stability between teaching and research is tough. It takes a lot of leadership, department heads, the central administration to keep that balance because they tilt it and put all the chips on the people's research, that's what the faculty's going to do. They want to survive. They want pay raises. If they don't, their wives do. So there is a lot of official promotion of research and there are people who want to have credible teaching and I think we've gone long ways in improving teaching. But it's a tough job for the faculty. They have a divided loyalty between teaching and research. If they do just teaching, then their young faculty will not be promoted unless they have a research record. Now that is much stronger at WPI now then it was when the plan came in. So essentially the plan was created in a very pro-teaching environment, where research was secondary. I think we've gone around, where research is becoming primary and teaching is becoming secondary. Although WPI, I must say, puts a lot more emphasis on teaching, teaching quality and the projects. Good project advising isver time consuming. So it is a very demanding, but very satisfying place to work. Thefaculty are under a lot of pressure and they've got attempt to both sides some reasonable manner.

Has the promotion for research coming from external or is it coming from the administration?
It comes from a variety. It comes from the administration primarily because that is where prestige and pure recognition is available. Butit also comes from the faculty members themselves, who want to be known, who want their names in books,you know references. They want to go to prestigious professional conventions and give papers. It's part of their profession to be on top of their field. It isn't just an administrative push, although that's all there because they want the school's prestige. At the same time there is a more subtle obligation to have the type of quality teaching or you don't have the students. You can't charge the kind of tuition we are charging and not pay attention to students, because can't help out, you can just move. Recruiting reflexes, I think we have maintained a good reputation, in fact an excellent reputation in caring for the students and

the alumni all say that. Absolutely. Few people have had bad experiences with a professor here and there. There is no way in avoiding it. But on the whole, I think the alumni all say, for example, something like 90 % would recommend to someone that they go to WPI. So they think very highly of it. Very positive attitude. So that is encouraging. But it's strange that a place with strong research such as Harvard or MIT, the people who do that research are seldom, if ever, seen by the students. And yet students go there because that goes on. Because that kind of relationship is better sometimes.

In your opinion, is that what separates us from MIT...research?
Oh, yeah. Yeah, size, just general size of research programs. The great research universities are a different kind of place then a place like WPI. The people that are the stars of that university are almost never see undergraduates. They may give the same such and such lecture every year or something, but their names are there. I think what makes the college attractive to undergraduates is the fact that other very good undergraduates hoping some of this wisdom of these stars will, which not a lot get, do get a lot better education in the sense of the students they associate with are very good students and that helps. It's kind of an indirect effect, not a primary effect because the actual teaching at some of these places is not very good compared to what we're doing, but the students are associating with other highly motivated students, so a lot of their education comes from the interaction with other students. This is a second level effect. They're good when they come, and good when they go. They have improved. So that's it. A kind of aura that exists from these places. So it is a self-fulfilling prophecy. A place that's suppose to be very good if very good students go there they will get a good experience, not from the professors, but from the other students.

How about e-mail? Do you think e-mail has had a positive or negative effect on faculty-student relations?
Oh, I think it has had a very positive effect. I find so. I have more communication. I have a load of advisees, maybe about 50, so I don't have a lot of other things that take my time. But I find with e-mail, people ask me questions should I do this, should I do that, and I can give them an answer and right back or if they want to see me, cause I'm in and out all the time I'm traveling all over. Plus they can set up appointments. It's been wonderful. Before, people wouldn't ask you questions like that. They'd come around and, it'd be a big deal to come to the Project Center and find you and ask you a question. But now, if they wonder about something, send it over the e-mail, and I'll give them an answer. I think it has been great from that standpoint and it has increased person-to-person contact because you feel you know them better because of the e-mail, at least I do, and then you can say well look this is a complicated issue why don't you drop by say 11:00 and we'll talk about it. So I find it very, very helpful.

Have you seen a lot of things on campus? Change with the different presidents?
Oh yeah. The president sets a tone of the campus. Some presidents are very involved. President Hazard was very interested in educational motivation. Put a very high price on that. He worked hard and got all kinds of funding, forming the plan was a big one. He really understood his potential on the student, what he could do. He could explain it to the people of campus and that was very good. Then we had, going back years ago, Professor

Stork, who was not an academic person, but a 3-star general. He was amover, He wanted to get things done. He built a lot of buildings and things like that. He knew the college had to or it wasn't going to make it. He gave the, what you night say the order, to go ahead and let's do something, because the faculty were ready to do something, the high administration was, a lot of the department heads liked things the way they were. It was a tough job, but he did it. He got the thing moving. Then we had various people before that, some weren't very good, some were fired. Stork was excellent. Then we had Professor Cranch who was a very pro-student, very good educator. We had President Strauss, who had a very high priority on research and maybe is the one who accelerated the research program. He was very big on research. Then after him we had President Parrish who I think has been a reasonable balance. He is very interested in students. He pushed the Student Center, which had been languishing for years. So he's done that and he's also been himself in professional organizations and within the faculty, he has been very supportive of increasing research presence. Oh yeah, the presidents call the shots in terms of priority. It's what their priority is. Power is the budget and the president controls the 63-70 million dollar budget. If you control the budget, you control the priorities. You'll have to encourage people to have the budget stay one length. Well, I found that when I was Dean. I had to have a big budget.

What about, on a different note, the athletic program. Over the years do you see the participation or attendance drop or vary?
Oh God yes. I have a theory, in fact I've told the president and two other people my theory, I don't know how welcome it is, but I'm concerned about our future. We have not expanded our applicant base significantly in the last 10 years, and I'm convinced if we want to go into new programs like the bio program we've got to have a small, but steady increase in our population. If we want to increase selectivity and we want to maitain enrollment, we've got to increase out applicant pool, and I don't think we've done that. We're running about 3000. Holy Cross is almost 5000, RPI between 5 and 6000 and we're still down there. I think that's one place where we missed the boat. Failing to get name recognition. Peopl don't know who we are. The alumni complain about that constantly. I think that if there has been anything that has been a failure, it has been a failure to increase name recognition. The other thing that I feel we should do, and I've proposed this a couple times, and I think that it's a real problem and that is I believe we should study the possibility of going Division I-AA basketball, just like Holy Cross. We have more men then they do in our population. They have really 50-50 women and men. They also have a very strong legacy program where they give out attention to alumni children. Our program has got enough variation as a university now, we got everything, you know humanities, social science, management,all kinds of degree programs, so everybody isn't either coming here taking engineering or nothing. In fact, it's almost the minority of programs are engineering. It just kills me to see some of that, well some of these little Catholic colleges in upper New York, Sienna,Niagra, St. Bonaventure, you know you got the whole litany of saints and everybody knows who they are. People hear of Niagra. They here of...you should see these campuses. They're little campuses. An academic building and a gym or something, but people know who they are. If you look at CNN, you'll see that tape going around on the bottom with all the basketball results. You see Holy Cross, obviously and you know, you see all these little colleges, and people

know who they are. It would be great if we saw WPI go by. If we put the money into that, I think we would be much better known. Football is great, but I really question to what extent football is helpful to us. We play Fitchburg State, in fact, we play in football colleges that we have a hard time accepting transfer credit from, and yet that is a widely publicized sport. It's the one that gets in the newspaper. The identification we have there is not particularly helpful. Look atwho Holy Cross is playing. They're playing Army, they're playing Colgate, they're playing Lehigh, and I think it is something we ought to have a study about. Maybe after we look at itsee what's involved. But I'm worried about that because people outside do not know us, and there is no way we can get out. We can publish papers in the national magazines. Sure they're written byemployers that helps you on that end of the scale, but it doesn't help increase our applicant base. I think we've got to do something. Sports is one way of doing it and basketball is to me the most obvious one. We have upgraded crew, which I think is great. But you don't get the kind of widespread publicity that you get from football and basketball. You've got baseball, you've have wrestling, but you don't get that kind of presence. Football we're never going to. It's just too complicated and expensive. We still maintain a corporal relationship. People are going to kill me for saying this if you love football, but you look at the attendance of football games, look at our schedule, it's not that good. We do play some good teams in basketball. Very good teams and good schools, well known. But it would seem to me that's one way that we ought to look at. We got to do something drastic here. But if we're going to be the super undergraduate program, with projects all over and constantly coming up in every way, why can't we be good in some area of sports where we're going to get some external recognition. I feel very strongly about that. We ought to at least look at it at. Harrington is such a great facility, but when have you ever seen it filled or even anything for a basketball game. And there's another aspect that where alumni love the academic program, they love theprojects, they'll have many kind things to say about the social program. If they're in a fraternity, they had a good time in the fraternity probably. Some people have developed friendship groups and other people have developed kind of lonely, empty social existence. I think that goes home to haunt us. Now, we're going to have this great Student Center, and one of the things I pushed for, and was very happy when they selected it, was to put it next to the gym. My concept was to integrate it with gym. It's essentially done. There are complex reasons for not, because a brand new building next to gym we'd have to retrofit the whole gym, bring it up to all kinds of codes, handi-cap access. It would have been terribly expensive. But by having it right next to it, they're going to put an awning from here to that point. You avoid that. That there is a problem. Also in the original one was to put in a big Olympic swimming pool in the Student Center, like they do in California. Make that the focus of it. Not just for big athletic swimming events, but as a social focus, where people would come and hang out by the pool and take a different cost, but that didn't happen.we have a ton of meeting rooms but the pool is not on the horizon. We have a dreadful, sub-standard facility now. We can't even have inter-collegiate meets in it and no stands in it. Well, coming back to basketball, if we had a basketball, and we had it on Friday nights or weekends, where the campus is a social desert, and had a main basketball team and if we eventually got to where we had some winning seasons, we wouldn't be in the march Madness or anything close to it. Just so we had it, that would be such capitalist for bringing to the center of the campus both social and athletic things. The big problem with

a lot of student centers is people go and hang out but there is no activities. The fewer people go, the fewer people go. But if a lot of people are around, a lot of people will go to it and why not combine it with a strong basketball program right, in practically the same building, so people will go to the games and go over and have pizza whatever and it will become a magnet for people and when they left will have pride in WPI. It's good to have pride in some of the things we're doing in Venice, but it's also good to see it on CNN and say yeah we beat or played some college everybody knows about andwe get absorbed by association. I think it's time for us to do that, cause we are, not because we said we're a university, but the Carnegie Foundation, it's called the Carnegie Commission, but it has very standards to determine what's a university and who's a college and all that. We classify as a national university and if we are I think we ought to round out our program by having an athletic presence appropriately. We will never ever think that we're going to become an athletic power. It's just fact. But Holy Cross does very well. They have an excellent athletic program. They maintain strong academic standards and behavioral standards and everything for the players and yes they're getting all the benefits of that recognition. We're not. It's hard to think we are balanced if we have all these great projects all theses other things but we have a social black hole and a lack of recognition by the general public. We didn't so thatwhy . Now that I am no longer active dean and don't have to be political.

How do you propose that we obtain a division 1-A standing?
Well you can see that it is a slow process. We have to build up. Maybe we got to bethe best division three team in the world. I don't think division 1, AA, the same level as Holy Cross. They seem to be able to sustain it. They're not living on TV revenues and their not living on having the gym full all the time. Were down. What do we have this year? 4 and 18? That says something about the school if that goes on and on. If were good we should be good and the things were good at we do. If we can't do it well, we ought to crawl in the closet or not do it at all. I think we have paid a price over the years by saying that we are not an athletic school. Maybe at the beginning we didn't but I think that we are now. We are going to be a university. They say, "oh MIT doesn't have any", but MIT has 100,000,000,000 dollars worth of research going and a big international name. We don't have that. I think we need to build up to the point where we have a real winning team and then consider. We don't have to go from nothing to division AA but having a goal to get better and better and then at some point see if we can apply more and be accepted at the same level as Holy Cross. I kind ofbothers me that Holy Cross has fewer men then we have, with an excellent academic reputation, everybody going into med. school. Too many of them going into law school. They're doing it and they have very substantial alumni. I think its time we got a look at that. If we are going to really be a technological university just as we said the IQP is going to show that we are going to be interested in things beyond strictly technology perhaps we got to look into something. I think for moral on campus, you guys are closer then I am. If we had a bid activity going on that everybody went to, boy it would pull the campus together. We don't have a central pull on the campus. People say yeah I went to WPI, "oh yeah then I have to explain what the letters mean." So it's a problem. So when you ask me about athletics you touch a button.

One person said that the school should get rid of football all together and divide the budget amongst the other sports, such as wrestling, baseball, hockey, crew, soccer? No, I wouldn't say that. I think we need it. I don't know what the budget is in football, but I know football is apparently expensive. It's a big team, a lot of equipment, over night trips, not many games a year, and I think it's hard to recruit. We had some good guys in football, but I think for our size and the fact that we're squeezed out of so many football leagues. We used to have a much better football schedule. When I was a undergraduate, we played Harvard, and we beat Harvard when I was a sophomore. You look at the football teams over in the gym, hell, we played Brown , Rhode Island, Mass. We had a pretty powerful football schedule. Now we're playing Worcester State and Fitchburg State. The only really consistently 3 teams collegiate is Norwich, RPI, and Coast Guard. Once in a while we may play Union or someone else but not regularly. We got squeezed out of the polar league with Colby, Bowden, and Bates. We used to play them. We don't plat them anymore. We used to play occasionally Williams and Wesleyan and they're all in the Potted Ike League or something. So they got their own circle, and because we're engineering, which we really aren't, we're a technological university, we are impure or something in their eyes and they want liberal arts people. I think there's a place to reconsider our image as being this place with a really good academic program, but pay no attention to social life, to other aspects of life. I think the Student Center will be help, but will only be a help if it is used. We can have wonderful buildings, but we need it. We have Mass Academy here, those superstar high school kids. All the states have them. Maine has one up in Langston way up. They had a meeting of principals and headmasters, and we do not list in category A. We are in category B. It is primarily because of a lack of student center and a lack of an adequate social life. Academically we're A. No question. But recommending kids, they want to have a kind of balance that they don't see here, in terms of academic, social, and a general total life. If you read Two Towers, you'll see it emphasizes the need. That's been a failure in the plan. Not the academic. The academic, we've exceeded expectations. It talks about the needs to have a complementary social life, where the kinds of things you are learning working together on projects, will be carried into working together in a broader social atmosphere. That has not happened and it's still going to happen. In fact it's gone down because when the plan went into effect, roughly 80% of the men, and there were only men at that point, were in fraternities. Fraternities were the hub of social life, so it wasn't missed. Well, now fraternities are only 35% and it has been a vacuum. There are events now and then, but there isn't that consistent humming especially weekend social life. If you walk across the campus on Saturday night it is dead. We used to play Holy Cross in basketball. There used to be phenomenal crowds hanging off the rafters in the old gym. People get hurt falling off the rafters and you'd kick them off and they'd be back on them again because there was no other room. Saturday night was viverent here. I think it's part of our program that without this center, without any winter predominantly. You know wrestling's good. That's a special interest. Not everybody is pulled to the same kind of general pull that basketball has. It's a rather specialized group and had a very good record. It's not like having 3000 people in Harrington watching a big deal basketball game. It just isn't. The only time we fill it is for high school games really.

We should bring the bar back?

When we had the goat's head, well I implemented theplan, I think much of it at the goat's head. The drinking age went down to 18. We never had a problem there. On Tuesday afternoons it was especially packed. You couldn't get in. Everybody wasthere, even the president of the college was down there. I was down there. Professors were there, students, graduate students, who didn't have much of a life...everybody came down. They had a band play in the corner. It was just a great thing. Beers would be floating around and nobody ever got out of hand. It was a very well run and everybody wanted the privilege of keeping it, so they kept it in a real nice atmosphereFor years that went on. If committees or faculty members would give me a hard time on something, I'd go down there, take them to the bar, buy them a beer, and before the night was over, we'd solve the problem. So I said I implemented the plan there, it really was true. It was wonderful. It was great for school spirit. It was completely complimentary for the fraternity system. It was just great because it could meet everybody on campus. Then, when the drinking age went back up we shut it down, and then the litigation became a problem. It was not closed because of any incident or getting out of hand or anything. It just closed because the one's who were 21 were afraid people under 21 would get in. The other college Holy Cross has a21 year old bar. I don't know if there is one in the student center. People who are 21, it is much better to have a nice well operated pub on campus for the people who are of legal age, then having that social life go to the Boynton and points beyond.

Appendix D: Transcript, Bill Trask

Oh, I'm sure that you could ask any student on this campus. What's the basketball marathon and they wouldn't know. In fact I think you can ask a lot of students what the pub was and a lot of them don't know what it was. In 1968, two students, Jim Ozlosk, and Joel Shewall, Shotcky. Well, Joel came to Harry Thompson, who was bookstore manager, Dick Olson who was a math teacher and myself and asks us if us five would help them start a pub on campus. It would be open to seniors who were 21 years and older and who had birth certificates on file and faculty and staff who wanted to go. Well of course, we from the general to see if it could work. So Joel and Jimmy went to the president and said we have 3 or 7 faculty and staff members who wanted to help us. Can we have a pub on campus? It'll be open once or twice a week and it would be downstairs in the lower part of riley, he said. I'm not going to fight you on this but I wont give but if you can get a license then as far as I'm concerned you can have it. Which at times was quite remarkable so anyhow, they went and got a license. We had what we would call a one-day license. And we would have it open on Friday. Then in 1974, the drinking age changed to 18 in Massachusetts. So no longer was this pub open to seniors who were 21 and over. It was open to almost 90% of the student body. So we spend the whole summer downstairs in Riley where the pizza place is now,Gompie's Pub I think they called it, Gompie's. And we had the back room and the other big room and we had a 3-tap system. Only beer and wine, no hard liquor. And it was open every day of the week, 4 o'clock to midnight. It was not that you had to have alcohol to have a good time. It was a place we wanted to have studentsget to know one another and hopefully have faculty and staff come and join us. There was some of us who spent a great deal of time there. There were some faculty members who were never in the pub during its entire existence of its life on campus. There were some problems. There were some students who had never had a beer in their life who unfortunately didn't know how to handle it down in the Pub. But that's life. Anywhere kids are going to drink. So one of my contentions was, hey if they are going to drink I'd rather have them drink where they can walk home then to… because when I was at Middlebury the drinking age as 21 and we had kids who went over to New York state which was 18 and every single year during my time at Middlebury at least one student was killed in a car accident coming back for New York state.
So I thought the Pub was a good thing. I thought it brought some togetherness on the campus. Certainly if you go back and ask kids, well alumni now, who were here from 68 to 84 and I think one of their first memories, non academic memories, would be the Pub.

When did they get rid of the pub, 84?
I n 1984, 1985 when the drinking age went to 20 then to 21 and we couldn't justify having a huge part of the campus for such a small segment because now we are back to just seniors, faculty, and staff, and grad students.

Do you remember and specific campus wide events, concerts, or performers?
Oh sure, yeah, Janice Joplin, James Taylor, J. Giles band, Peter Paul and Mary. Then again this was during that segment of time when concerts were the rage on college

campuses. From 68 to 74, I mean our people that we had, I don think that they were the manes that they became but they were on their way up. Socollege campuses is where they got started. I remember one concert, James Taylor. We had two of them Sunday afternoon and Sunday night. Sunday afternoon, nothing happened, Sunday night all hell broke loose. And I attributed it to the fact that in the daytimeits easy to spot people who are causing havoc where as in the nighttime sometimes its pretty hard to tell who is raising all the hell. Unfortunately drugs were a huge problem back then too. But that was the sign of the times and it wasn't just WPI it was everywhere it wasn't just Worcester tech it was everywhere.

How about the athletic program, can you talk a little about that?
Yeah did you know we had a strike once when they tried to do away with football?

No.
Anyone ever mention that to you?

No.
Sure. At Riley Commons. They were going to do away with football, I'm glad they didn't. It's tough though. I mean football takes a lot of time, as does basketball, as does any other sport but I think football because of the notoriety of the name of the game. You have to hand it to them. These kids have played football and maintained their academic records. I don not know of too many I honestly cant think of any students who got away with not doing their academics in addition with playing football. You hear about all these horror stories of other schools where they carried on playing football and taking phys.ed courses and basketweaving courses etc etc etc. well here they couldn't do that. They were here as engineers an scientists and they had to do the work. I mean don't get me wrong they had some students who have failed out but I don't know of any students who was carried for 4 years doing phys ed courses andbasketweaving courses and till playing football or hockey or basketball or any other sport you want, rugby which we didn't have then, lacrosse which we didn't have then. These take time. So people had to learn how to budget their time. I think that's one thing an engineering student, or most of them, learn to do very early is to budget their time.

Why do you think the attendance at athletic events is so much different now that it was?
I don't know its hard to say. I remember when we first came here all the administration and a lot of the teachers, we had the old gym upstairs, the circle up there, the whole circle was filled with the president, presidents wife dean of faculty, dean of students and their wives. We all went, we did that. The same thing with the frats, not so much the sororities because they didn't have the housing, but the frats, we used to have dinner and they used to invite faculty or staff etc.Sunday to their house for dinner. They don't do that anymore, I mean those kinds of thing have changed, not that it was necessary, but when you have that sociability in theno academic environment I thought it was worthwhile it thought it was good. But as to why, I'd been to football games this fall the night games we had and I think I saw one or two other of my colleges who were teaching and or administration. But in the old days you used to see them all. You'd see them at

homecoming but homecoming is different. They want to be there because a lot of alumni are going to say hey where the hell is so in so,their not here. They have their own lives I'm not saying they don't and they have their own interest I'm not saying hey shouldn't. But WPI supposedly gave them a job, gave them a place to bring up their families and you think that they would support some of the non-academic things that go onon this campus. I'm sure there are some faculty members here that have never been to a football game, never been to a basketball game, never been to a MASQU play, never been to a glee club concert. And I think that they miss so much by not seeing what these kids can do other than academics. That's my own personal opinion.Because I used to spend too much time probably at these things because I hardly missed any of them. I tried not to miss any of them. Sometimes, lived out in West Boylston, I'd go back and forth three ties a day. Particularly when the Pub was in existence.

If you could pick one event that stands out in your mind what would it be?
Well there's more than one, there's two or three. Personally I think one of the nicest things that ever happened to me and my family was when I had been here for 25 years they put on a roast for me. This was unheard of at WPI. This was the first time they had ever done a roast. I was notorious for wearing any color tie with any color shirt with any color jacket with any color pants that I wanted to. So that meant a lot to me. When I retired they did that too but this was after my 25th year. So when I came from Boston that day there was a banner across Earle Bridge that said BillTrask Day. Now I have to be honest I had heard that something was going on in the Pub. There was this alumnus there, class of 1971. Now this was 1983. Now I said "Usher what the hell are you doing here?" and he said "Well, I'm not the only one who's here." And that meant a lot to me. It was nice to think that and it wasn't just the kids it was some faculty and staff who would go and put in the time and effort to put into this thing. I have to laugh, at the dinner that night, 90% of the guys, students, that came to the dinner afterwards all wore plaid jackets, striped ties, striped shirts just to get back at me. I suppose the, I'm trying to think, the most momentous thing that happened on the campus probably was back in 63 when Kennedy was assassinated on Friday afternoon. I had been at a placement conference over in Pittsfield MA. Occurred ina the afternoon, but we had a teacher who the next day even though classes had been cancelled, ROTC was cancelled, he gave his class and he passes the work around. Remember we didn't have Internet. But he got the word around he said we are having class. I will expect you to be there. We are having a test. His biggest philosophy was even though the president of the United States had been assassinated life has to go on. Sometimes it's better that sitting around moping about something like this to focus your attention on something else. He had this class. Everybody wasn't happy about this but later they said maybe Bill was right. So I thin that in essence that was probably the most dramatic thing that happened while I was here.

Can you talk about the campus itself, renovations to it, new buildings added?
58, Boynton hall, alumni gym, Washburn, Higgings, Salisbury and that was it. Then Riley came, oh not Riley, I'm sorry Riley was here. Daniels came probably Harrington and the library. Olin and Goddard all came in the 60's and 70's.the townhouses across, Elbridge and Fuller and then theStoddards and now the student center. Unfortunately we needed the student center long before we needed the other 2 buildings because the student

center is really the focus of the campus. The students have really no on place to go for centralization except afterDanieles they had the snackbar and the mailroom and lounge because normally we didn't have that kind of function. I'm glad we are getting the student center. Sorry it took so long to get one and I hope the kids take advantage of it because there are some people on this campus who don't even know each other. They sit in class and they never see then again. People come back for reunions and everyone is like, hey, nice to see you and all that stuff. I think engineering students are very different than liberal arts students. And it may be the nature of the academics but who knows but its interesting to come back and realize after 25 years the kids don't remember who sat next to them for 4 years and didn't know their name. So buildings have been a lot of additions on campus.

Do you think the interaction between the students and faculty has changed? And do you think that such activity as Internet activity has taken away from the interaction?
Sure, you can't help it. As we said earlier in the old days, you see would see all these people on campus, at functions, you would see at sports events. You just don't see that anymore. Everyone has their own little nitch and I think in a way it's gotten too bad. The faculty miss a lot of what students can do and I think students miss a lot of the interaction they could get if they would only relate. Harry Thompson, how well do you know of Harry as an ATO.

Pretty well.
Every frat, every sorority should have someone like that but they don't. And so you know harry different than other people know him because you are exposed to them. If more faculty and students could interact in this relationship it would be really great. But they don't. They've got their life, their family and their interests against students over here. I'll go back to Bill Grogan, I call him the grandfather of the plan, because he's the one who really got us going along. But he was a member of phi kappa theta. And every single member of phi kappa theta knew Bill Grogan and Bill Grogan knew them.The same with ATO and Harry Thompson, Phi Gamma and Walter Hathaway. And I think it means a lot to these alumni when they come back to make sure these guys in their respective houses know them. And I'm sure a lot of ATO guys are happy to know you know Harry T. and would be very upset if they didn't know if you guys just lost it completely.

Do you think the advising program is working to the extent it should be?
It's hard to say. I used to be advisor. You usually had to be a faculty member to be an advisor but because there weren't enough faculty so they asked us to be advisors. I'm a history major, not here for science. I can't balance my checkbook but kids loved me as a advisor. Because I would never question them as long as they meant the degree requirements. I had kids stay with me until they graduated. At least I was around. They could find me. I was in the office every single day I would stay after hours. My only hassle was with a freshman, get your damn phys ed requirements our of the way. You know you have the requirements. When it came to academic courses, it was no problem. My office catered to the seniors to look for jobs. So whenever a fresh orsoph or junior would come and say I got problem. Should I take this course or that course? Hey Tom!

Come over here, would you help him out? Which course do you take first which one is the one to have? And one of the things I probably shouldn't have done but did do was I would hear horror stories about teacher so I would encourage my advisees to get away from taking this class. Or wait untilit is taught by somebody else. I thinkadvising, the kids who do their MQP, IQP or their faculty advisor are veryvery fortunate. Remember in the old days, you used to have a competency exam and you advisor, if this is a smart kid, you would get the toughest teacher to be your advisor, because your advisor would not be on the comp. If you were smart and you knew the system, you would get Joe Smith, who was screwing kids when it came to comps, everyone would want Joe smith as an advisor. We had some people who would take the comps seven times. We had one kid who took it seven times before he passed it. There was this one girl who was a Chem. Eng. with my son. She failed it. Sometimes you would take it in December, then in march but if you didn't take it there was no way you would graduate by June with your class. This poor girl failed it the first time then in March failed it again her mother was devastated more than her daughter. So in June her mother spent the whole day lighting candles at church. She passed the third time. We have a couple of kids who went down the tubes because they failed the comp. This other kid, he was another Chem. Eng., same class as my son; he took the comp in December, his first time. They all came up to the office, I passed! I passed! Except for poor Jimmy. They were having a party that night. So my son said hey dad, I know you are going out with us anyway, but watch Jimmy. He really was awfully bent. It was weird because at first he was happy and he would be down the drain. He wanted to be happy because his buddies past but he was really unhappy he flunked. The comp caused a lot of dramatic things, three days of it. You don't know what they are going to ask you. You are on your own. Not like projects where you worked together.

Do you think teaching is the first priority of teachers or is it striving to reach tenure?
All teachers want tenure. I think they all know they need to be good teachers. Research has a lot to do with tenure. But I don't think if you don't publish something you want to get tenure. Not here. I think a lot of the teachers have gained tenure, but through their academic teaching as much as for what research they may or may not have done. I'm sure they have all written books but how May times can you write a triangle is three sided? I'd like to think that they got it because of their involvement with the students and teaching both undergraduates and graduates.

Do you know of any WPI alumni who had a significant effect on science and technology?
Sure, vice president, in fact, president now for the North American sales for general motors. Ron Zerol who graduated in 1971. His first job was Clairol. Went to Clairol until 1977. He left Clairol and ended up in Australia. Then he went to Bausch and Lomb as president as now as North American sales for all of North America. They were or are both of these people were trustees. Dave ended up as a three star general probably the youngest three star general that we know of and Roswell were just as good as they are. We have to keep advancing. If we don'twere are going to be in trouble.

As a freshmen WPI was ranked by newsweek as one of the top 50 schools in the nation.
You mean US News and World Reports?

Yes.
And this time we weren't mentioned at all?

Yes.
They have done some readjusting of their, they've added universities, they've changed the format of how they did it and the qualities that they used to have. I thought we were down in the bottom second quarter. Now I have the latest one, we weren't in there at all. I'm sure that if we had been I would have seen it. I think that they have revamped the way they classify us as a university we are not a university. A university is a conglomerate of colleges. We are just one college. So I think that may be one of the reasons and the other may be that we didn't answer the polls. People don't bother to respond to some of these things. If they think things are going to look bad they don't respond to it.

So you think its them not us?
I think it's them not us.

Did you know Carl Gunnard Johnson?
Yes I did. Carl was an ME. Interesting story about CGJ. He never graduated from high school. He started over here in founders and became a full professor. That's hard to do without even a high school diploma. Today they couldn't do it. Back then they could do it. Very open and very kind. We used to have the faculty go to lunch and CGJ came whenever he could. He wanted to help his boys he wanted to help his kids. He was a good man.

Appendix E: Transcript, Professor Polizzotto

Could you state your name and tell us a little bit about yourself?
I'm Len Pollizzotto. I'm a WPI graduate, class of 1970, in the old days. I got my BS and masters here. I got my masters in 1972. I had been in the industry for 27 years. In parallel to leaving here with my masters, I got my Ph.D., though a full time student, while I was working. I got my Ph.D. at Tufts University. It was a one of a kind program that combines electrical engineering, social psychology, and ophthalmology. A lot of my expertise is single process in an individual pathway. I spent most of my career, 25/27 years of them at Polaroid Corporation where I had all kinds of positions. Everything from managing the development of new products to running researches to digital imaging. One of the goals I had, was I always wanted to come back here and teach. Always wanted to do that. Something I always wanted to do. Finally, I hit 50, call it a mid-life crisis or whatever, I said, I quit. I checked with my family and they said it was ok. And I did, I quit. I said I'm done. I was fortunate enough to land a teaching job here. So it's a something I always wanted to do. I was very active here as a student. I was captain of the wrestlingteam, I was president of the class, bunch of things like that. I kind of did a lot of things on campus. One of the most interesting things I did extracurricularly, was I was head of a committee during the planning of the plan. In fact, when I was a senior, we had planning days for the WPI plan. And they had all kinds of different committees. A committee on student life, a committee on academic programs, whatever. And these committees consisted of faculty, students, and administrators. And different people became chairs and I happen to get selected as chair of one of the committees. And again, it included administrators, faculty, and students. There was a student life committee. If you notice that some of the residence halls have more suite type settings and that sort of thing, as opposed to Daniel's and Morgan which were just rooms in a big concrete hallway. I do think we had some influence on that. So anyway, I felt pretty good helping establish that whole planning concept.

Speaking of the plan, could you describe that in your own words and give us your opinion whether you think it has been beneficial to WPI students over the years?
The plan in my words is basically, an extension of the original concept of how the school was founded. The school was founded to be learning and applications of that learning. Basically, you learn some theory but then you apply it. Then we kind of drifted away from that over the 90 or so years from 1865-1965, 100 years. The plan reallyreinstitutes that concept, which, having come from industry, to me, is just an awesome concept. It is really terrific. You get theorists out of school and then they take 5 years before they're really productive in an industrial setting. You really can get productive from the get go because you have actually applied theory in some real life situation. What the plan does is really makes us apply the theory to real life situations. That's my general, the way we do that, with the MQPs, IQPs, all that sort of things. They're just implementations. I think the plan is a really good teaching way. The problem right now is that a lot of people outside the WPI system don't understand it as well as they should. But I think once they do, then more people will be adopting it.

So you think it's been beneficial to students?
I really do. I think it's been terrific. I think it's absolutely beneficial. I'll tell you the one thing I don't like is the 7-week terms. I think that's a little bit of a problem.

Why is that?
In a normal semester, you have 40 class sessions. With the 7-week terms, you have 28. The concept behind the plan was that delta;those 12 classes you were missing would get made up by the students doing extra work. Because you only take 3 classes a term, as opposed to 5 in a semester. You take that extra time that you really have and devote it to doing extra learning on your own. So learn how to learn on your own. In my limited experience being back here for 3 terms now, no students do that. Well that's a digital statement. I'm sure some students do that, for the most partits really what they've learned in class that they really do long term. So I think we are missing a little bit with the 7-week terms. I think we could go back to a 14-week term and not hurt the plan, if there is a downside to things.

Do you think that would hurt scheduling at all?
No, no, no, I think it would all come out in the wash.

How do you see academia changing over the years? Do you see values and requirements changing since you have been here as a student and now as a teacher?
When I was a student, it was great. Freshman year, sophomore year, junior year, you took what you were told to take. You had no choices. It was great. This is what you take as a freshman; this is what you take as a sophomore, as a junior. Finally, 2nd semester you had some electives. That's the way it was. Now you really mold your schedule anyway you want it. And I think that's really good. I really do, as long as you get the basic fundamentals. You need a good foundation to build a house. You need a good foundation so it doesn't fall down. But then deciding on top of that, you get some freedom and flexibility. That's what our system does and I think it's a veryvery good idea.

Have you noticed much of a change in the methods of teaching? Has scheduling changed? Is this better or worse in your opinion?
Again, the 7-week terms are really the big change. And it is really forced, at least as an instructor. I find I'm always running out of time. Maybe I'm just an incompetent instructor. But its really tough to handle the 7 weeks and get all the stuff in there that you want to do without driving the students crazy that you are going to fast. So I find it to be hard, yes I find the methods of teaching has changed. Because how fast do you go, how much in depth do you do a class to get the things in that you want to get in.

Do you think students learn better over the 14 weeks rather than the 7? Or do you think it's their own fault for not putting in as much effort as they should be?
My opinion is that I think its really too bad that students aren't putting in that extra little time. Because I think if you did land out over 14 weeks and you think how much extra time they are putting in over 40 classes, 14 weeks, just take that home and put it into the 7 weeks and it will all work out. But that's not what's happening. I think we have great

students and I really do love them. That's why I'm back here, but I do think they could put in more time.

Do you think the quality of teaching has changed? As far as teaching being a first priority of professors?
When I was an undergrad, in the dark ages, before c.d. players, teaching was the priority here. It was the first priority, second priority, the third priority and that's teaching undergrads. Now because of things like, U.S. News and World Report, these ranking and all that bologna, schools get measure on lots of other things. One of it is the faculty and how they publish and that sort of thing. So there has been a tremendous shift and pressure put on the faculty to publish and be leaders in their field and that sort of thing, which is good for the students in the long run. Because the smarter the faculty, the better they can teach or the more up to date they are. The problem, it's a tremendous conflict as far as time. I find teaching, to do it right, to meet with students, and to give them extra help or whatever you want to do, takes a lot of time. To also be a world class researcher take s a lot of time. Not enough time to do both. It's very difficult.

Speaking of faculty and students, do you think interactions between the two have changed since research has been a priority and registrations are online and stuff like that?
I think its becoming more and more impersonal because the more time you spend up in your lab doing your thing, doing your research, the less time you have for students to pop in to talk and to get help or whatever. So I think we are seeing a trend there, less direct personal time between faculty and students. The online registration and all that, in one hand, it's efficient. I happen to like personal interaction, because looking at someone's body language and expressions really tells a lot whether they are getting something or don't understand and if they are troubled, what you don't get from the electronic thing. So I personally like the interaction you get up close and personal.

Has there been a big decline since the 70's as far as that goes?
Yes. When I was here, I hung out with folks, faculty, with administrators. They were like your friends. Folks that really helped mold and shape my life. They were just great to me. Folks like Bernie Brown, he was just tremendous,he just started when I was a freshman. We always said we were freshman together except he was administration at the time. I mean we used to go over his house for dinner and do lots of things. It was just wonderful. Bill Trask was wonderful and Bill Grogan, who was my double e instructor. I mean going over his house for dinner. It was just tremendousinteraciton with faculty and administrators. And I don't see as muchtoday which is too bad.

How do you see the number of undergraduates changing? Do you think WPI is keeping up with technology?
I think we are doing really well there. Take my department, electrical engineering. It's now electrical and computer engineering and it's really shaping the curriculum trends, which is really a good thing. When I was here, computer science was a neat thing you learned, not a department. Now it's a major thrust area, which is important. The whole bio area, when I was here, we just had EE, and then some electrical engineering, and

some mechanical engineering would maybe do some bio applied things. Now we have a whole department that's changed from bio engineering to biology, we have bio chemistry, we have bio protection, we have environmental studies, and civil. So yeah, I think we are doing a great job with that.

Can you describe the social structure of the school compared to when you were here and how it s now? As far as campus-wide events, attendance and athletic events, as far as stuff like that and Greek life?

Let's start with Greek life. That's the easiest one. Basically, if you weren't in a fraternity you had no place to live. Greek life was critical to the campus, it was necessary because that was the housing. At the time eighty percent of students lived in fraternities. We had no female students until my senior year. If you didn't have a fraternity, you had no place to live, or you had to find some off campus housing, which was hard to come by. About eighty percent of upperclassmen lived in fraternities and that was really the heart of the social activity also. Your Friday, Saturday night parties, that sort of thing. We also had campus wide concerts over in Harrington. We had everyone. Lots of wild groups at the time and these were major. We packed the place. They were wild wild concerts, which was kind of fun. And I don't see that happening anymore. You don't have the major events that we used to. In my short time here, I didn't see that. These were major things. Everybody was gearing up. We were like, wow, these guys are coming. So the social structure has changed in that way. I think there has been a significant deemphasis on fraternities and sororities. Yeah, they still exist but I think their role they play has been significantly reduced. You don't have to join a fraternity to have a social life and a place to live. But back then, you did. I think athletic events have always been sparsely attended, when I was a student and here now which is really too bad. Giving my opinion on that, we have a hard time getting good students and good athletics. Yeah we have a few good students and good athletes. But we don't field really top teams in our sports all the time. If you look at whom we compete against in that area, it's clear. So you have to do something different to make that happen. And I think if you had more winning teams, it would generate more enthusiasm. You'd get better attendance, and better school spirit and that sort of thing. I think that's something we need to change. We need to change who we compete against. This may seem a little snobby and I don't mean it to be that way but if you compete against a Dartmouth, a Brown, and similar teams, as opposed to schools like Worcester State and Framingham State. I think it changes the atmosphere of the whole college. My son goes to University of Rochester and they compete against John Hopkins, Brandeis, pretty slick schools and that just changes the whole atmosphere. I think we need to do that. Here we are trying to build our reputation and our stature and if you do that, you have to do it on all fronts. And again, nothing against those other schools because I think they are terrific schools and they have real importance in their place. But if we want to be someone else and improve our whole reputation, I think you have to do that on all fronts. I'll give you one of the controversial things I did several years ago but I didn't win any points for. I love football. I absolutely love football. I am a college fanatic. I go to a big time game every year. I've been to Notre Dame. I've been to Wake Forest. I've been to all these big time schools, Penn State. But at WPI, we have a tough time. I was the varsity wrestling coach. I saw what the budget was and so on. I don't know if these are the exact numbers

but about seventy-five percent of the budget goes to the football team and everybody else gets what's left over. And my theory was if we took all that money that went to football and cancelled football, dropped football, gave that money to al other sports we could field competitive teams, give out some athletic scholarships. So that at homecoming, I rather watch a winning soccer team than a losing football game. All you need is a couple scholarships in each sport. These are all cheap sports to support. You need a ball and you are done, as opposed to football where they need all these pads and all this equipment and everything else. But give a few scholarships in each of these sports, baseball, swimming, all that and we could develop and get really super competitive teams that would really get some excitement going. You know it helps everybody. But that didn't go over to well, but that was a though. If you have a situation, you have to deal with the reality of it. How do you make the best of a situation? That was the thinking behind it. Nothing against the football team.

Do you think the athletic program is on a backburner at with WPI administration? Is it considered a priority at all?
I don't think it's a backburner, but I don't think it's in the forefront. I think it's kind of neutral, just kind of motors along. Again, I was talking to Bill Grogan about this stuff just a few days ago and we are going to try to really do something to really change the way athletics is thought about. Right now, it's just motoring along.

During the 60's and 70's were the students performing any protests as far as Vietnam and things like that. if so, does it surprise you that there were no activists opposing the campus center and all the trees getting torn up?
In '69/'70 time frame, when I was a senior, that was the height of the Vietnam War. So there was tremendous turmoil in the whole United States, actually throughout the world. But these were really trying times. There were the Ken State killings. I don't know if you guys know that, but there was actually somebody my wife went to school with that was killed at Ken State. There were four students killed by the National Guard because they were expressing their views, the right to free speech and that sort of thing. That really triggered a wave of protests. The protests were justified I think because the country was getting a little bit out of control. And the liberal arts campuses tend to be a little more liberal with the student body so the protests were significantly more intense there. Engineering schools tend to be more conservative. Protests were not as vocal and intense but we had a pretty significant amount of protest, to the point where classes were cancelled for sometime. We changed the grading during my senior year. Everything was turned to pass and fail as opposed to getting your grades. So it had a major impact on the campus. And some of us like to think that all the protests did help end the war and save a few more lives.

Can you describe an event at WPI that stands out in your mind?
This is going to seem out of left field, but we had this guy FredSneider. He was a heavy weight, an older student. He was kind of a mental later 20's. He was the strongest person I had ever seen. I'm sure there are stronger people, but the strongest I've ever seen and the best event that I have ever seen. You talk about school spirit and attendance and all that stuff. That year the wrestling team generated so much excitement we would

pack the gym. People were hanging off the rafters, out the door, like nothing you've ever seen. Every time we had a wrestling match, you came just to see Fred. Nobody gave a hoot about me or anyone else. They just came to see Fred. But the event that just stands out, it jus so happens that we had the finals for the New England tournament here at WPI. Of course, that was the old days when the tournament was really tough, not like today. We had the division one schools. There was no division 1, 2, or 3 in wrestling. We had everyone, Umass, BU, Dartmouth, Brown, and Springfield. So pretty tough wrestling schools. Basically all New England, no distinction. And Fred was up against this guy from MIT who was national champ in one of the college divisional nationals and Fred just whooped him. And it was the most incredible scene. And the place went nuts. It was just the most excitement I have ever seen on this campus. Big Fred.

Do you think that the advising program is doing a good job getting people jobs? What about the CDC?
That's 2 questions there. One is the whole advising system and the other is are we getting students jobs? As far as the advising system, I have actually been impressed with how that is going. I think Ann Garvin over in the center for academic advising is doing an excellent job. I think she really is. When I got here we had to do a training session. We got briefed on what to do. We got all types of information to make sure we are doing the right things. I think they do a good job on teaching us new kids what things to do and how to advise. It is taken very seriously by the departments. So it's real important that we do good advising and everybody is striving to do so. I think its high on our agenda. Obviously some faculty better than others like anything else but itis taken seriously and is high on everyone's list. As far as CDC, I honestly don't know how it is today. It's one of those things I haven't gotten around to understand. I was here back in the old days with Bill Trask. We had outstanding job placement. Bill knew everybody. He knew every company and every place. There wasn't anyone that never got a job. Everybody could get a job. You tell Bill, "I really want to work for AT&T," and ok, he set up an appointment and you got a job at AT&T. He would put a word in and you got in. He was incredible. It was really good in the past.

We talked about this earlier, the polls that come out in Newsweek and U.S. News and World Report, do you think there is more of a push towards more research than bettering WPI's reputation?
Two parts to that. One is the administration is pushing real hard to make us a class one research institute. We talked about this earlier. That is a real conflict at least for me as a faculty member. I do like to do research and I do want to do someworld class research but I also want to teach the undergrads because I think that's why we are all here. I think that's why we are very significant core competencies as a university to really teach undergraduates. To do both as a faculty is a real difficulty thing. So what has to give is, for instance, right now I teach a course every term. So they would have to back off on my teaching load so I could spend more time on research, which mean they would have to spend more money and hire more faculty. So I think that's the kind of thing that has to go on for us to do that. I think the reason for the push to be higher on the research notoriety scale is for the U.S. News and World Report surveys. Because that's how people get their reputation for academic excellence. It's not how well we teach the

undergrads, it's if the faculties are world class in their fields. And they assume that helps the academics. Yes that's what we are trying to do and why we are trying to do that as far as the U.S. News and World Report rankings. So we have to learn to live with it. It's like playing a basketball game. If the ref calls cheap fouls you got to adjust your game, otherwise you foul out. So we have to adjust to what the surveys say. I was using that to help pick schools for my daughters. What I cared about was the academic stuff, the stuff that really mattered. Some schools that were high up didn't have very good academics but they had other social life, so they came up. So it depends what you want.

Do you think that the push for research has taken away from the initial purpose of the school as far as a learning and application institution or is it helping it?
Right now, I think it is taking away from the ability to keeping it fresh with students. The more contact, the more learning, hopefully. The more you are required to do research, the less time you can spend with students. So I think that is a conflict. It is taking away from undergraduate education as we are currently structured.

Presidents terms seem to be getting shorter. Do you think the reason is for endowments or is it better to move on?
The parallel that is going on in universities is very similar to industry. When I was a student here, presidents came and stayed. Because all they really cared about were undergraduate education and teaching that sort of thing, and what you had to do to improve that. And now raising money is important but notthe be all end all focus. Same things with corporations back then. You had all these Wall Street analysts who never worked at a company and don't have a clue what it is about, making comments about companies causing stock prices to go up and down. You didn't have that thirty years ago. So companies were able to do their own thing, making products, taking care of employees, those sort of thing. The whole trend that happened over the past thirty years is that university is forced to raise money, raise money,raise money. More so than they were in the past. Just like corporations are forced now to make sure their earnings are at a certain levels for stock prices, that sort of thing. So the whole trend has changed all over the society. As a result, it is hard for people to say all because you burn out real fast. CEOs are turning over much more rapidly now as oppose to in the past where a CEO would stay there 20 years. Doesn't happen. Five years, you're gone, same thing with college presidents. So I think that is the reason. Money is the root toall evil.

Do you know any WPI alumni that have had a significant effect on technology and society that you personally know?
Some of my classmates have done extremely well in their jobs. If you look at some of the folks that were EE graduates from here, they invented things like the whole concept of feedback and basic EE information technology. The heed to what is now the whole information revolution.

Appendix F: Transcript, Professor Emeritus Bluemel

Could you please tell use your name and a little about yourself?
I'm Bluemel. I've been in the physics dept. since I came from grad school in 1966. I guess I was what they used to call a plan jock when they were first contemplating the plan. I was the...................of it and have sometimes regretted some of the changes that they have made since then. I've generally tried to be involved in quite a bit of what goes on at this school.

How do you see academics changing over the years? Are values and requirements changing?
They, HAHA, the big change came with the institution of the Plan in 1970-1971. They were some subsequent changes made primarily related to the degree requirements in effect. When I first came here this was a startling rigid environment. All the civils traveled together throughout their classes. All the ME's together and so forth, and of course it was all males. Everyone took practically the same classes. As I recall Physics majors had essentially one elective in 4 years. With the plan all that changed dramatically because the degree requirements were thenmqp iqp, suff and comp exam, which was a 48-hour exam in your major and at least 12 units of courses with nothing, specified as the nature of those courses. You could take 12 units of drama but as long as you passed the mqp and comp in mechanical engineering you were a mechanical engineer It was dabor intensive system and while there were lots of excuses for the change when it was changed again in the mid to late 80's. I guess. They got rid of the comp exam and brought in distribution requirements. I have always felt that the prime reason was that the faculty did not want to do all the work although there were lots of other rationalizations for it. Those are the 2 big changes in academics. The rest are just details. Once you have distribution requirements everyone just plays with them.

Have you noticed much of a change in the methods of teaching? How has scheduling changed? Have these changes been for the better or worse in your opinion?
There have been some big changes in the method of teaching. They haven't always been systematic. I think individuals by in large have decide there are other ways. I think there have been encouragements from counselors of education development and the administration and so forth. There is a lot more cooperative learning now and a lot more groupwork, less lecturing at and more doing and class work although I think there's still too much of the straight lecture. I think the changes where they've occurred have been for the better by in large. I have often wished that it were more systematic that the entire faculty were making movements is some direction or somedirections, it doesn't even have to be the same direction. I just with therewere more trial and error kinds of things. Which incidentally there were a lot of in the first years of the plan because none of us knew what we were doing so people were trying things all the time and if it worked you

kept a little bit of that and if it didn't work you tried something else it was much easier to try something different in your courses that it is now because it's a less formal procedure. It was very exciting in those days because we were all winging it. Lets try this this time, let's try this that time. And you tell the students this is an experiment or try this bear with us. We'll be fair with you if you give an effort with us and it was a very exciting time to be here.

Do you think the quality of teaching has changed over the years?
You asked about the quality instead of the methods?

Correct.
That's a tough question. I think the way you reflect the quality of teaching I guess is in the quality of learning and there have always been highly dedicated teachers here. I think the school has been fortunate in that regard. When I first came a lot of those superb teachers were very traditional in their method very sure in that was in way the wanted to do things. I'm not convinced that the best kind of learning always occurred under those conditions. So in a sense you might argue, the teaching wasn't as good. But the teaching was very high quality and it embodied a lot of hard effort on the parts of the teachers. It was just that the methods haven't been explored as much. I think there is a lot more emphasis, rightly so, and I think where the results show in problem solving, open and closed problem solving consistent with projects. I think what the students are doing the most of is what they do best. I think there is evidence of that from their first employers and so forth. From the students I have acquaintances in large companies that go into these programs where the companies do a lot of training and report how much they are ahead of practically everybody simply because there have been projects before and they know how to start our working together and they know how to get info and know how to go about organizing and I think that is an important part of learning, maybe the most important part. I think that has increased and improved a great deal. And again that's somewhat related to teaching methods rather that good teaching versus bad teaching, so I don't know, it's a difficult question to answer.

You talked a little bit earlier about the plan. Can you tell us in your own words what the plan is?
How many hours do you have? First of all the plan was a remarkable development for any place and anytime. Particularly at that time for what had been a very traditional and very rigid school. To embark change of that sort the members of the planning committee over a period of really 2 years with lots and lots of correspondence with the faculty. Days when there were no classes and students, faculty trustees and administration would meet together which was incidentally in those days was in itself a remarkable experience because many students have never talked to faculty about anything other than a problem six at the end of the chapter and vise versa. Students and faculty tended to learn that the others were actually human being s. it was a remarkable development. The first step was to formulate a goal of the college. I can't recite it word for word but it essentially said that every student at WPI would be literate in the fundamentals of his or her discipline and would become aware of the effects of science and technology in the society at large and would be familiar with some segment of the humanities and with special emphasis on

being a self learner. Those were the 4 things that stick in my mind. It was stated a lot better in the original document. That is no longer the goal of the college. The goal has been changed several times. There have been mission statements and a bunch of stuff. But that's the first time that the goal actually drove the college. Like any qp should have a goal and with you do carrying that out should meet the goal. The only time that has happened here has been in the formulation of the plan. I argue frequently that our faculty can do a good IQP because they go around doing whatever they are doing with out a goal statement. They don't know what hey are trying to solve. So that was a remarkable occurrence. The plan itself or what is viewed as the plan were the criteria by which you evaluate the goal and you could argue with those but I think given the criteria one had to agree that they did or did not do what they said. If you want to talk about literacy in their discipline, there was a MQP and a competency exam. That was deemed adequate to demonstrate that you were a competent civil engineer or mechanical engineer or physicist of whatever. Being aware of the impact of technology on society, well the IQP was supposed to do that. That was the criteria that we were going to use here. There might be other ways to do that but that was the criteria we chose. The humanities emphasis, being familiar with a segment was a dramatic change for students especially in engineering colleges where you had to take a course here, a course there. Humanities here you would choose an area it didn't have to be with a discipline but it had to be in an area of concentration and then you had your sufficiency. And of course the projects incidentally initially it was assumed that 25% of your work would be project based, not just the MQP and the IQP. That never happened but that was the assumption. The guarantee that you would become in fact a self-learner. That you would be able to take problems you didn't know anything to do and figure out how to solve them. So probably in too many words that were what the plan was about. We got rid of the goal kept the criteria but called those goals and now the whole thing is MQP IQP distribution requirements and get your degree. And the reason that has not worked as well as it might have is that was never driven by any overriding purpose, the goals were changed but the criteria were kept the same which as a certain lack of logic in my mind.

So do you think that it was beneficial?
Oh yes. No question in my mind. Most of the changes that have occurred since then have really gone back away from what was demonstrably working well. The other aspect of the original version of the plan was it was the student's responsibility to get his or her education. We didn't even have rules form kicking people out for poor academic performance at first. If you wanted to waste your parents' tuition money and hang around and not do anything that was your problem and not ours. It wasn't the faculty's job to tell you what to study. It wasn't the faculty's job to tell you how much to study. The faculty's job was to do the best job advising you in helping you to learn and evaluating whether you had learned. And again I'm philosophically very much in favor of people making their own decisions and living their won lives even if they don't necessarily do a good job of it at first. There is no question in my mind that it was beneficial. It still is incidentally and I'm critical of some things that have happened and I hope for good reasons. I don't want to be some old guy who talks about the good old days because they weren't always all that good either. I mean we never did do as good a job as we might have. But what we have is still very much better than what most students and especially students of technical

subjects get in colleges. So there's no question in my mind that there's been improvements.

Do you think that the WPI plan has brought students closer to real life situations compared with other schools?
Oh yeah, yes. That's a short answer.

Do you see any difference in the way the administration has run the school esp. varying among the presidents?
Yeah, do you mean do different presidents do different things different ways? Oh yes absolutely. I don't want to get too personal in my opinions about individual presidents but oh yes there have been big changes.

Can you give any specific examples?
I think president, well first of all presidentStorke was the president when the plan was formulated. He was a retired lt. General in the army. He fought in Korea he was very much a military man, he really ran the place in somewhat of a military way. That was when I first came here. The school was essentially run by a so-called executive committee which was the dept. heads the deans and the president and VP and that was it. Faculty members were expected to go to faculty mtgs. Vote the things the Adm. told them to vote. With that as background I have always given pres.Storke tremendous credit because it was he who formed the planning committee. It was he who couldn't get what he felt was necessary from the faculty because they were trying to protect their own fiefdoms, and formed this committee of people who were young.........who were going to come up with something different and give him the time and resources that came up with the plan and backed it. I give him tremendous credit and I think it went against all his professional instincts to give the facultyThat responsibility and give them the resources to carry it out. So I have a lot of respect for him. He was followed by President Hazzard who recognized that something important was happening here. My understanding is that when he first came here he wasn't even interested then he talked to some of these planning people and they discusses what they wanted to see happen here. And he thought it was worth while and came to help carry it out. By in large I think he did a good job. He exploited the faculty and the size of the student boy increased enormously while he was here without a budding increase in faculty. Which of course takes resources away because if you don't have time to institute the changes they don't happened. So it was not a totally positive move but at least he recognized what the plan was capable of and tried to get it going and get the kind of publicity this school needed. He was not always popular because he had a mannerism of needling you. Almost anytime you met with the pres. for a chat or a social situation he'd find a way to try to skewer you a little bit and the only want to try and treat that was to answer him back in a like form. Pres. Cranch was, I said I wasn't going to go through all these guys in detail and I'll try not to, he was a product, like everyone else was, of a conventional engineering school. And I think he was more interested in raising more conventional engineering school products. I don't think he stuck out boldly nor did he particularly support the innovative aspects of the plan. He's a very systematic person. Collegially he was very good. I think Pres. Stauss' tenure here was the most difficult. I believe he was uncomfortable with

people, he was most comfortable with money and research. In his communication with faculty in his whatever 8 or 9 yrs here hundreds of times he berated the faculty for not getting more research money. I never heard him say once anything substantive about education. I held that against him and still do. He also divided the faculty to the point where moral here was really not good by the time he left. And you might want to leave that out of the final version of this tape, I don't know. The campus, I think the school was practically saved by the reign of John Lott Brown, who was interim president between Strauss and pres. Parish. Just because he had good will he was interest in people and was willing to talk to hem and willing to listen to them. And it was so new on campus at that time that it was absolutely startling. Unfortunately, the final verdict isn't in on parish but I think his heart is in the right place. He's energetic; he's got good ideas. In some ways I think the emphasis has shifted to the pint where he is the person with the ideas and the faculty at lest as a group the faculty itself cant get its priorities straight, cant agree on a course of action and pres. parish is trying very hard to convince the faculty to move in some unified and constructive directions and I think with some success the concern there might be too many directions that might dissipate our resources that way. I'm very hopeful about the pres. He's a good person. I think he's honest and collegial. You can discuss areas where you may not agree entirely and do it in a constructive fashion. I think that's important.

How is the number of undergraduate major changed?
By in large I think it follows the job market and by in large it follows a 4 yr gap because the freshman come in and choose a major on the basis of who's being hired. The job market has changed within those 4 years and all of a sudden you're a senior and they are not hiring chem. engs that year. So there have been a lot of cycles that have been dictated strictly by whose hiring and oil crisis effects or lack of prices affects chem engs. In the early 70's the civil eng dept latched on to the environmental label and so when people were really interested in environmental affairs they tended to move to that dept. there have been a lot of waves in diff depts. What's the end result? Well obviously there wasn't a computer science dept when I started so there's a lot more CS majors. For yrs bio was somewhat like physics. There was somewhere between 4 and 10 majors a year and now the life sciences have taken off as really scientific arena as a major area. I think there's lots of majors there and pre meds at the moment at least. I think the dept. is trying to develop the size of faculty to handle that load.ME's and EE's have fluctuated but by in large been large depts all along. I guess CS biology lifesciences, there wasn't life sciences dept when I came here. There wasn't any biology besides and organic chemist teaching an occasional class and bio engineers didn't exist back then either. There's more management that there used to be, maybeME's and EE's still dominate.

Do you think WPI has kept up with science and technology in providing these new majors?
Oh sure. You follow the trends. You try not to let people get ahead of you. I think generally speaking its been well founded. I think sometimes there's a little bit too much eagerness to go after fads and I think the school really had to open those new programs. It'd be absurd not to have a computer science program. Youcant imagine it now, it was

whatever in the mid 70's. It seemed like a major thing and there was a big debate about it. A similar thing to the life sciences.

What did you think were fads, what would be a fad?
I have a feeling now that very large push for distance learning. I think there's a place for some distance learning but this whole idea to become this well educated technician or a well educated person I think that by doing a lot of stuff with computer even with inner changes it is no going to end up being as promising as everyone thinks it is and is not going to end up being the cash cow that schools think it is. The vision is once you get some software on a computer, you can get rid of some people and get just as much money coming in and save in the long run. I don't think that is going to happen. That's a current trend in education generally and technical education particularly. I think that it's probably not as productive as people think it is. I am predicting that that will prove to be a fad.

Can you compare the social structure of the school comparing then and now?
Its always been a problem on campus and I think you find that discussions of social life on campus now mirror similar discussions from 20 25 30 yrs ago. I think it is fact better now and my feeling is that the students perceive the general social opportunities on campus are still extremely limited. And the general structure has changed somewhat but not dramatically. I think when I came to WPI the larger fraction of the students were in fraternities. Social life centered even more strongly at the fraternities even more than it does now. And I think to a degree that there is some broadening out. More students get up on the hill for social events in whatever form. I think that s been official. Buthere's been a lot of efforts and a lot of work put into broadening social life on campus.With some results but not tremendous results. There's still a level of dissatisfaction among students about opportunities so that hasn't changes too much. It seems to me the biggest overall opportunity in Worcester is if various colleges in Worcester would start talking to each other more than they do. There as pointed out that as many students in Stanford University and Stanford dominates the entire area. The colleges individually or collectively don't dominate this area and there are very few social opportunities for the students of different schools to get together. There is some potential strength there.

A related question, has student activity changed both ona and off campus and can you describe Greek life as you saw or experienced it?
Well first of all I am largely aware that the majority of student life happens out of my site because I am not around much in the evening. I should mention I guess that far and away the biggest social change that on the campus was admitting women. Only two came the first year and maybe 18 or something the second year. But even with 18 it made a tremendous difference both in class and around campus. WPI men used to look down their noses at women and would continue to go to Becker for their dates but the fact of the matter is that it has changed and has made the school a more civilized place. Fraternity life was rougher before anti hazing laws. Before serious oversight by the administration and sometimes more dangerous from my own point of view it puzzles me given the present social climate and the administrative climate that the frats seem to

continue to be , to resist, any sort of reasonable moderation in their drinking habits. It is true of college students in general but frats tend to emphasize that and I regret that. I think that's a place where students should give frats ideally assume responsibility for moderation. And that frats would talk to a brother who has a drinking problem. And I think that doesn't happen often. If its a brother you don't say anything and I think the students are the ones that have the largest influence on other students' behavior and I'm not talking about having a few beers or even a beer when you're 19 which violates the law and all that. I'm talking about seeing how drunk you can get in 45minutes which happens routinely and often the same students are doing it routinely. I'm sorry that fellow students aren't calling attention to that to help that person. It seems to me if you have a frat brother who is need you help them and join a program. I have a feeling that doesn't happen as much as I wish it would. So that's a change in the social environment that I wish would happen. I don't think it's happened.

How do you thing the social life on this campus would be if there weren't anygreek frats?
Other schools have gotten rid of the Greek system with a variety of results but by in large I'm confident the social life continues and I presume one would here. Where it would be centered and the new forms it might take, I really don't know. I doubt it would be worse or have less of a presence on campus. There obviously wouldn't be parties and events that would happen in this house and that house. Things would be more open I suppose. It's hard to say. I think the frats have some very strong benefits. I think they have some disadvantages. You see alumni from all the way back, as far as you can go, and those friendships that have formed in frats remain true and strong and much stronger than they'd be probably before they first pledged. So I think there's some real bonding there in that kind of environment. I compare that to my two daughters that went to different colleges and were not in fraternities. Neither school had a frat system. And their bonding tended to occur in the freshman dorm. It may still to some degree but among fraternity members it's a very strong association. The association seemed to be strongest among fellow fraternity members or sorority members now. And I would hate to loosen those bonds and friendships. So that's why I say fraternities do a lot of good.I think if they are in fact encouraging some extreme social behavior at exclusiveness to that degree they're bad. I really have a hard time trying to construct what I think social life should be otherwise thought.

Can you describe the athletic program when you were here?
Bob Prichard who was the athletic director for years and years.I knew him somewhat, I wasn't and intimate friend. So, but people commonly called him a 4 ball man. I think it was football, baseball, basketball and maybe track, I forgot the forth one. Those were the important sports and virtually everything else was clubsports. Of course, when I first came here it was all male. That was where the emphasis lay. There were club sports and crew goes back a long way. Again I think the biggest change came when there were women on campus and I think it took about 2 years for people to realize you had to have athletic programs for women as well as men. And then title nine forced equivalent programs. And that in turn let itself to broadening the athletic offerings. Because women probably aren't going to go out there and play football but there's volleyball and field

hockey and so forth. And I think more recently there has been a healthy broadening of athletic possibilities for people in varsity sports as well as club sports. I don't know what the figures are. I haven't heard any lately butis always been true that a large percentage of the student body has always been involved in sports at some level.Its probably more now.

During the 60's and 70's were students of WPI performing any protests?
Engineering college are traditionally the least likely to be centered in protests. Sometimes to my alarm we are tremendously profession orientated. Your aiming at what the first job is going to be and what am I going to make.And that sort of thing. The picture of the liberal arts student is usually the opposite. They have no idea where they arego to work and are concerned about large social issues. Protesting in general tends not to focus at engineering colleges. That being said there were a fair amount of protests centered around the Vietnam War. There was draft counseling on campus unsanctioned not supplied by the college. That just meant draft counseling the guys that felt the war was morally reflecting on them. They didn't want to take part of it. What are the options and what does the law allow? What happens if you go beyond the law? That was fairly common and where that really broke out was in 1970, its like ancient history to you, it was revealed our military force entered Cambodia and were conducting massive raids there to try to cut down this trail of Vietnamese troops. It was totally illegal and hadn't been authorized by congress. It was a big secret operation. And the whole country kind of went up at that time. The time of nationwide really violent protests. That really penetrated even this campus. I had great respect for dean price who had been a student here and was dean of the faculty and again a very conservative fellow but he understood schools and through his efforts there was a massive meeting over in Alden and what are we going to do. They actually shut down the campus for one week, the administration shut it down, the students didn't shut it down. And for the first time in history, students had the option to take a course pass/fail because if they missed that week they didn't have to risk their grade point average because they could take a pass/fail course. They set up a telegraph station in Alden in the lounge for people to send telegrams to Congress and the president to register their protests. It was anon violent protest a healthy protest. I was happy and proud that the school reacted as it did because there were really conservative and going against the general history of technical schools and in particular it's the history and tendency of WPI to react like that. Only protest I can recall.

If you had to pick one event that stands out in your mind what would it be?
There were a number of important things that happened right around 1969 1970 1971. I think the most important was adopting theplan which was really a 2 year process. Attempt at radical change since then have not amounted for much in terms of the results. By the end of June we are going to have this done, this done, that done. That committee planning committee was given free reign and resources. It took twin years to access where we were what the option were to get feedback from the faculty. To have discussions that where we wanted to go and gradually converged on this plan. There was so much logic and rational behind that. That was a major event. It was that event among others but on the other had the results was a 2 yr. long effort. I think which was most important. People my age and older will almost always talk about how those were the exciting times. Those were when there was collegiality and thebarriers between

departments was broken down. We really had the feeling we were doing something not only interesting but really important. Not just here but nationally, trying to make this thing work. It really was a very exciting time.

How has the campus changed since your time here, such as buildings, landscaping, renovations, things like that?
The buildings are the most obvious. The library was completed in1960 I guess. Harrington was done since I came on campus.And of course all the more recent buildings, Fuller. The biggest thing has been those buildings and the corresponding absence of green space. Just on Saturday my wife and I were in western Massachusetts and we drove through Williamstown. We didn't get out and traverse the Williams campus but we drove around the edges and through some of it and that's had some crowding too but there's a lot more greenery there. I remember talking to a variety of students and alumni who would say when I first came here and I saw the quad and saw the greenery that was the big appeal. I hope we don't build up so much that we lose that appeal. One of the funniest things when I first came, probably the first year Mrs. Higgins was living in the Higgins house. The Higgins family never straightened out I think Mrs. Higgins was in her 90's. She was attended by a battery of servants. And everyone knew on this campus that the school was going to get that property. I often joked that as a brand new faculty member that some of my colleagues were almost indecently anxious for her to kick the bucket so this school would get that property.When she did die before the transfer had actually been made and before all the original artwork and the stain glass and so forth. That mostly went to the art museum. We got the property and the house but the art museum got the art. They had and open house for faculty members and spouses very carefully screened one afternoon. We went through this place and it was just like a museum. Between two bedrooms there would be original Picasso's and originalthis's and original that's all over the place. It was an amazing piece of property and we happen to be passing a small group of women who remember the Higgins family. I didn't know the rest of the family. We overheard onewoman, it was out in the gardens actually. I remember her saying well we had 12 servants out in the garden but we had to let 7 of them go. So it was a well kept place and it took some years, the school, to figure out what they wanted to do wit hit. There were students living in it for a couple of years. A group of 19 or 20 students wen to administration and propose that they wanted to live there and take some responsibility for the care of the place. And that lasted a year or two and it took while a while for people to figure out how to use that building.Because it isn't obviously a normal academic building. That was maybe the first major acquisition or change, I think often, I came in 1966.

How has the faculty student interaction changed and do you think online registration and other internet activity has take away from students going to professors looking for advice?
I think there are several aspects to that question. I referred earlier to the fact that the, I think, students have always looked for help here readily than compared to many other school, many people wouldn't dream about going to their professors for anything at other colleges and of course there are people like that here too but I think the opportunities are here. I think it was almost always academically related when I first came and I think with

the plan general feeling democratization was occurring in the late 60;s early 70's. I think more students and faculty members discovered each other as human beings and I still relish the opportunity as to talk to students outside of a purely academic, and I did lousy on the first exam what can I do kind of questions which many of the conversations center around. And I think in that sense, there's been a broadening of an opening of social interaction between students and faculty. Now the question of Internet, I have mixed feelings on that. I think student advising is always a problem. Not only here but everyplace else and it is a serious problem because it has ramification on the academic program. The more open the program the more important it is the advice be conveyed to the student so that they understand their choices and I think we've always done a good job of that. Sometimes the advice has been superficial. Often the advisor and advisee interchange has been sign a program to see that the student brought it in and sometimes that can be an opportunity for new conversation about academic intents and goals and how things are going. Sometimes it can be just a signature and out the door. Sometimes it can even be the secretary signing for the advisor. So it's a very mixed bag there and in those cases where the advice didn't really happen, the Internet hasn't done any harm. Students say they don't even know their advisor. Juniors who haven't seem their advisor for 3 years or something and didn't know who their advisor was. The answer to your question is, I don't think that registration and pre-registration has done any harm primarily because I don't think we ever figured out how to do a great job on a personal basis in the first place but I don't think we've done what we could have. I know I didn't, and I think I may have been somewhat better than some people, I think I did worse than others, but as a faculty we haven't learned how to make our advise effective. So I don't think the Internet has had much effect. I think the distribution requirements have had some effect because before we had distribution requirements we really had to plan with somebody what the heck he or she was going to take. It is almost automatic very often at least in your profession or your major because you know yougotta take this, this and this. So there' not as much intensive or as broad discussion of options sometimes as there was at the time when all the student knew was they had a MQP and a comp exam. So I think in that sense that has somewhat restricted. I don't thinkits been dramatic but some restriction and the interchange between faculty and students as advisor and advisee in that roam.

Do you think the academic advising program is working to the extent it should be now?
Oh I don't think the academic advising program is working to the extent it ever should be. And I strongly suspect that the people in charge of academic advising would agree with that statement. I don't think people who are concerned with the advising or feel it is important have ever feel that it has been don't well. And I don't thin that it is a function of WPI. My guess is that its just the fact that its generally true. I would love to see a school where the advising program really works well.

Do you think the first priority of professors is teaching or is it aspiring to reach tenure?
You mean young professors? You have to because you're talking about working for tenure. I'm a strong supporter of the tenure system. I've been on the tenure committee a

couple of times and it's the most important decision faculty members can ever make. You really play god and my experience has been with the faculty on that committee take that very seriously and that tenure is extremely important for the academic freedom cases. I have claimed many times that if we abolish tenure it would take about 15 milliseconds for someone to weight in and violate somebody's academic freedom by telling them what to teach how to teach or what not to engage in. Tenure is extremely important. That being said there are 3 criteria for tenure, service teaching and research. And I think especially between the latter two there is a lot of difference in emphasis on the importance. And I unfortunately I believe that research is really the total up. You can count papers, whatever and teaching is more qualitative and more difficult to evaluate. I think young faculty members who really are concerned with devoting their time and their efforts to teaching have got to do what they have to do to get tenure. In a way you might say the same thing about researching young faculty members who really want to do their science or their engineering research. Also do something in the other arenas to justify tenure. So I think those alternatives you gave me aren't mutually exclusive and to some degree that could be good. I don't think we should hire people to only do research. I don't think we should hire people only teach. Although very largely, my efforts have only been in the teaching area. I think the idea that everybody ought to be a superb researcher and superb teaching is wrong. It's impossible. The incidences where that does happen exist but they are darn few. I think the effort to jump through some hoops and prove that you are doing both are not always constructive. I think there ought to be room in faculty for a broad range in terms of effort and interest in working well and I think maybe the tenure system hasn't evolved here. I think it puts young faculty members under a very tough burden because they can't concentrate where thy might want to concentrate.

Do you think there is more a push to research today than there was in the past?
Yes, administration has always encouraged it but I would say in the last 15 years maybe I think that emphasis has increased. When I came herein 1966 there was 1 faculty member who had a research grant. That was LouGranitk, he was in the physics dept and his grant was for investigating behavior of small fish that located food by emitting electrical impulses. They weren't eels, these were tiny things and he had tanks down in the basement and measuring things inmicro volts. That was the grant on the campus. So I'm not advocating that I think that was unhealthy but I think it reflected the school at that time. I do feel that there is room for broader range of emphasis and effectiveness among different faculty members that we are trying to promote here. I there ought to more room for a broader range in concentration, effort and so forth.

Do you think that the push towards research takes away from the student faculty relationship?
Probably both in teaching and in socially and that not necessarily all that bad. But whatever you put your effort on it takes away effort from some place else. We have a very hardworking faculty both tenured and no tenured incidentally. It's a myth that once you get tenured you get back into not doing anything. There are so many things that need doing and very often one finds oneself in a position where you think of all these things you'd like to try in your courses and your teaching and because you are doing research or committee work or working on other courses whatever it is you are almost prevented

from doing a good job at almost every one of them. You are just trying to handle the traffic. So I think in that setting and kind of emphasis necessarily take emphasis from some place else. I think it has too. You may keep the same membership on the same committees but the quality of what you do is certainly going to be effected and there are few people on campus who seem to be able to do its superbly. But there aren't nearly as many of those as some people would have you believe. Just a handful of people who I think could do that. I'm not one of them. Never have been. Probably one half a dozen people on campus and maybe different people would have a different half dozen.Its rare to be able to do all that and do it and do it well. And yet there is a big push for people to do everything and do it well.

Do you think the push for research is to better the school's reputation?
There's a tremendous emphasis on reputation and of course worldwide, there's a tremendous emphasis on brand recognition and salesmanship and so forth. In my prejudice view there are an awful lot of people who think that as long as you can get the publicity out that the content of what you're publicizing doesn't make any difference. In fact you can drop the program as soon as you've milked it for its publicity.Maybe because it's just no important. That may be overstating the case but it is my impression that people here as elsewhere feel that way. I guess I always feeIts the other way around. Do something really well, demonstrate that you've done it really well and tell people what you're doing and I think that's much more effective in the long run. Tell people what you are going to do and maybe say maybe no and hope people forget about it by the time you do and don't do a very good job of it. In that sense, the schools reputation, whatever that brand recognition of all that sort of thing is a big emphasis. Of course that does in fact bring in student applications. It probably helps bring in some grants. If whoever is giving the grant has never heard of WPI they may well be less likely to approve a good proposal than they would be if the same proposal came from a school they knew about. Again its very difficult. It's not one thing and not the other. A personal bias , is there too much recognition at the expense of effort to have a unified content in whatever the program is whether its your research or whether its you're education proposals or what not.

Do you know of any WPI alumni who have had a significant effect on society?
It depends on the scale I guess. We have a few alumni that are now a head of GM. You don't get to that level without having a major effect because you are approving all types of programs that thousands of other people are carrying out. More generally I think significant effect doesn't necessarily mean you're world famous, just that you've made a positive effect. I think that there are thousands and thousands of people of alumni who are doing that in a lot of different ways. There are just straightforward entrepreneurs who from product of software or whatever it is. Form their companies and really have a really significant effect purely technical realm. I personally am more interested in those who after whatever they do when they start our of here do decide they want to do something in the society or the environment or some unusual realm and often experience a significant financial sacrifice but their efforts there. That includes everything from high school teachers to people who are going to work for foundations and concentrate on whatever their enthusiasm is, whether it's the environment or whatever. I think that's significant.

They may not be world famous. It doesn't necessarily mean they are in the newspapers but I think there are lots of people who make significant contributions. It's also true that there are lots of former students very often in their first job out who are very unhappy because they don't see the possibility of making a difference. I think we all want to make a difference and that s what you are really asking about. I've always felt badly when students get in their first job and feel that they are chained to a desk and they are pushing paper and they are no making a difference at all. Usually those people will change jobs and if they are lucky, in a year or tow can find a job where they can be stimulated and feel that they are making a difference. But that's a tricky time. You've completed college and now you feel I've got it. You got your job, you're excited and then you are put in a position where you aren't allowed to do anything interesting or make a difference so that's the other side of the question you asked. I think there are way too many people in that position, which tells me that, whoever is doing the hiring doesn't know how to use engineers.

Do you thing that WPI has kept up with the times and technology or is it just following it?
I think from a purely technologicalstand point it would be difficult to be in the lead with everything especially at a small school. I have very little hope, expectation or favor for those view that say we should becomea major research university and there are those at all levels. I don't think it'll work. I think that's absurd because a school like this first of all ought to make sure that we do what we are able to do well and really do it well. In that sense probably as a corollary to that, we aren't going to be in the forefront at the cutting edge to use a cliché. There's a lot of different areas of technical development. I think you can be in the next wave the second or third and do some very important and interesting things and I think that would be fine. People are always hypothesizing that we will hire some world class researchers and say what about tenure for these people. Almost never happens. In fact, we hire some very good people, intelligent people that are really fascinating engineering science, whatever just as it should be but I doubt that we will be at the forefront of every field that we are in. my guess is that we are at a level considered appropriate for what WPI does as a small to medium sized excellent school, predominantly undergraduate which I think we should remain. There's a great need to do well. We are really suited to do well and I think that's where we ought to concentrate our efforts.

Did you know Carl Gunnard Johnson?
No, I've heard him speak. He's a great character. I know, I've heard about him but I didn't know him. I don't know if I ever shook his hand. I don't know.

What did you know about him?
Well he was a ME, he had a terrific sense of humor, extremely energetic. They named the lectureship after him probably for a good reason. Everything I've heard, he was a very inspirational teacher. I don't know much more about him though.

When I was a freshman, WPI was one of the top 50 schools in the nation. U.S news and world report didn't have WPI even close to that. Why do you think that is?
First of all I think we were rated on two different categories. I think when those very high ratings came out, that was for the regional colleges or something. We then got bumped up to the national schools. So I think those ratings whatever they prove is probably like comparing apples to oranges to say we are doing much worse that we weren't even rated this time. I don't know what that means. More to the point I ma highly skeptical about these ratings that's one of the areas where I thing there is way too much emphasis on campus. The prime goal of the administration is to get us up in those listings. I think those listing are made on the basis of a large variety of criteria. I don't know them all but I've seen the list. Many of them have little to do with our function as and educational or research institution or the size that we are. I would dearly love us to see us well above RPI and Steven's and some of the schools of that sort but I am not concerned with those particular ratings. It has to do with endowment which is important to our school but isn't important nationally to our functioning alumni organizations all sorts of details that are peripheral to what our being a private admissions school. So we rank where we do or where we don't do, I don't know I and I frankly don't much care except that I think the school has a tendency to focus on that too much and say well we got to get up our rating and again it goes back to the question I commented on earlier or publicity and reputation as opposed to functioning. No doubt it enhances the reputation. Our reputation isn't directly related to how we as an institution are functioning.We being faculty, administration and the student body. I don't care let the money raises about the impact it has on our ability to raise money and so forth.

You talked about the comp exam and back then they had that exam and didn't have any distribution requirements. Then they switched it. Do you think that it was better or worse?
Oh I like the comp exam. I think actually what happened was at first came the distribution requirements. Strong tendency on the part of the faculty, who had not been there to say well students got to know something about thermodynamics, they got to know something about circuitry or something. So we will teach a course. There are a lot of fallacies there because everybody who has been through a college knows the series of the courses know that you're grade in the course means that you might or might not learned the subject. Anybody who says he or she hasn't passes a bunch of courses on a subject that they don't know anything about is lying. Courses aren't that effective as a means of demonstrating knowledge so initially people said that and they instituted distribution requirements and then people sat back and said geę we got a comp exam and we've got distribution requirements, we are the toughest school in the country to get a degree from. Students are going to avoid us because they would have to work harder here than anywhere else. So the solution to that was lets get rid of the comp and that happened on a dept by dept basis, but it happened very quickly after the distribution requirements. Just a few years I think that the comp was done away with. The comp exam was interesting. It was 48 or 50 hours. A student was given a problem usually a report on a particular problem. An engineering student might have a design problem for example or analyze possibly get in the lab, get the results, write up a report all in 48 hours, hand it in. a committee of three faculty members would go over the reports and then the student

would have an oral based on the report. It wasn't supposed to be a fishing expedition to try to find things the student didn't know it was based on the report, thing that weren't quite right or whatever. The student often knew where he or she had goofed and would sometimes anticipate the questions. Sometimes before they would start they would say can I say this. And so it was a short period of time. It was tremendous emotion pressure built up around the comp from the standpoint of student and I think that was regrettable. I think it was way more that it needed to be. There was a feeling among students probably that if you didn't pass the comp exam it didn't mean you were incompetent but if you did pas it did mean you demonstrated some competence.Probably a fair statement. From the standpoint of the faculty there are always borderlines whether it's a course or a comp exam and there might be some intensive discussion sometimes about it. What passed and what was distinction. In those days we always had distinct and acceptable. Those were the only two passing grades. We didn't have A B C. justdistinctable acceptable and NRS. But more often than not there was strong agreement that the students had demonstrated something and often it was surprising because we know those students. If you had a student in class and you were teaching quantum mechanics and that student had impressed you enough to get A's in both terms of quantum mechanics and then demonstrated on the comp exam that he or she did not know the first thing about quantum mechanics. It really gave you pause and I've seen the opposite for students who float through and occasionally flunk a course, not do well at all land just practically blow away the comp committee. They were sitting back there in the back of the room absorbing something, learning something but not taking too seriously whether they passed individual exams. So I think it was very revealing in that respect. It taught us that a good grade on a course didn't necessarily mean, prove anything about the students' competence. It also taught us a lot about our own course and its been said that many times maybe the faculty learned more than the students. I don't know if I can agree with that but we did learn a lot about what worked and didn't work because students whom you knew well and academically had done well and couldn't function on a comp and you thought jeez what are we doing here, what was I actually teaching for and why didn't the student learn any of the principles I was teaching. So I thought it was a very constructive thing. It was a major effort in labor. It took 3 faculty members to sit on each comp. We had it relatively easy in physics dept but if you were and ME and you had 200 senior and at least 173 of whom were taking the comp at any given period, periods were always between terms so there would be 4 comp periods a year. Everybody was kind of tied down and you had to put a lot of effort in. I've always felt that if it was the labor involved that lead the faculty do away with it but they couldn't admit that. There were a lot of other rationalizations. Incidentally it was not true that the accrediting agency made us change. They wanted us to do something but they practically begged us not to go back to distribution requirements and sticking to their old accreditation requirements but we did that with a vengeance. So that's the story usually here, that the ABAT insisted that we changes was not true. I was on academic policy at the time and I know that was no true. I thought the comp exam was great experience. I don't know how I would have functioned with one as a student but they were very fundamental, they were almost always near the basic fundamental principles and didn't depend on acerbic fancy knowledge. It depended on understanding the subject in a simple way andknow how to model something and making plausible assumptions and making them explicit. All those things that we hoped

students will coming out of here be able to do. I thought it was great. And I especially enjoyed those times because EE's had so many students we would farm out some physics professors. And maybe a math professor, some would go over there and help out. That was a lot of fun because you could see other majors work but you could say to the student, I'm not an electrical engineer but can you explain to me in words that I can understand and sometimes you found students that were designing fancy digital circuits but couldn't tell you how a LCR array worked. And you learned a lot from that. It was a lot work and it was a lot of fun. And I think it was healthy. The thing that wasn't healthy at all was this tremendous emotional do or die tension that the students built up and I'm not sure how we could've gotten rid of that. I thought that was the only unhealthy part. Of course it was a major thing. When we first offered this comp exam we tried to make it a collegial thing. We would have a box of donuts here and everything. No student ever took a donut. Their mouths' were already so dry; they didn't want to eat a donut.

Appendix G: Transcript, Professor Graubard

01:01 So Professor Graubard, how long have you been at WPI?
Since the last century it seems, since 1969 – a long time. I've had a couple of times, two / three, that I've been on sabbatical and abroad, but without the exception of those breaks, I've been here since '69.

01:21 What were you first brought in at WPI to do? What department did you come in to?
I came in the, at that time, it was called the Department of ... Economics, Government, and Business. I came in around the same time as ProfessorsO'Conner and Woods.

01:44 So you were brought in as part of the expanding social science?
No. I was brought in, I'll tell you what it was, there was a fellow an older man – a man who's been retired for ten years now – ProfessorRoddenbury. He was a doctoral student of mine when I was at BU. He had gone back to school, and he was a professor here at WPI. I had been out of the university business for a while. I had been in consulting. I was back and I was, I had been at Brown and I had been at Northeastern. And we kept in touch. He called me up one day and told me... I had never been to Worcester before... and I lived outside of Boston for years. He told me that exciting things were happening at the school, and in those days it was called Worcester Tech – The Tech. And he said a new educational plan was being voted in where we'll have no course requirements; it's all project-based; where you have to take courses but mainly to prepare you to do the projects, where this will be more creative. And he thought I'd be interested. So I came to look around, and did like it, and then came in here in '69, which was the year the Plan was presented... Hazard, the then president, was here on his first year also, and it was the year that we, the faculty, voted in the WPI Plan. But we didn't know that departments were going to change and things were going to expand in that direction. I came in as an economist. And I've mentioned that by birth, I'm an economist. All of my degrees are in economics, and most of my writings are. A lot of the stuff in management, like operations research and marketing, I've done in consulting, and now I teach the introductory course in Introduction to Business in an International Environment, because I've had a lot of experience in working internationally, especially in less-developed countries. So I came in here for the Plan

04:07 While you were here, how did the general curriculum, how have you seen the curriculum develop in going from an engineering school to a broader university?
Well at that time, I can't tell you going from; I know what it went to. I don't really know what an engineering school is like; this is my first engineering school. I used to live west of Boston in the 128 area, so a lot of my neighbors were engineers, but we mostly talked about the Red Sox at the barbeques. So I didn't know. I know how it went from what I experienced at being at more or less traditional colleges and universities, and that was what was exciting to me. We had a curriculum with no failing grades, and in those days, we had no typical letter grades. You got a Distinction, a Pass, or No Record – it was AD,

AC (which was acceptable) and No Record. And instead, when our students, or eventual Plan students – were applying to graduate schools and so on, there were descriptions of their progress and of the courses they took, and especially of their projects, and graduate schools had to look at that, they had to do some work on their own. I thought that was terrific. We emphasized cooperation rather than competition, though we had much of that also, and we had a place where students were working here to learn, or to acquire skills, to apply those skills in many creative ways, and not to attain grades (we tried to de-emphasize the grades). Also, the curriculum changed from a required lock-step curriculum to one which was in essence individually tailored to each student, so that he or she (there were very few she's at that time) could complete what were the important graduation requirements, and that was the MQP, the IQP (and I was on the committee that coined that term and that developed the IQP, it was called the Zuibel committee at that time, he was the chair), the Sufficiency, and there was a fourth requirement, which was the Competency, which alas and alack has left the curriculum. That, we thought, I thought, was a great requirement – graduation requirement. Towards the end of a student's senior year, he or she would be given a problem, or in our case in management a case, that he or she would have three days to work on, to explore, to interpret, to try to solve. It wasn't necessary to pass or even to pass highly by bringing out a solution, it was the approach and the attempt and the way to solve it, and he or she was also free to consult anyone or anything that he or she could, as long as proper references were given. At the end of the three days, that student had to come, in our department at least, was faced with an hour defense of the solution, and of the whole... in front of three faculty members. So they grew up quickly, and it was a dreaded part of their curriculum, because was do or die, although you could take it over, but not in the same semester. You had to wait a term to take it over. But with alumni and talking to students who I hadn't seen for four five years, they were telling me in their jobs that that was one of the best parts, that along with their project-based education. There were no required courses, but they could not do many of the MQP or the IQPs or certainly pass the competency without taking many of the courses. I was encouraged from the recruiters in those days that they were looking at WPI differently, that in the old days, this was a place they could come for a good nuts-and-bolts employees, who would sit at their desk, and become ... well they didn't mention the words, the glorified draftsmen. They knew the rules, they worked hard, and if they wanted creative people they went to MIT, or Cal Tech. They started to look differently at our students, and you know from what's been happening in many cases, with our students' careers, some of which have become quite illustrious, they thank the kind of education they got here. So this was an exciting time. Faculty was small. We had about 160 faculty. We all knew each other; we all talked with each other. We had a lot of cross-disciplinary work, over the projects. We had many majors that were cross-disciplinary. I sat on competency exams in Civil Engineering, for urban and regional development. I still do that on a couple of PhD's in construction management. We had in the IQPs, a number of people from different disciplines. We worked on giving certain kinds of lectures in other courses beyond our discipline. And the emphasis here was on creative, innovative, and what we thought was important for the 20th and 21st centuries, undergraduate education, teaching and learning. That's where the emphasis were. I think we thought at the time... the Plan was conceived in the middle to late 60's, and started in the end of the 60's, beginning of the 70's. One... how to perceive

necessity at the time. College enrollments were falling. They were falling seriously in what then were considered second-tier engineering schools, and other areas... the high school, 18-year old population was slowing down, was diminishing at the time. And it was thought that for us to compete, we should compete where our competencies lie, in undergraduate education. We had made a decision at that time that we weren't going to go head to head with MIT and Cal Tech. We knew that if we published our weight in funded research, we weren't going we didn't have the kind of resources and the size to rival those schools, so we concentrated on undergraduate education, and it worked, and it paid off. If you looked at the books like the Princeton Review and the Young College, they pointed out the kind of individualized education that our undergraduates were getting. One of the advisors to us... we had a number of very emanate resources... in faculty and in academics and in business... helping us with the plan. On of them was David Resmit, the sociologist at Harvard, who wrote "The Lonely Crowd" by the way, came here and say, you know, at Harvard, just a relatively small number of seniors do their honor thesis for graduation. Here, it looks like every student is an honors student, does an honors... the MQP and the Competency. And that's what we look at it today as. By the time a student is a Junior or a Senior, we would like to consider them junior colleagues. And the work was very exciting.

13:17 Now you mentioned in...
Oh, one other thing was we did, and by the way, schools like MIT followed us afterwards, we beefed up the importance of the humanities, with the Sufficiency a requirement, and the argument was not only the two towers, the Boynton towers – the WPI towers, but also after C. P. Snow's two towers, where he talked about one tower being science and technology, and the other being literature, language and the arts. And we thought it was important for one, an educated man, whether a scientist or a non-scientist, to have a foot in both towers. So we tried to do that, and we saw a few years later that MIT was beefing up their humanities signing requirements too.

14:15 So would you say that WPI has kind of been a pioneer in this type of education, of technology and science?
I really believe we have, and mostly in the way the education was delivered, more than in its type, through the projects, as a project-based curriculum, that being the capstone. Yes, I would say it was a pioneer. I think we still regret that we should have marketed it better. We did get our share of... No... we got a small share of newsworthy columns and articles around the country, but not enough

15:02 So would you say that's why WPI isn't as recognized as some of the larger universities? Would you say it's an issue of size, marketing?
No, I think... that's another thing, not as some of the large universities, because we're not a large university. We have a little over 200 faculty, and what about 2400, I don't know, 2600 undergraduates. So we're not large. And the way you get, in a lot of cases, the way you get ranked are popularity contests by alumni. You get ranked by alumni who are in other academic institutions or other places that get surveyed, and we never did produce that many. So I think though, in a particular area, certainly undergraduate engineering education, we're recognized. We're recognized by those groups who are familiar and

exposed to that. I think our admissions department does [wonderful] work in getting the word out nationally and internationally, especially with high school guidance counselors and so on. No, I wouldn't say that. The reason we're not recognized as one of the larger universities is because we're not one. And I don't know how we're going to become one or should we or if we should. I think that field is pretty much taken up. It's not necessarily a most desirable one anyway.

16:39 Have you seen many changes in the social community at WPI? You mentioned before that the professors used to integrate curriculum a lot and all knew each other? Have you seen many changes in the academic society here at WPI?
Yes, many many changes. There was always a group, for many reasons, that were not enthusiastic about the changes in curriculum, and the thrust that WPI was taking, which was certainly different from the classic approach to undergraduate education in most places, and especially the engineering schools, and especially here. There are also other things. What... you know, what might be, it's just like... in virtually any organization, what is good for the organization as a whole might not be good or optimal for any one of its parts, so that the Plan was good for WPI. I would say a lot of the departments, department heads, might have felt somewhat threatened. Their autonomy was becoming diminished. We had a previous version of the WPI Plan that was not implemented, where we were going to do away with departments, because we wanted programs rather than departments. We thought that was too rigid and too strict. Well you can imagine we got a lot of opposition from that, especially from department heads, who felt threatened. What I see has happened, over time, is that as we expanded somewhat and as new faculty came in and as new people came inin senior positions, both in administration certainly, but as department heads too, they weren't here and they came from more traditional classic places, were not exposed to and perhaps didn't make enough of an effort to understand and evaluate the Plan as we had seen it. And so... we had to operate as academics many places operate, to enhance the reputations of the departments, by pulling in their faculty, especially their untenured faculty, to stick to their lasts, that interdisciplinary work would not get you recognition. Stay in your labs, stick to your lasts, make sure that you had the right number of ounces of publications every year so we could weigh them, and they discouraged in many departments a lot of their faculty from doing IQPs for example, because it took away time from their research or their major disciplines. And as a result of that, I feel faculty got fragmented again, as it would have in any other university, according to discipline. We're still small, so we still see each other and we still attend events together and things like that, but that closeness is less than it was. Although we have an interdisciplinary study group now, the work does not seem to me to be as intense or as encompassing among faculty and students as it was.

20:50 Let's touch now upon the interaction between the professors and the students – that society. Some have commented that there used to be more interaction between professors and students.
I'm in agreement with that. There did use to be, there used to be a lot more. We had ..I think there was more interaction...we had a senior seminar, where we had a number of students from the different departments it was afour credit seminar. And a number of faculty from a number of departments We all sat as colleagues in the seminar. And

discussed kinds of readings like Zen and the art of motorcycle maintenance, and how it applied to our lives and so on. A good number of faculty and a good number of students there. We had Fridays, of course this was when virtually everybody on campus was of drinking age, this was before the21 year limit (18). The pub was called the Goat's Head Pub then was open only on Fridays and faculty and students got together and it wasn't just restricted to seniors who were 21 at the time. We had more student involvement in the development of the curriculum. They attended faculty meetings. They still do, but very rarely… I don't see them to often now at faculty meetings… sometimes when they have an announcement to make or something. But they attended them. Newspeak was quite outspoken, they had very strong editors, and strong editorials many time rubbed the administration the wrong way but there was nothing they could do, nothing in bad taste, just critical. And they felt partners in the operation of the school. I don't know how that goes now. Of course we had a much smaller administration. Administration in terms of numbers of people, administration has grown much more than in proportion to the other areas of the university. I'm getting to think that if they put one more person inBoyton Hall, the entire building will sink, but that's become much moreproffesionalized too, running a university like corps of business. Although the pick for high administrators like presidents and vice presidents, people who've made it in research and in education, and in scholarship, and then they expect that they're going to get on-the-job training being administrators, but I guess that's how it works. I'm in the Management department, so I'm a little biased in that. I think you need to be trained to be an administrator; you've got to be trained to be an academic.

24:32 I want to touch now on the quality of the WPI student. Originally, when WPI first started out, it was an esteemed technical school where students spent all of their time working on their scholarship, and they were discouraged from riding on the trolleys and what-not. (That's before my time, isn't that so). Have you seen the change in the quality of the WPI student?
Not in terms of the capabilities of the student. Certainly, and compared to BU, at Northeastern, at Brown, at UNH, at URI, I've taught at a lot of places, atBabson… I have never seen, one, more serious hard-working students than here, more mature students than here, in terms of focus, and it is true, it's true now with some of my advisees, I've got to tell them, "hey, you've got to put some play in here too. Join a club; do a thing, do a sport, or something." But certainly, we never had here things like the Masque, things like the literary magazine where a lot of stuff is coming up, things like the plays and where students write the plays and the poems. So students have become more diverse in their interests. And, I don't know if that's due to our curriculum, or to the fact that we have opened the place up to gender, for example – very important influence here. Whatever the numbers were here, were the introduction of female students, and females on the faculty and administration. I was here in 1975, and the woman who later became my wife, was the first female administrator every hired by WPI. She was Janet… Dean Richardson's predecessor, she was the assistant of students. She went on and now she teaches management at Providence College, but that's another story. First administrator, 1975, woman. They had secretaries and staff, and the first student, the first woman to graduate here, was in 1970 I think , 1971. That's been a very important influence on the place… opening it up and bringing WPI into the 21st century, into the 20th then… and

diversification – globalization. We have many more international student, different backgrounds than we had. For a while, basically we had, the WPI profile, if you could make a student profile, was male, white, Catholic, middle-classed, middle-income student from about three states. That's changed... and for the better... and we see it for the better... and there are all sorts of ideas coming out... terrific things coming out of the IQPs, MQPs. Faculty, by the way the faculty also, not just the students, the faculty is diverse much more than we had at one time... all for the better. The ideas are better... that kind of thing... and if you read some of the things. The only trouble is it's tough to hear those things in congress, just in social situations, in fact, because there are less of them, and most of them are formal, rather than informal as we used to have them.

29:00 The next thing I would like to touch upon is technology at WPI. Since this is an IQP, we're integrating society and technology into this too. What we're interested in knowing is how technology has played a part of teaching at WPI, and have you seen more technology integrated into... like with the Blackboard system, integrated into the...
Well yeah, I do use Blackboard. I teach an ADLN, but that's in the graduate, in the MBA program. And we've standardized that Blackboard. The way I see technology, from a disciplinary view, is in our department, we have defined our mission, and that's because of WPI, as a department in which Management of Technology is one of our prime objectives. We target ourselves on a graduate level... we target our services to basically to technology people who want to acquire skills in management – those who are undergraduate engineers or scientists, those who are working in technologically-based organizations and are in management positions. Needless we see it there, and we've redefined that in our department, and relatively recently – over the last ten years, because of the fit. Now how technology had of course... when we take an inventory of our courses, and what content are in our courses, in each course one of the things we look at is the kinds of technology we're including in the... that is teaching, in the pedagogical technology, in the kinds of things we're doing to deal with technology in technological interactions in management. With the rest of the school, I don't know. It was always a technological school, so I assume that we probably all use e-mail. But we all used to use the telephone, and you don't need to be a technologist to use that, or Blackboard, or PowerPoint. Every high school kid knows how to do PowerPoint.

31:39 What are your feelings on the advising program here at WPI? Do you think that students get the amount of advising that they...
No, I don't think so. I think that it's critical that they talk with faculty... not just... Ann Garvin does her job in Academic Advising... it's critical that you keep every faculty member as an advisor to a number of students. But a lot of times, the activity is done out of the back pocket. And that's one of the problems with the incentive and rewards system we have at school. I don't think that you get much recognition for advising. When you write up your annual reports and get evaluated for raises and promotions and things like that, that takes a little play. Number one is the number of pounds of publications that you have. Well it ranks its way up there. But in terms of innovations in courses, in terms of academic advising, I think it's not enough. I see a lot of students, and some advised by me, that end up in their senior year not having the right fill, only

being able to meet the audit requirements for graduation by doing some stretches, and other things... and/or are sorry about the things they majored in. So I think that could be... it should be required that... I don't know if new faculty coming in have an orientation class where they go through how to advise or what they are supposed to do, but it also has to be built into the reward and compensation system to show that that's important, and that's a job for administration. I think they're busy doing other things now.

33:54 You touched there on the push towards research, and that's one of the themes that we're researching. Would you say that's increased, and...
Oh sure... it's the push towards funded research... mainly funded research... that's the real push... because the other may get you a little recognition, but funds are important and of course administration is interested in that. We've got a short flow this year. We came in under budget because... I think we came in 28 students under budget. Over four years that's a million dollars... and funded research is a push. MIT brags that half... its faculty is half-supported... half the support comes from outside funding. But I think also it's important to see who your market is... who your competition is... what you excel at... and concentrate on that. It still seems to me that the income we derive here is basically undergraduate tuition, and if that's our lifeblood, that's what we should be concentrating on. And we should certainly have a graduate school, even enhanced courses, but basically I think we excel at and have excelled at being an undergraduate college... and there are ways to profit from that.

35:49 What do you think about WPI's interaction with business. MQPs that interact directly with business have come under some criticism with faculty, in that we should be teaching them here, rather than just putting them out...
Well it depends. In my area, there's an advantage to having an MQP with an industrial organization, or an outside agency, because this is what we're trying to get them to learn. But there's always the danger of conflict of interest. There's also the danger that what a particular firm or organization wants out of the students is not necessarily what would be best as a learning educational experience in an MQP... but that's where the faculty advisor comes in. I think we have some safeguards against that. A student can't get paid, nor can a professor get paid, for work with an MQP, with an outside organization. The school can, and that's fine. So that is one safeguard against conflict of interest, but you've got to be careful... you have to guard against the MQP work – the project work – turning the students into interns, which is not what we want. We want them to do work... that their engineers and other professionals and engineers would be doing in their organization, and so the advisor has to be on his or her guard, to make sure. So and whoever the other powers that be should be overseeing that to some extent... ... I would be... if it were an overseeing... if it were a guarding against... I would be upset over that... I wouldn't just want this to be a means of cheap consulting for some of the organizations around.

38:18 Here's another question for you. What do you think about the tenure system, and do professor sometimes become distracting by teaching, advising, and what-not

by their aspirations to achieve tenure? Do you think the tenure system – how it functions – achieves the correct goals?

Well, it depends on what you need to get tenure. We have an all-university tenure system, of which the majority of members are not from the department of thetenuree. And up to now, as far as I know, and I've served on it a couple of times over thirty years, they go by the handbook, and the handbook says you look at service, teaching (including projects), and scholarship... and that's a three-legged stool. And I've seen the committee take that very seriously. Although in some departments, the push is basically for not just scholarship, but for publications, for something to come out and weigh a lot. It's interesting, and so that's looked at of course, but if you have people from other disciplines, there's very little they can tell about the quality, and that doesn't come into it anyway, other than once in a while. Has it pushedtenurees away? It depends on the department, but I have been on committees where candidates came up with a pretty large research record and a very poor teaching record in terms of evaluations, in terms of projects done and other things, and have been refused tenure... and in other cases where people have had modest research records but were outstanding teachers or did outstanding service or both, and gained tenure. But I think those are situations are getting rarer and rarer.

40:30 Our final question has to do with the future of WPI. There's the Campaign for WPI and the new student center that's being built to try to...

After years and years of urging and pleading and begging, and courage beyond and above the call of duty by people like Dean Richardson, yeah it's going on...

40:58 And the new academic building is going to be built also. How do you see that... do you think that might change WPI?

I think that the Campus Center is more important than the new academic building, but that's my own feeling. I think the Student Center. I think the new academic building will change it, could change it adversely, because it's sort of off the central part of the campus. We're supposed to move there, our department, and maybe we'll have more space or newer space, but all the sudden we're like... off-campus. And it's nice to see... I don't know how much traffic we'll see of our students, andso-on. The student center is different. It's in a central location. It aught to be terrific place to get students active again, to have the clubs and the organization... the paper aught to be there... I hope there's a cafeteria... I don't know what's going in there... I think that's terrific and it's something that we've been missing all these years.

Total Running Time: 42:00

Appendix H: Transcript, Professor Vassallo

00:35 What brought you to WPI, what year did you come in, and what were you brought in for?

Well I came here in 1982, I had just finished an MBA. I worked for a pharmaceutical company and I had taken an MBA because I thought it was necessary for my job. The people here at WPI were looking for people to teach in the management department who had already had experience in business rather than right out of the PhD program. They offered me a job; I accepted. They sent me off for a year to Sloan. And I joined the faculty here in 1982, while going into Sloan every day during that year.

01:18 How would you describe the academic society here at WPI in terms of the professors and their society when you came here – the ratio of men to women?

Oh, oh... the ratio of men to women was much higher there in 82 than it is now. I believe I was the only woman in the department at the time. But when I taught here part time in 1967, when I was a faculty member at Clark teaching biology, I came here to teach a course in molecular biology out of the Chemistry Department. WPI didn't have a biology department. In that case, there was one other female professor who was a tenure-track in chemistry, and then I was the only other one in 1967. So, it's been a big change in those number of years.

02:20 What type of change have you noticed in the interactions between professors and students? Some professors have commented that there used to be more interaction and with the school changing...

Well I was never here when there was the Friday night get-togethers at Gompeii's. The drinking age at that time was 18. And therefore just about all of the students here would have passed their 18th birthday and it was possible for them to indeed socialize with the professors. And my understanding is that there was a great deal of this camaraderie particularly on Friday night over at Gompeii's. Of course, shortly after I came here, the drinking age was raised to 21, and you still had the camaraderie, but if one is going to have it over a beer, that isn't going to happen.

03:22 Do you have any thoughts on the interactions between departments here? AT one point, when the plan was brought in, there was the idea of completely eliminating the departments. (Exactly.) What kind of interaction do you see between professors in different departments? How close-knit do you see the society of professors here being at WPI, compared to other schools you've been at, and compared to general?

Actually, the camaraderie here takes several forms. There are a number of professors who collaborate scientifically. So for example, Civil and Fire Protection have some very close relationships. We have a professor in our department who is very closely aligned with Civil, and there's a great scientific collaboration. There also is very much of a

personal collaboration. For example, we've been in this building for almost 20 years, and I have very close relationships with mechanical engineers in this building. Also, the faculty club does make for a lot of camaraderie across the lunch hour, at whichtime, I usually have lunch with a humanities professor, or a biomedical professor, possibly someone from civil. So I find that a very nice cross-fertilization with people who have very high levels of interest in each other's discipline, and each other, period.

05:11 Let's touch some on administration. Through the period that you've been here, have you noticed a large change in administration – how the school's been run by various presidents and administrative bodies?
Well I think every administrator, particularly in the upper level, brings their own signature to a place. I think that the previous administration – the CEO, the president – was very very astute in the financial sense. There was an emphasis on the financial aspects of the institution. And he set the school on a vector of improving the endowment. I think that the present administration, while that is extremely important, I think there also is a warmth in the present administration, that indeed transcends the financial issue.

06:24 Being part of the Department of Management, one of the goals of the department that we're aware of is the management of technology. Would you say that technology is integrated into the WPI curriculum, and has really become part of WPI's core preparation for people going out into business?
The management of technology has always been a thrust of the Management Department, but of course it's the level of sophistication of that differs. If one looks at older literature, one sees "Management of Technology" on our brochures. I think that there was always a question "What does that mean?" Does it mean that you manage organizations in a technological manner? Do you manage technological organizations? What did it mean? I think that a clarification has come about by saying that it means all of those things, so that you may use technology to manage, for example, a law firm that is using technological methods. On the other hand, you might indeed train someone to manage a technological organization whose very heart and sole is technology. So it seems to me that it encompasses much more than just straight "Do we use computers? Do we use PowerPoint? Do we use additions – things that aid us – in turning out people who are technologically sophisticated?

08:11 Dealing with the general society here at WPI... WPI has always been a very technical society. The university has evolved more into a more of a university now with broadening, but many would say it's still technical in that everyone here is still kind of an engineer. How do you see the "engineer" coming through in the general society here at WPI?
I think that it has moved – transmuted – from a totally engineering environment, but it was always "Engineering and Science." And still, Engineering and SCIENCE. For me, I see it as the backbone of this institution. I think yes, we have added humanities majors, which we did not really have before. We have management majors, but even our management is the management of technology. So the spine, the backbone, is scientific. And even in a number of, for example, our courses in management, they are done on a scientific basis. I teach organizational behavior as a hypothesis-testing course. So I call

it organizational science, because I find that it has a scientific thrust to it – a scientific vector. So, I think that's one of our strengths. I think that to bring in all of the others under an umbrella is a wonderful thing, but I think that having the backbone – the scientific backbone – is a great strength for a technological institution.

10:00 How have you seen the social structure change at WPI in terms of students? Have you noticed any change… now I know that you've only been here full-time since the early 80's, but have you noticed any change with society, students, participation in extracurricular activities, or even faculty being involved in student lives more?
Well of course when I came here first in 1967 there were no women on campus, so therefore in terms of a social structure, the WPI male student had to look elsewhere for female companionship. Of course now, there is an integrated form of the females and males here. We have done studies about how the females and the males feel about the social life. It's interesting that both the females and the males don't feel that they have a lack of social life. They are VERY interested in the campus center. That from both genders seemed to be the most important thing. But whereas it might have been predicted that females would feel that there was some bias against them. That did not come out in our survey. We did an IQP on it. And males felt more cheated because there weren't enough females to go around. So the social structure, I see evolving as a very warm and friendly and more social relationships between men and women. Also, I think that one of our treasures is the drama group. I've done a lot of work with them. Whenever they need a little old lady or individual that can be a queen – an old queen – then indeed I get a role in some of the MASQUE productions. And what I find there is that the individuals are Renaissance people. The engineers are sitting there studying lines from Henry the Fifth. The interaction at that level is just a wonderful thing to watch, because it's not only scientific; it's looking at something beyond the sciences – the humanities, the social sciences – and having interactions on those levels, not just radical pi.

12:50 Do you think there's sometimes a conflict between professors doing research and a push for a weight in publications, and the best interest of the students – the advising and personal attention to students?
The potential always exists that indeed something – whether it be research or some other interest – might be considered to divert a professor from the attention of the student. On the other hand, I look at the best teachers and the best professors, and the students say "I was always able to get to see them; always talk to them." These are the really great teachers that indeed, even though they're doing their research… and we do have some professors that have received both teacher of the year and researcher of the year. And those of course are consummate in my viewpoint. But the students say, "I can get to see that person. I can get to talk to them." Does the potential exist? Yes. Is there a potential for a squeeze? Yes. Of course.

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14:39 Do you think that the Plan has succeeded, and how well do you think the Plan has been carried out since its implementation?

Let's pull those two things apart. I have met a number of people who know the school by reputation, and I can remember sitting at Riverside Park while the kids were on the Ferris wheels and so forth, and an individual who was a journalist from Boston. And he said, "WPI? Your students because of your project system hit the ground running. They already know how to work with people. They already know how to plan and attack a problem." So as we go across the country and meet people who know our school, then they convey, by reputation, they indicate that the project system – the Plan – is one of our real real strong points. Now, how well has it been carried out? I think it's been carried out extremely well. I think that there is always a concern that there will always be (and this is not right or wrong, it just is) individuals who want absolutely no change whatsoever. There were people who were very disturbed when the competency had to be phased out, because we could not, in my understanding, we could not demonstrate to accrediting bodies that every student, for example, had had a particular course, had covered that particular material. The competency could not beall-enveloping for that. On the other hand, as a professor, when you sat at a very well-done competency, the interaction with students, the minds, the levels to which it could go, was so much more than a piece of paper, particularly a multiple choice or a short essay. To be able to really interact, really interact with a student's mind, that was a beautiful thing. It had to go because, as I said, you couldn't verify that every student had a similar experience, had taken the same courses, etc. So if you couldn't give a Good Housekeeping seal of approval to a student, then indeed you need the records, and I'm sure that there are people that are still sad that the competency is gone. We now have distribution requirements. People came in here before, there were no distribution requirements and certainly were no prerequisites of any kind. That is, you had to take some courses; if you were smart you indeed took the courses that you were going to be examined on; but there weren't those requirements. And I'm sure that people see that as diluting it. On the other hand, it seems to me that any form of education has to be capable of change, capable of growth. See I'm a biologist by training, and to a biologist, change is not a fact of life; it IS life. So if an object isn't changing, it isn't alive. And whether the changes are great or small, I look upon change as a very very normal thing, and indeed it tells you that the system's alive.

18:28 Continuing with change, how do you think that the new academic building, how do you think that the new academic building, and particularly the new campus center, will change the campus? Do you see any change, I'd say more with the new campus center...

Oh the campus center... When I first came here, I can remember having one of these faculty luncheons with the president, and there were a number of us saying to the President what we needed. Now many many many years ago, when I went to college, I was on the swimming team. For me, the swimming pool was an absolute necessity – a really good swimming pool. Now I understand that those would be future dreams, but the campus center, I think, is going to be an incredible stimulus to socialization on this campus. Oh I think that to have people passing in and out, and meeting, and having

meetings there, and athletics... Oh I see the campus center as the single most important socializing element that I've seen since I've been here.

19:54 WPI's ranking... Now people who know of WPI know it's a great school – know it has a greats reputation. Now two years ago, WPI was ranking in the top fifty; now it's not in the top fifty. How do you see WPI's overall image? Do you think it's on the right track? Do you think it needs to be more visible – more marketed?

When I first came here, WPI's ranking was in the Small College, and of course it was always number one in regional schools in New England – regional schools. When it became part of the national ranking, sometimes the top fifty, sometime fifty fifty-one, you're playing in a different ballgame. The perception then is, being in the top fifty or being close to the top fifty is in and of itself quite an accomplishment, and we forget that. And indeed because we're not in the top one, the top echelon – first place – we forget that being in the top fifty of colleges or universities is quite an accomplishment. But I also think that WPI is much better – a much better place – than it is perceived. People who know it KNOW IT. And for them, they know the caliber of the teachers, the students,the place. Yes, do we need more marketing? Yes, but I don't have the answer as to what form that would take. Should it take a billboard? Should it take radio ads? Should it take TV? Sometimes these things are slow ramp functions rather than step systems. But one of the ways one gets to be better known is one's alumni spread out and carry the message elsewhere. For years, 80% of WPI alumni lived in the Worcester County area or Massachusetts. With electronic firms or technology firms, now they're going to Silicon Valley and they're going to Arizona, etc., and the message gets carried. So there needs to be a lot of missionary work. I think there needs to be a lot of missionary work about what the message is here.

Do you have anything else to add?

When I came here, I had the opportunity to go to another institution in the area etc., and I chose this place to come. It matched my scientific background, and yet in an area in which we think of the management of technology, and yet WPI... WPI is a home to me now.

Total running time: 23:10