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**The Writing Proficiency Requirement At  
The University of Massachusetts Boston**

**Interim Report**

**Office of Institutional Research and Policy Studies**

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January 24, 2002**

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## Notes

This report will present an executive summary, followed by a detailed report in several sections. Conclusions and recommendations for the process section begin on page 22. Conclusions and recommendations regarding the impact of Core courses are on page 39.

Most of the tables and charts in the report have been produced in Excel. The two flow charts were produced in PowerPoint. Tables that report statistical significance are in Stata format. In general, bar charts represent values observed in the data. Line charts represent predicted values. The predicted values are derived from the results of a number of bivariate logit model regressions.

Data Specialist Fernando Colina acquired most of the data from the University data files.

The study identified 5,358 students who, we believe, attempted the WPR for the first time between June 1996 and June 2000 inclusive. Of these, 993 entered as first time freshmen, 4,167 entered as transfers, and 198 entered with unknown status, probably before 1984. Section 2, regarding the WPR process, will deal with all students unless otherwise specified. Section 3, which deals with the contribution of Core courses to success on the WPR, will report only on first time freshmen unless otherwise specified.

Total numbers of students that are reported in individual charts or tables will vary occasionally because of missing or invalid data.

# The Writing Proficiency Requirement At the University of Massachusetts Boston

## Executive Summary

The Office of Institutional Research and Policy (OIRP) received a request from the Writing Proficiency Requirement (WPR) Committee requesting research on the connection between the curriculum and success on the WPR. The requirement consists of the successful completion of a timed essay examination or the submission of a portfolio of work that includes several examples of papers written for courses and a new paper based on assigned readings and specific questions. It is designed to "...assist students in acquiring critical skills. Foremost among these is the ability to present ideas clearly, correctly, and persuasively in English prose" (1999-2000 UMB Undergraduate Catalog). The requirement must be successfully completed as a prerequisite for graduation from the College of Arts and Sciences (CAS) and from the College of Nursing (CN). It is a high stakes requirement. There is no alternative path to graduation.

The study was to be conducted on over 5,000 students (including about 1,000 who entered UMB as first time freshmen) who attempted the WPR for the first time between June 1996 and June 2000 inclusive.

The Writing Proficiency Requirement should be viewed as a process that begins before a single course is ever taken at UMB, rather than as an event. There are well established rules for the process. It was fairly easy to identify how the process worked, or, at least, how it was supposed to work. It involved:

- Attending orientation
- Completing an English Placement Assessment (EPA)
- Receiving a placement recommendation
- Completing the recommended courses
- Completing five Core or "C" courses (anyone with <30 credits on entrance to UMB)
- Attempting the WPR at about 60 credits.

If the student was successful, there were no further related requirements. If the student was unsuccessful, there were two specialized courses to prepare the students to retake the exam, and

tutoring would also be made available. Full details of how the process was supposed to operate are available on page 8, and in flow chart format in *Chart 2: Theoretical WPR System Flow Chart* on page 10.

In practice however, we found that large numbers of students:

- Failed to attend orientation
- Failed to get an EPA recommendation
- Failed to complete the appropriate courses if they had a recommendation
- Failed to complete the full program of "C" courses that were designed to prepare them for WPR.

In fact, of the nearly 1,000 students in the study who entered UMB as first time freshmen, barely 17% fully complied with the system by completing the assessment process, the recommended courses, and the full program of "C" Courses (see Chart 8 on page 17).

The system has many requirements. However, only taking the WPR itself is mandatory. By mandatory, I mean that there are actual penalties imposed by the university if the student does not comply with the requirement. This is one of the major issues developed by this study. While many parts of the process are supposedly required, in practice these requirements are routinely ignored. The process is more fully described in *Section 2: The Writing Proficiency Requirement Process* on pages 7 through 24. A flow chart of how the system actually operates is available on page 20.

Given the poor level of compliance with the system, the question of whether that has an impact upon pass rates remained. In order to ascertain this, we concentrated on compliance with the "C" course requirement by our own first time freshmen because the requirements are clear for them, while they vary for transfer students based upon the number of credits transferred into UMB.

We found that there seems to be a positive relationship between the number of "C" courses completed and success on the first WPR attempt. However, it is clear that this relationship is not equally strong for all students. Among the first time freshmen, the effect is strong for:

- English as a Second Language (ESL) students, who are students who had a recommendation for or completed one of the UMB ESL courses
- Those who were identified as non-native English speakers

- Those who enter through the DSP Program
- Those who enter with lower (below 500) Verbal SAT scores.

The ESL and other non-native English speaking students both completed “C” courses at a rate significantly below their comparison groups. There was no significant difference for DSP students or those with sub-500 VSAT scores. However, the non-ESL DSP students actually completed “C” courses at a higher rate than the non-DSP students.

With the exception of the sub-500 VSAT group, completing the full sequence of “C” courses does not fully eliminate the difference in pass rates between these students and the overall group. However, for each of the specified groups, we found that the gap would be closed considerably when the sequence was completed. A number of bivariate logit model regressions were run with passing on the first attempt as the dependent variable and the number of “C” courses completed as the independent variable. Predictions of pass rates were then obtained for these groups. The overall pass rate for all students in the freshman group regardless of the number of “C” courses completed was 76.7%. The projected pass rates for several levels of “C” course completion are reported in Table 1 for the group as a whole and for the specified groups.

**Table 1: Projected Pass Rates for Freshman Entrants by Number of “C” Courses Completed**

	0 Courses	3 Courses	≥5 Courses	Difference Between 0 Courses and Full Compliance
All Freshman Entrants	70.8%	76.6%	80.3%	9.5%
ESL Students	33.0%	56.2%	70.7%	37.7%
Non-Native English Speakers	48.0%	65.9%	76.3%	28.3%
DSP Entrants	41.5%	61.7%	74.6%	33.1%
Sub-500 Verbal SATs	61.8%	71.0%	77.0%	15.2%

The impact on pass rates of completing the “C” courses is limited to the specific sub-groups. When a logit model regression is run for only those students who do not fit into any of these categories (N=466), there is no statistically significant relationship between the number of “C” courses completed and success on the WPR. In other words, the “C” courses contribute to success on the WPR, but that contribution happens for only about half of the students. The results of the analysis of the contribution of the “C” Courses is more fully described in *Section*

3: *The Impact of Core Courses on Success on the Writing Proficiency Requirement* on pages 25 through 39.

Other analysis of the WPR process remains to be done. We need to try to establish other connections between the curriculum and success on the WPR. However, this will be difficult because about 40% of the students lack an English Placement Assessment recommendation that we could use to establish a baseline of their skills on entry to UMB. Further, 35% of the students (there is much overlap with the no-EPA group) did not take a single course at UMB that was on our list of related courses, and 65% took two or fewer of the courses that were on the list we developed with the WPR Committee. Other areas for continued research will be on the impact of WPR failure on student retention, on the course taking behavior of students between a failure and subsequent attempts, and the characteristics and behavior of "problem takers". A "problem taker" is defined as a student who received a score of "retake" on a second attempt, or who failed to make a second attempt within one year.

Additional reports will be forthcoming as analysis is completed.

# The Writing Proficiency Requirement At the University of Massachusetts Boston

## Section 1: Introduction

In April 1999, the Office of Institutional Research and Policy (OIRP) received a memo from Alan Harwood (Associate Dean, CAS), Peter Langer (Director of General Education, Provost's Office), and the CAS WPR Committee: Vivian Zamel (Chair; English), Elaine Morse (Women's Studies), Judith Zeitlin (Anthropology), Ken Rothwell (Classics), Margaret Wagner (Art), Louise Smith (Director, Core Curriculum), and Donna Kaye (Director, WPR) concerning research on the Writing Proficiency Requirement (WPR). They were primarily concerned with "...the WPR's connection with the curriculum, how to improve this connection, the need and value of the WPR, and its impact on students". Further, they stated that in general they were "...interested in identifying what factors may affect students success or problems with the WPR". They were interested in whether specific courses that had been designed to aid students in preparation for meeting the requirement, the number of credits a transfer student had on entry, the number of General Education courses they took at UMB, and the number of credits at which a student first attempts the WPR were related to success or problems in completing the WPR.

The requirement consists of the successful completion of a timed essay examination, or the submission of a portfolio of work that includes several examples of papers written for courses and a new paper based on assigned readings and specific questions. It is designed to "...assist students in acquiring critical skills. Foremost among these is the ability to present ideas clearly, correctly, and persuasively in English prose" (1999-2000 UMB Undergraduate Catalog). The requirement must be successfully completed as a prerequisite for graduation from the College of Arts and Sciences (CAS) and from the College of Nursing (CN). It is a high stakes requirement. There is no alternative path to graduation. Waivers are only granted to those who already hold a bachelor's or higher degree and enter UMB to acquire another bachelor's degree.

After several meetings and some follow-up by OIRP, a list of specific courses was created. These specific courses included the English 101/102 and 101E/102E courses, all of the ESL courses, the academic skills and interdisciplinary courses offered to incoming students identified as being in need of additional work in composition, and the three courses that were

specifically designed to assist students who have had or anticipate having difficulty meeting the Writing Proficiency Requirement (CRW Z282, CRW Z283, NU250).

They also requested that all of the "C" courses (which were designed to prepare students for the WPR and are given in a number of departments) be considered in the analysis. While these courses are offered in a number of disciplines throughout the CAS, they were generally overseen by the Core Curriculum Office, which is also responsible for the administration of the WPR. The "C" courses were explained on the University website as follows:

The distribution requirement of twelve courses must include five "core courses," which are offered in four of the distribution areas: the arts, historical and cultural studies, philosophical and humanistic studies, and social and behavioral sciences. Core courses are identified by a "C" prefix in the course number (for example, Philosophy C108). Of the five required core courses, three must be at the 100 level, and the other two must be at the 200 level. Please note: No student may take more than five core courses. A core course emphasizes the nature of knowledge and the methods of investigation that characterize the disciplines within its distribution area. Core courses provide instruction and practice in such intellectual skills and habits of thought as analytical writing, critical thinking, quantitative reasoning, and research techniques. Students should ordinarily complete their core courses during their first two years of study, before they take the Writing Proficiency Examination.<sup>1</sup>

Transfer students matriculating in fall 1988 or later with 30 or more credits were not required to fulfill the core curriculum requirement although they could take up to 3 C100 and 2 C200 courses as part of the distribution requirement or as electives (1999-2000 Undergraduate Catalog, page 56). This system was changed in fall 2000. The new general education courses (first year and intermediate seminars) replaced the old "C" courses for newly matriculating students. Students who matriculated prior to that date who were subject to the rule are now required to complete a total of two "C" courses at either the 100 or 200 level. All students in this study entered UMB and attempted the WPR for the first time under the old rule.

The original request that was made by the CAS Writing Proficiency Requirement Committee was basically a question that focused on the curriculum and its connection to success on the WPR.

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<sup>1</sup> From the UMass Boston website General Education Section. This requirement varies for transfer students by status at entrance.

## Section 2: The Writing Proficiency Requirement Process

### Establishing the Need for a Process Evaluation

The original question assumes a view of the WPR as an event. The event has an outcome; a result of Pass or Retake. The question is about how another event, taking specific courses or the curriculum event, relates to the outcome of the WPR event. However, before one asks how the medicine works, one should ask if anyone is taking it, and how they might be taking it.

In order to get to the data, we had to work through the process to understand where the data was or was not gathered. We met with representatives of many parts of the process who helped us to understand how the process actually works.

We also needed to establish a baseline for each student. Without such a baseline, the results for the ESL courses, the special remedial English courses, and the special courses for those anticipating difficulty would likely be biased. These courses would have to be perfectly designed and implemented to completely eliminate the differences between those who entered with a standard set of skills and those who entered needing additional work on their language and writing skills, and indeed, Chart 1 on the next page demonstrates that there continue to be differences in pass rates between the group as a whole and these students even after they have completed the recommended coursework. A straight statistical analysis without a baseline (and without proper interpretation) would be likely to "show" that taking these courses actually hurt a student's chances for passing the WPR. For example, a simple correlation between passing on the first attempt and taking ESL courses yielded the following correlation table:

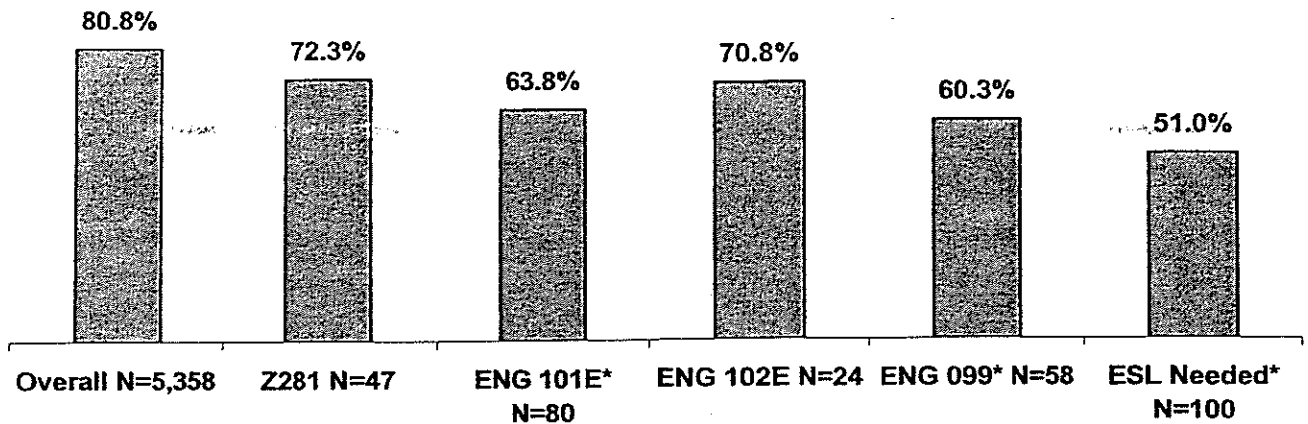
**Table 2: Test Correlation Table**

pass1st	took_esl	
pass1st		1.0000
took_esl		-0.1185
	took_esl	1.0000

It shows that taking ESL classes is negatively correlated with passing on the first attempt. A simple conclusion might be that one should never take ESL courses because they lead to a reduced probability of passing the WPR. The problem is that the correlation program looks at the pass rates for ESL takers and compares them to the pass rates for non-ESL takers. This may

measure the impact of being a non-native English speaker with skills that require ESL courses in order to complete college level work, but not necessarily the efficacy of our ESL courses.

**Chart 1: Pass Rates on the First WPR Attempt  
By English Placement Recommendation for Those Who  
Complied with the Recommendation**



\* The pass rates for the ENG 101E, ENG 099, and ESL Needed groups differ from the overall pass rate at a statistical significance level above the 99%. The differences for Z281 and ENG 102E are observable, but the N sizes are so small that statistical significance is difficult to establish.

Establishing a baseline allows one to make comparisons both within groups and between groups. The English Placement Assessment (EPA) recommendation allows us to establish this baseline by grouping students by skill level and needs. I needed to try to establish which students fell into which group and how the results on the WPR differed for those who were recommended for specific courses and took them versus those who were recommended for them but didn't take them.

The Writing Proficiency Requirement should be viewed as a process that begins before a single course is ever taken at UMB, rather than as an event. The better research question was about how the entire process (which includes the curriculum) contributes to success on the WPR. In order to analyze the outcomes of the WPR, we needed to first understand the entire process, and to identify stakeholders in other parts of the process that were beyond the focus of the Core Curriculum Office or the WPR Committee. This means that the study must be broken into two sections. The first section will be a process evaluation, and the second part will attempt to address the original question of the impact of the curriculum on WPR success. This section will

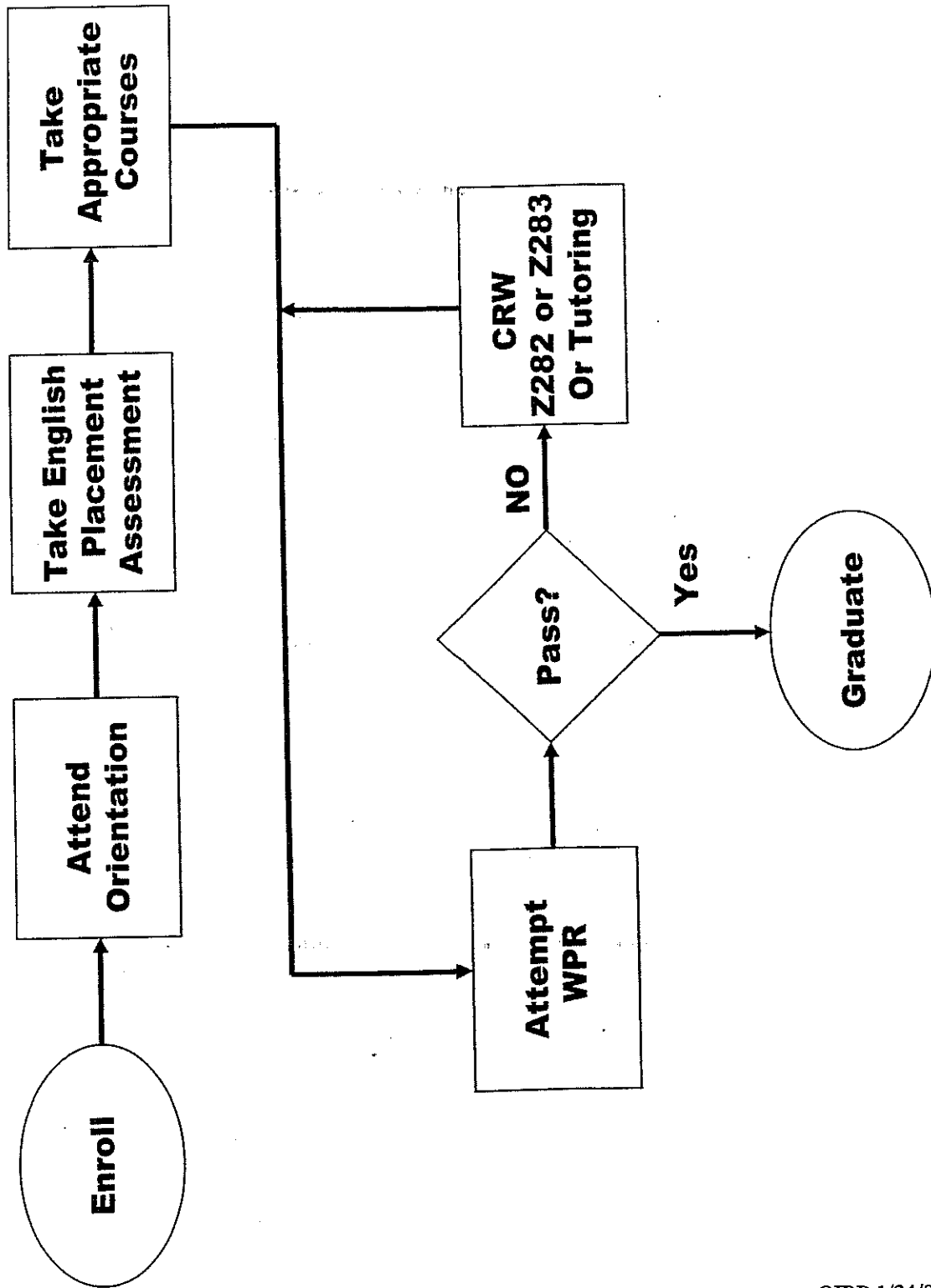
concentrate on the process evaluation. The process evaluation required a number of interviews and consultations that began in the Core Curriculum Office and branched out from there. There are well-established rules for the process. It was fairly easy to identify how the process works, or at least, how it is supposed to work.

### **The Process in Theory**

1. New students attend orientation and take the UMB English Placement Assessment (EPA) which is evaluated through the Freshman English Program Office (FEP). The ESL Program then further evaluates those with an ESL recommendation.
2. The recommendations are entered into the University computer system.
3. University Advising (UA) accesses the EPA results, and the students are directed to the appropriate English courses.
4. The students complete the recommended courses.
5. All students complete the English Composition 101 and 102 sequence at UMB, or bring it in as transfer credit. There is a UMB sequence of English Composition 101E and 102E that fulfills this requirement, and is specifically designed for non-native English speakers.
6. Students who entered with fewer than 30 transfer credits had to complete three 100 level and two 200 level "C" courses in various departments. These courses were designed to focus on the reasoning and writing skills that are assessed by the WPR. Transfer students with 30 or more credits on entry were exempt from this requirement, but could also take these courses.
7. The students attempt the WPR around the time they have accumulated 60 credits either by transfer or at UMB. They may do so by choosing either the Examination or the Portfolio option.
8. Those who pass have no further requirement.
9. Those who are required to retake the requirement may enroll in NU250 if they are College of Nursing students, while CAS students may enroll in CRW Z282 if they intend to retake the requirement using the exam option, or CRW Z283 if they intend to retake the requirement using the portfolio option. Guidance is offered by the Core Curriculum Office which directs the WPR.
10. Additional tutoring and other forms of support are available through the Core Curriculum Office for those students who continue to have difficulty meeting the requirement until they have done so. Students continue to attempt the requirement until they receive a score of Pass.

The theoretical process is charted on the following page.

**Chart 2: Theoretical WPR System Flow Chart**



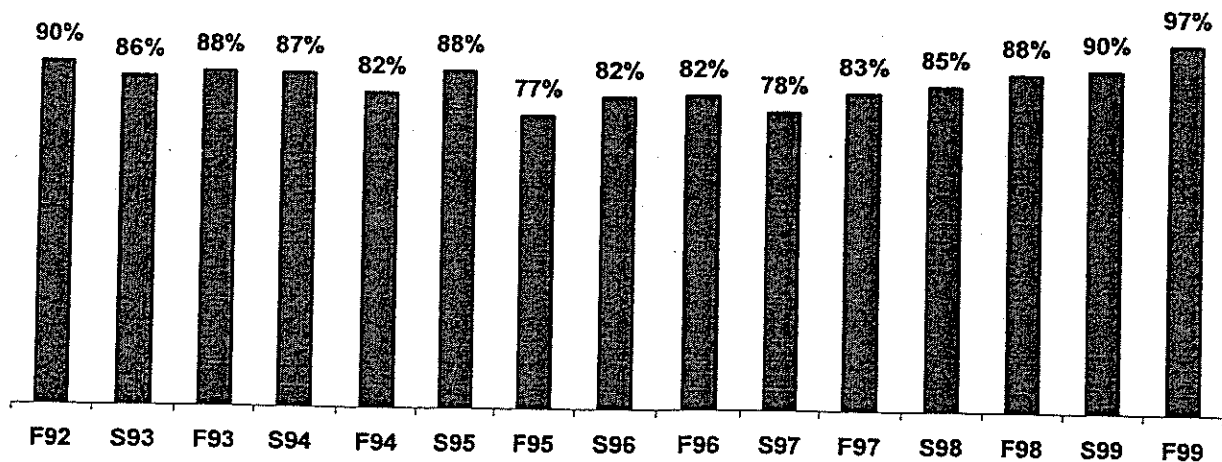
## The Process in Operation

As we attempted to establish how the process actually worked, we needed to identify the data that were available for each part of the process. We needed to know about not only what was collected, but by whom, where it was stored, and how we could access it. This is important because it may be that the data that are needed to analyze the question are not currently available, and we should identify ways to ensure that it becomes available for a future analysis. Further, the fact that data are missing is itself a comment on the process.

### Orientation

On average, only about 85% of incoming students have attended orientation over the past ten years. University Advising keeps this information on a PC in its office. IR had no direct access to data concerning individual students. We only received the raw numbers to run against the admissions figures we maintain, and constructed Chart 3 based upon them. These figures probably overstate the true percentage of incoming students who undergo orientation, because some students who attend orientation do not actually enroll. Fall and spring entrants seem to attend orientation at about the same rate.

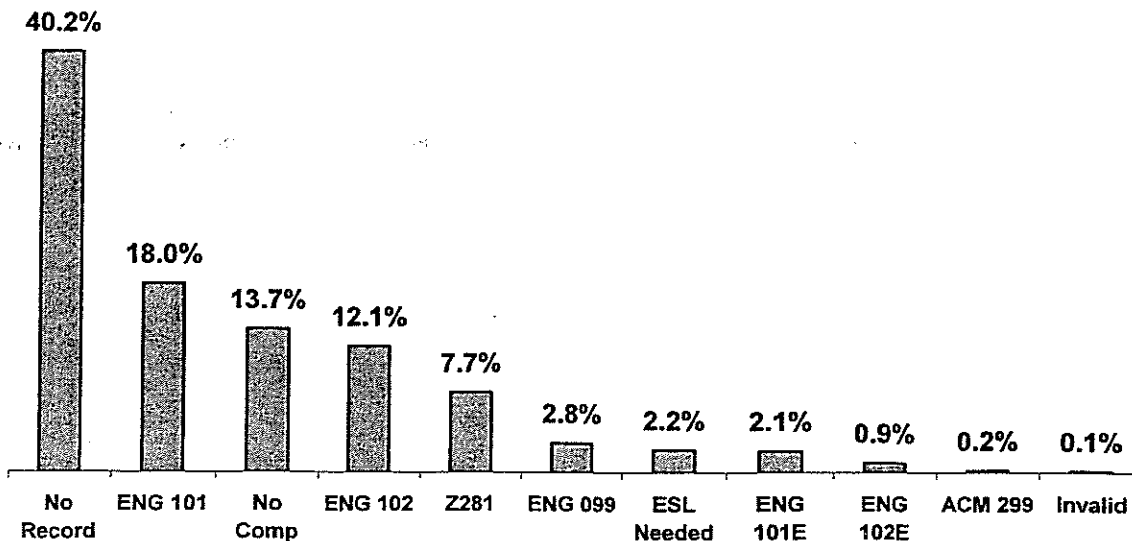
Chart 3: Percent of New Enrollees Attending Orientation  
(By Semester)



## English Placement Assessment

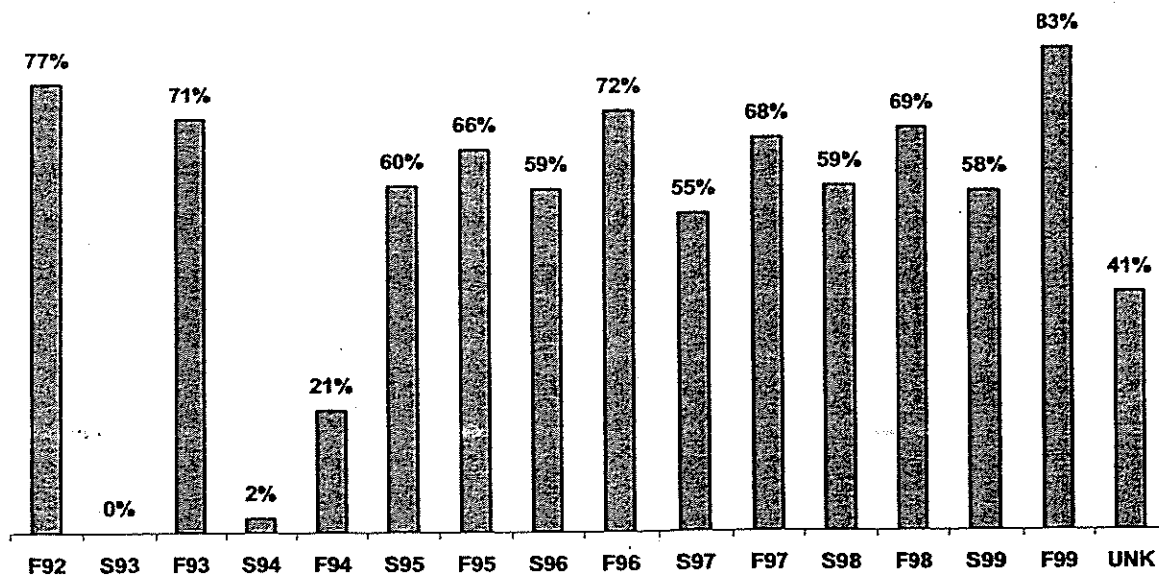
The English Placement Assessment (EPA) is a very important part of the orientation process. The EPA is a holistic writing placement assessment. Students read several short passages, and write several paragraphs in response to several questions. It is administered through the testing center at UA and is evaluated by English Department faculty under the supervision of the Freshman English Program (FEP). The “score” is a recommendation for the student to take a particular course or sequence of courses in English or in the ESL sequence. We found that we had an EPA recommendation for only about 60% of the students. We also found that a group that comprises about 10% of our fall admissions enters through a special program called Directions for Student Potential (DSP) that exempts them from the regular EPA. Because these students are so closely supervised, we are operating on the assumption that the first course these students take is their recommended course, and are counting them as part of the group with an EPA recommendation, and as part of the group that had and complied with an EPA recommendation. Chart 4 below, contains the breakdown of the percent of recommendations by the specific course (for DSP students, it is the first course taken), and the percent of students without a recommendation on file. One percent equals about 54 students.

**Chart 4: English Placement Recommendations**  
As a Percentage of All First Attempters



There may be several explanations for the low numbers of English Placement Assessment records. The percentages from some of the earlier semesters are suspect. However, none of the semesters before fall 1992 has more than 50 representatives in the study, so they shouldn't impact the overall totals very much. This shortfall in the pre-1992 semesters could be because data was not entered into the system, because it was lost when the system was converted in 1998, or because the students who take the longest to attempt the WPR hadn't actively utilized the system. I have no explanation for the low percentages in the spring and fall semesters of 1994.

**Chart 5: Percent of WPR First Attempters With EPA Recommendations  
By Entry Term, Fall 1992 Forward**



It is clear that there is a marked difference in the percentage of students with EPA recommendations by whether students enter in the fall or spring semester. Why these differences exist is a matter of conjecture. However, the difference of just over 10% is statistically significant at the highest level. Table 3 on the next page reports the results of a significance test on the difference in EPA rates for non-DSP students who entered UMB in 1994 or later. We didn't include DSP students in this test because DSP students enter only in the fall term and have all been credited with an EPA recommendation because they are so closely supervised. We used only 1994 forward to eliminate potential lost data problems from the earlier years.

**Table 3: Percentage of Students with an EPA Recommendation by Entry Term**

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Spring	1290	.5457364	.0138682	.4980969	.5185298	.5729431
Fall	3142	.6473584	.0085252	.4778684	.6306428	.6640739
combined	4432	.6177798	.0073	.4859848	.6034681	.6320914
diff		-.1016219	.0159995		-.1329889	-.070255

Degrees of freedom: 4430 Ho: mean(1) - mean(9) = diff = 0

Ha: diff < 0	Ha: diff == 0	Ha: diff > 0
t = -6.3516	t = -6.3516	t = -6.3516
P < t = 0.0000	P > t = 0.0000	P > t = 1.0000

After the EPA has been evaluated by the English faculty, the student returns to University Advising, and the advisor reports the recommendation. However, when the English faculty makes the recommendations, they are partially based upon data self-reported by the students about their previous English experience. For example, a student who reports that s/he has already completed and received credit for the basic composition sequence but who needs additional work would receive a recommendation for a course (ENG Z281) specifically designed for such students. However, when the student returns to UA, the student's transcript should have been evaluated, and the adviser may change the recommendation based upon the transcript evaluation. If the example student did not actually receive prior composition credit, the adviser might change the recommendation to ENG 101 or ENG 102 from the Z281. The change in the recommendation is not collected anywhere. This makes it difficult to determine whether the student has complied with the recommendation. This is important because compliance is not mandatory. We can only determine the value of this step of the process if we know which students utilized it.

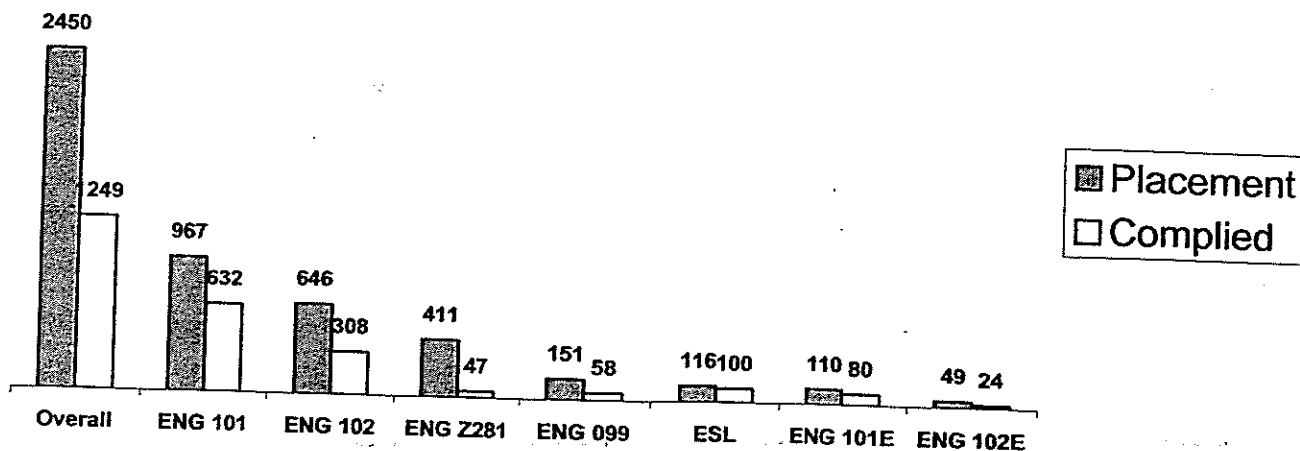
Because neither completion of the EPA nor compliance with the recommendation is mandatory, a number of students self-register for courses. The Freshman English Program has developed a shadow system to deal with this. On the first day of all of the English composition classes, the instructor administers a mini-EPA. All of the students are asked to read a short passage and to write a response to several short questions. The Director of the FEP assembles a small task force from among the English Dept. faculty to assess this informal instrument by the beginning of the next class session. It is used to provide a placement recommendation for those students who avoided the formal EPA, and to confirm proper placement for those who completed it. No documentation of any kind exists for this system. No data are gathered on the results. As with other recommendations, this recommendation is not binding, and the student may insist on

remaining in the course for which s/he registered. It is likely that this part of the process has a significant impact, because a number of students eventually register for specialized classes for which they have had no formal recommendation.

The ESL staff from Academic Support Services assists in evaluating both the formal EPA and the informal shadow EPA. They also conduct assessments and work closely with non-native English speakers who have self-identified or been referred to their office at any time. They have the results of assessments they complete outside of the formal EPA process. However, this information is stored in a database in their office and is not readily available to IR. We were given copies of these files, and although they varied in format from year to year, they did help us identify recommendations for an additional number of non-native English speaking students.

Almost half of the students with a recommendation for a specific course or set of courses did not comply with it at UMB, although they may have taken an equivalent course elsewhere. The details are presented in Chart 6, which follows.

**Chart 6: English Placement Recommendation Compliance\***  
For WPR First Attempters June 1996 - June 2000

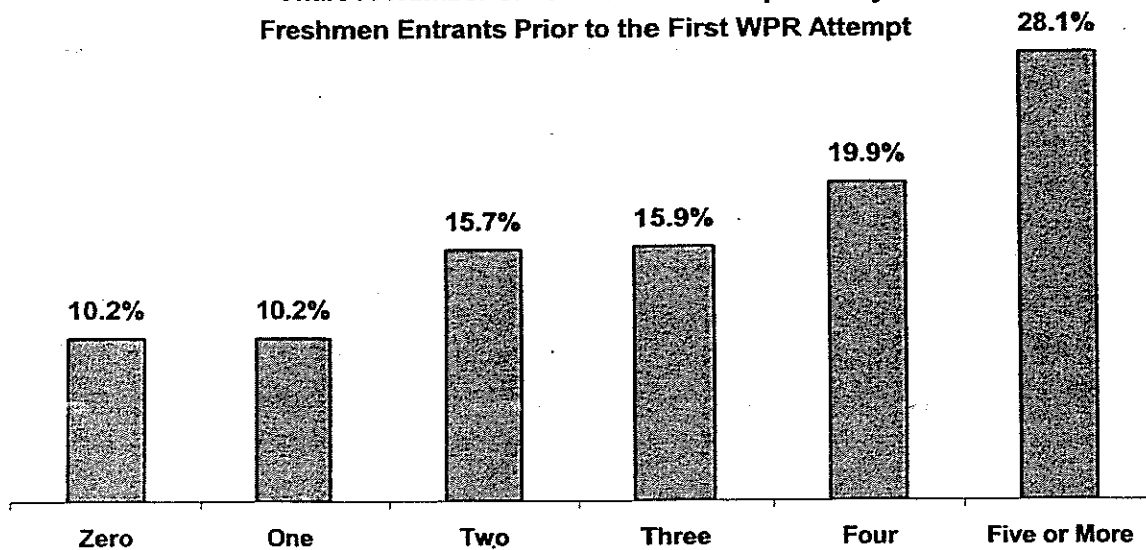


\*This does not include students whose recommendation was "No Composition Required"

## The "C" Courses

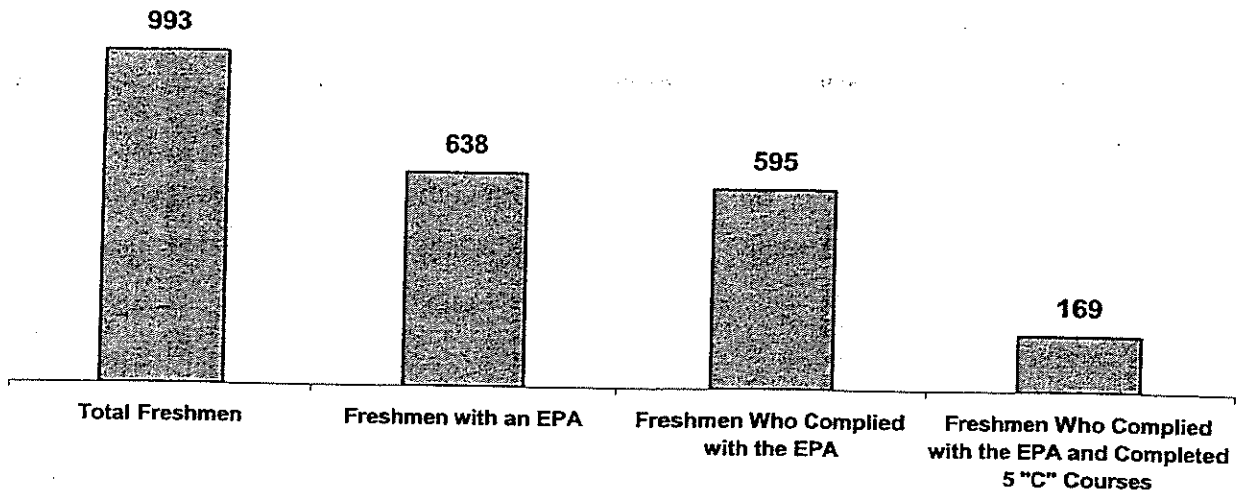
The "C" course requirement was fairly straightforward by rule. The students who entered with fewer than thirty (30) credits should have completed it. However, they did not necessarily have to complete it before they attempted the WPR. In practice, most students did not complete the five courses before attempting the WPR for the first time. Because of the credit cutoff, and the number of transfer students we enroll, it is difficult to identify all of the students who were subject to the requirement. However, among our own first time freshmen who were all subject to the rule, less than 30% completed the five courses. In fact, over 35% had completed only two or fewer of the courses when they attempted the WPR for the first time. Details are presented in Chart 7. If the student successfully completed the WPR, s/he would often attempt to get the rest of the courses waived. Because the number of these courses was limited, they were designed to prepare the student for the WPR, and they were resource intensive, the waiver was often granted. This provided a negative incentive to timely completion of the requirement.

**Chart 7: Number of "C" Courses Completed By Freshmen Entrants Prior to the First WPR Attempt**



Of the nearly 1,000 freshmen in the study, barely 17% utilized the system in the manner in which it was designed. This is remarkable given that all DSP freshmen (20% of freshmen) were credited with EPA compliance, and that most freshmen are subject to English Composition requirements. The figures are presented in Chart 8, which follows.

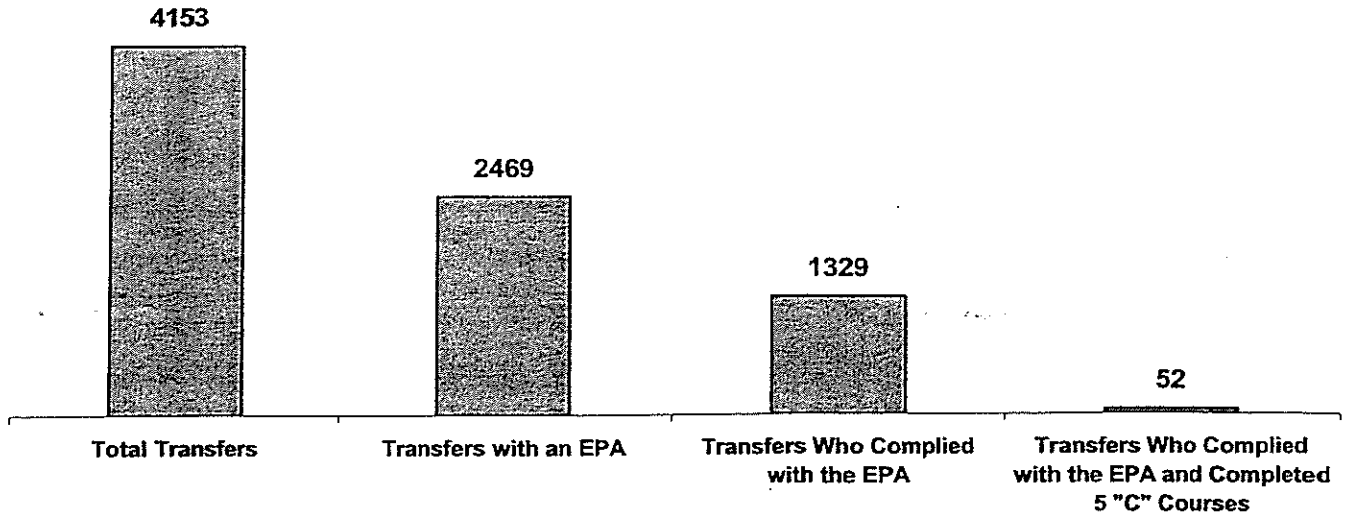
**Chart 8: Freshman Compliance with The WPR Preparatory System**



Transfer students appear even less likely to utilize the system as it was designed. While just about 60% of freshman had and complied with an English Placement Assessment recommendation, only about 32% (1329 of 4153) of transfers had and complied with the EPA recommendation. This includes students with a recommendation that no English composition is needed.

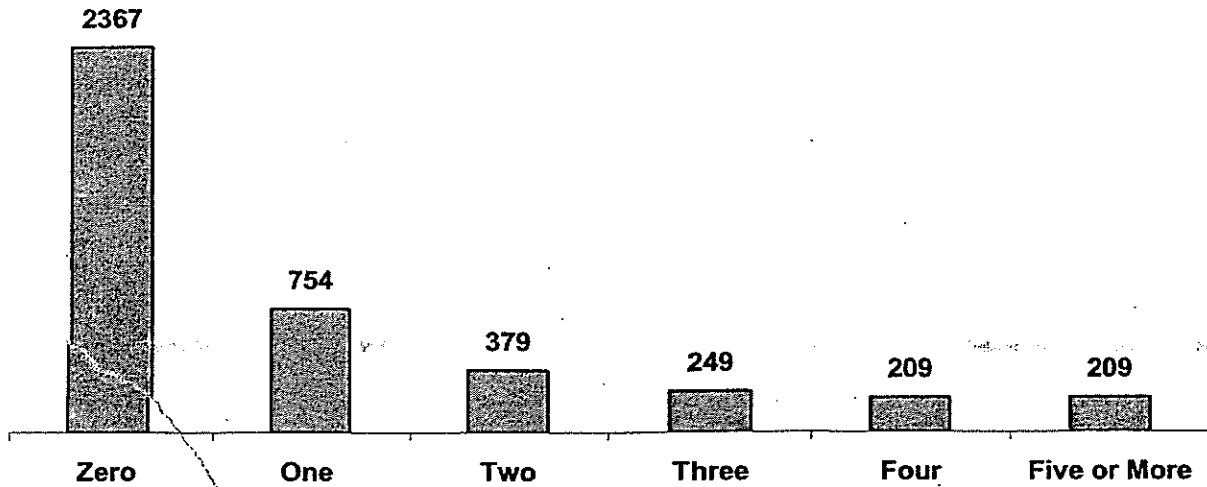
On average, about 40% of transfer students enter UMB with freshman standing (<30 credits), which should have required compliance with the "C" course requirement. This means that about 531 of these transfers who had and complied with an EPA recommendation should have been subject to the "C" course rule. However, only 52 of these students completed 5 or more "C" courses. Details are presented in Chart 9 on the following page.

Chart 9: Transfer Compliance with the WPR Preparatory System



Overall, we estimate that 1661 transfer students were subject to the "C" course rule (40% of the 4153 transfers). Yet, only 209 transfer students completed 5 or more "C" courses prior to attempting the WPR. The specifics are presented in Chart 10.

Chart 10: Total Number of "C" Courses Completed by Transfer Students Prior to the First WPR Attempt Regardless of EPA Status



## Special Courses

There are several courses offered that are generally understood to be for students who have not passed the WPR on a first or subsequent attempt. However, these courses are sometimes taken before the first WPR attempt by students who anticipate extreme difficulty. Among all students, almost 100 (most of them in the College of Nursing), had taken one of these courses before attempting the WPR for the first time. While this is extremely positive in that it indicates that either the student or a faculty member has recognized potential difficulty with the WPR, it also complicates an analysis of the efficacy of these courses, particularly since even after completing the courses students remain significantly less likely to pass the WPR on the first attempt than are other students. The pass rate for these students is 64.2% compared to 81.1% for other students. The difference has an associated T statistic of 4.1526, which is statistically significant at well above the 99% level. The results are presented in Table 4, which follows.

**Table 4: Pass Rate by Completion of a Special Course**

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
No Spec. Course	5263	.8111343	.0053957	.3914391	.8005565	.8217121
Special Course	95	.6421053	.0494444	.4819241	.5439323	.7402782
combined	5358	.8081374	.0053799	.3938024	.7975905	.8186842
diff		.1690291	.0407046		.0892314	.2488267

Degrees of freedom: 5356

Ho: mean(0) - mean(1) = diff = 0

Ha: diff < 0

t = 4.1526

P < t = 1.0000

Ha: diff == 0

t = 4.1526

P > t = 0.0000

Ha: diff > 0

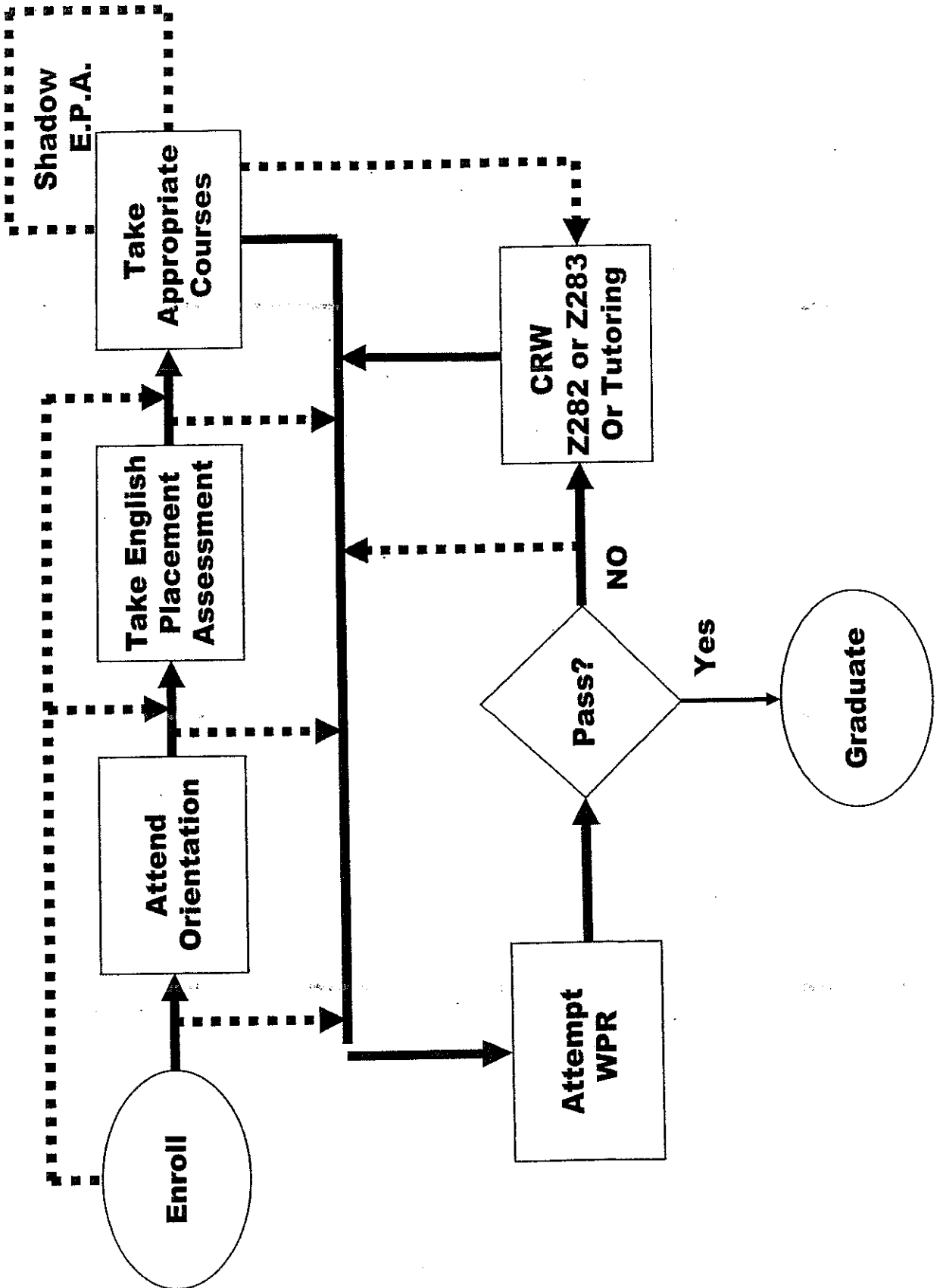
t = 4.1526

P > t = 0.0000

For students who have attempted the WPR several times without passing, individual tutoring is offered. This is coordinated through the Core Curriculum Office in concert with Academic Support Services. Information concerning tutoring is kept on a separate system by Academic Support, and it is not available to IR.

The flow chart that more accurately portrays the operational WPR system appears on the following page.

**Chart 11: Operational WPR System Flow Chart**



## Other Process Issues

Prior to the June 1996 administration of WPR, a single WPR record was kept for each student. This record held data regarding the student's most recent attempt. For those with multiple attempts, i.e. those who had failed at least one attempt and made a second or subsequent attempt, there was no information about the date or exam type of any but the most recent attempt. This meant that we could not analyze the students' behavior between attempts, because we did not know when the previous attempt occurred. After an earlier attempt to analyze outcomes on the WPR, the system was changed in 1996 to accommodate records for multiple attempts. University Information Systems (UIS) changed the input programs. For, this reason, our analysis included only those students who attempted the WPR for the first time in June 1996 or later.

When we first began to access data on the WPR in the spring of 2000, we noticed that we had more than one record listed as the first attempt for a number of students. There is a field called "noattmpt" that should, but does not always identify the number of the attempt. The true identifying field is called "examtype". However, we found that even when the two fields agreed that it was a first record, we occasionally had a previous record for the student. In order to identify the correct members of our group, we eventually settled for a set of conditions. If both of the fields agreed that it was first attempt and it was the first record we had for the student, we selected the record for the first attempters data set. This means that the data set probably contains data on students who should have been excluded, and is missing data for students who should have been included. However, given the state of the record keeping system, the data set is based upon our best estimate of who should be included.

Once we had our initial data set, we also noticed unexpected values in several fields. The Core Curriculum Office is responsible for data entry for the WPR results. We contacted the clerk who normally enters the data to ask for a key to the values. There isn't a written key. The clerk was taught how to enter the results by the person who had the job before her. She thought that the unexpected values were probably entered by a temporary worker while she was on leave. Some of the invalid values entered in some of the fields were valid for other fields. No documentation for how to properly do the data entry on this screen currently exists on this campus. Appropriate edit checks apparently were not included when the input programs were changed.

Similarly, when we accessed the EPA data, the results field seemed to be filled with garbage characters. The UA Testing Center provided an old sheet of the codes they had been using when they controlled the data on their PC, with additional UIS codes penciled in. The new codes for the EPA recommendations consisted of punctuation marks such as “^”, “\”, and “%”. These were actually valid values, although several others were not identifiable and may be the result of incorrect data entry. No other documentation exists on our campus.

## **Section 2: Conclusions and Recommendations**

UMB instituted the WPR ahead of the nationwide surge in the demand for assessment and accountability in higher education, and particularly in public higher education. In 1992 Dennis P. Affholter wrote, “For the past decade, American politicians at all levels have taken aim at poor performance in our public schools giving birth to many different schemes for educational accountability...[which] are not limited to the kindergarten through twelfth grade (K-12) public school system” (page 100). This push for accountability has driven the demand for quality assurance in higher education. Further, as Jones, Ewell and McGuinness noted in 1998, “...current academic degrees are increasingly incapable of guaranteeing to society that their conferees have achieved given levels of competence - particularly in cross-cutting areas like communication skills and critical thinking that lie outside the domain of the major” (page 15). These are precisely the areas the WPR is designed to address.

The Massachusetts Board of Higher Education is considering the WPR as a model for a system wide writing assessment program. Over the next several years, we will be assessing the new general education program. In that program, a first year and an intermediate seminar are required. These seminars are designed to replace the five “C” courses that were required under old system. The students who are subject to the seminar system will begin to filter through the WPR later this year. Because there will be relatively few of them at first, it is especially necessary to ensure that we capture as much data as possible on these students. To that end several suggestions arise from this study.

## Primary Process Issues

1. We need to concentrate on the orientation and entrance assessment process. If students first enroll too close to the beginning of a semester to be tested before classes commence, we should still require them to complete the assessment process. Additional attention should be paid to those entering in the spring semester.
2. If advisers change the EPA recommendation, the new recommendation should be captured somewhere so that the student's record can be updated.
3. We should develop a system that can capture the recommendations that are made in the shadow EPA system. An additional exam code could be created to hold the recommendation on the students testing record. In addition to providing a baseline for those students who manage to avoid the regular EPA, it would allow us to assess the quality and consistency of the regular system by comparing the shadow EPA recommendation to the regular EPA recommendation.
4. The recommendations that are captured by the separate ESL system should also be added to the regular testing record.
5. We need to be able to identify students who are non-native English speakers. This was a key variable in the analysis, yet we could only identify such students by the presence of certain courses or test results. We could only identify about 12% of the students as non-native English speaking, and there are indications that the true percentage could be more than three times that.
6. The generally low level of student compliance with the system might be the subject of some conversation at UMB.

## Technical/Administrative Issues

1. The CORE Curriculum Office should prepare documentation for entering data on student test results.
2. If that system is not due to be moved to PeopleSoft in the near future, edits should be incorporated into the current system to prevent bad data from being entered. These edit checks should be on the grade awarded and should also keep an accurate check of the number of the attempt. We lost a number of observations because we couldn't tell which attempt was being made and we wanted only those students who attempted the WPR for the first time in June 1996 or later.
3. We should develop and document a different set of codes for EPA recommendations. The current codes, which are various punctuation marks, brackets, etc. lend themselves to data entry mistakes.
4. We need to develop a record of which students participate in the orientation process.

### Section 3: The Impact of Core Courses on Success on The Writing Proficiency Requirement

Given the poor level of compliance with the system, the question of whether that non-compliance is important remained. This analysis will examine the impact of "C" courses for all freshmen regardless of whether they had or complied with the EPA recommendation.

Significance tests were run on the differences between the number of "C" courses completed by students by whether they had an EPA recommendation, whether they complied with that recommendation, and whether they had one and complied with it versus those who either did not have an EPA or had one and did not comply with it. The differences were not significant in any case, and are presented in Table 5 below.

**Table 5: Significance Test Results on the Number of "C" Courses by EPA Status**

Comparison Groups	Mean	Difference	T  Value	Probability > T
EPA	3.152	.008	.0683	94.55%
No EPA	3.144			
EPA and complied	3.149	.08	.2856	77.53%
EPA Did not comply	3.069			
EPA and Complied	3.149	.006	.0562	95.52%
No EPA /did not comply	3.143			

Given these small differences, it seems reasonable to examine the impact of the number of "C" courses alone without considering EPA compliance status.

As noted in the previous section (see *Chart 7: Number of "C" Courses Completed by Freshman Entrants Prior to the First WPR Attempt* on page 16), there was a reasonable distribution among the possible values for the number of "C" courses taken. Less than 30% of the students completed at least five of the "C" courses prior to attempting the WPR, and the 0-4 courses completed categories each contain 10.2% to 19.9% of the students. This distribution makes assessing the value of incremental compliance with the "C" course requirement practicable. Besides comparing pass rates by number of "C" courses, we can also compare between the group that completed the full sequence and those who did not.

## Methods

The analysis group for this section of the report was limited to first time freshmen who attempted the WPR for the first time between June 1996 and June 2000 inclusive. Because of the attendance patterns of UMB students, this group included students who entered UMass Boston as freshmen as early as fall 1984 and as late as fall 1999.

No attempt was made to account for the quality of the students' "C" course experiences. This is not intended to be an evaluation of the program as a whole. The analysis does not deal with assessment of program activities or of classroom implementation of those activities (Hughes). It simply focuses on the relationship between the students' performance on the WPR and completing some number of "C" courses. Any final grade that carried credit was counted as the successful completion of the course. No attempt was made to control for the discipline in which the course was offered. For the purposes of this study, all "C" courses were created equal.

Comparison of means tests and simple bivariate logit regression models were used. The dependent variable will be the result of pass (1) or fail (0) on the first attempt on the WPR. The independent variable will be the number of "C" courses successfully completed by the student prior to that first attempt. The overall first attempt pass rate for all first time freshmen entrants was 76.7%. Students who completed six or seven "C" courses were folded into a category of five or more completed "C" courses. While the rule is that only five "C" courses can be taken for credit, occasionally a waiver is granted for students to take additional "C" courses within their major field of study, since these courses are offered for their subject content as well as for academic skills development.

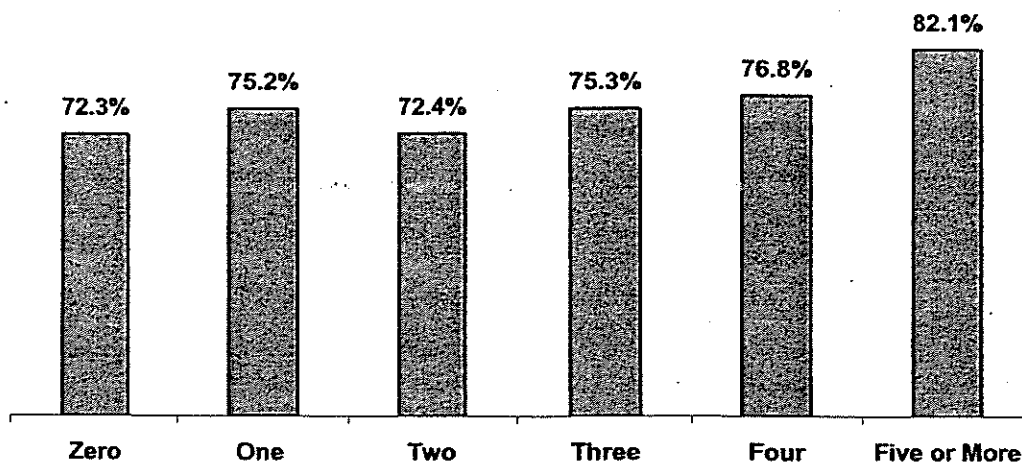
The analysis has been conducted using Stata for Windows® Version 6.0

## The Analysis

### All First Time Freshmen Entrants

Even UMB students who entered as freshmen are not a homogeneous group. About 58% of the students in this study were female, 36% were over age 25 (including several who were over age 60), and the group is racially and ethnically diverse with significant numbers of international students. They came to the university with varying levels of preparation. Many are non-native English speakers. Less than 70% are U.S. citizens. Among the other students are citizens of more than seventy countries. Nevertheless, the first step was to examine the relationship between the “C” courses and success for the group as a whole. The observed values for all freshmen entrants are presented in the following chart.

**Chart 12: Observed Pass Rate on the First WPR Attempt for All Freshmen  
By Number of “C” Courses Completed**



There is no particularly strong pattern that is observed, except that the largest jump in pass rates is between those who completed four courses and those who fully complied with the program by completing at least the five recommended courses. A new dummy variable called “full\_c” was created that had a value of 0 if the student completed four or fewer courses and 1 if the student completed five or more. A comparison of means test was run on the pass rate variable by the full\_c variable. Those who did not complete the full sequence (N=714) passed at a rate of 74.6%, while those who did (N=279), had a pass rate of 82.1%. The difference of just over 7%

returned a T-statistic with an absolute value of 2.4957, which was significant at above the 95% level (98.73%).

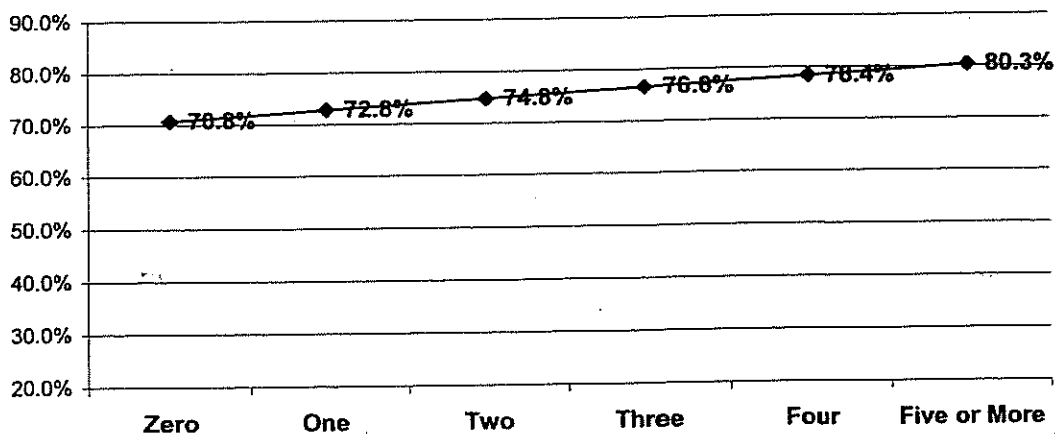
The more interesting question is whether the "C" courses have an incremental effect rather than being successful for only those who complete the program. Here a bivariate logit model regression was run. The results are presented in Table 6 below.

**Table 6: Logit Estimates of Pass 1<sup>st</sup> by Number of "C" Courses for All Freshman Entrants**

Pass 1st	Coefficient	Standard Error	Z	P> Z	95% Confidence Interval
"C" Courses	.1007818	.0427616	2.357	0.018	.0169706 - .184593
Constant	.8846124	.1481727	5.97	0.000	.5941993 - 1.175025

Stata allows one to predict the values of the dependent variable by variation in the independent variables. In Chart 13 which reports those predicted values, we can see that, on average, each "C" course successfully completed prior to the first attempt at the WPR increases the probability of passing by about 2%.

**Chart 13: Predicted Probability of Passing the WPR  
On the First Attempt for All Freshmen  
By Number of "C" Courses Completed**



While small, this 2% increment in the pass rate for all freshmen has some importance. If all of the students had completed the full program, we would predict that about 35 more of them would have passed the test on the first attempt. This would reduce the expenses involved with a

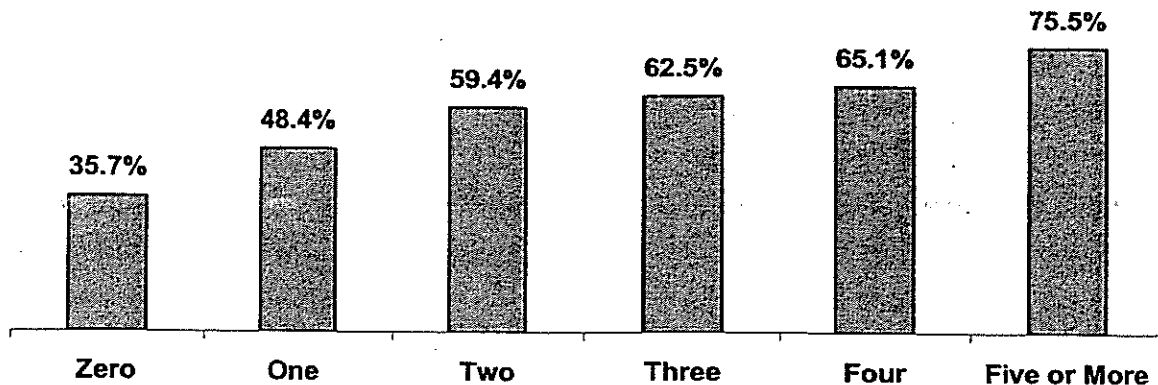
second (or subsequent) WPR administration, of operating the two specialized support courses, and of the tutoring and other administrative supports that are offered to support those who have failed the WPR.

### DSP Entrants

Given the diversity of our student body, it seems likely that completing “C” courses has more of an effect on some groups than on others. The first group I wanted to examine were the students who entered through the DSP program. The Directions for Student Potential (DSP) program is a free six-week, pre-admission summer program that provides academic advising, career planning, and personal counseling. DSP offers intensive workshops in reading, writing, mathematics, and study skills. Those students who successfully complete the program are admitted to the College of Arts and Sciences in the fall. It is designed for those students who show academic promise, but do not meet the traditional admissions profile.

The mean number of “C” course completed was not significantly different for DSP vs. non-DSP students. The observed pass rate by number of “C” courses is presented in Chart 14, which follows. In this case, the strength of the pattern is immediately noticeable. The pass rate increases for each “C” course completed.

**Chart 14: Observed Pass Rate on the First WPR Attempt for DSP Students By Number of “C” Courses Completed**



A comparison of means test was run on the pass rate variable by the full\_c variable. Those who did not complete the full sequence (N=144) passed at a rate of 56.9%, while those who did

(N=53), had a pass rate of 75.5%. The difference of about 18.6% has an associated T-statistic with an absolute value of 2.3974, which was significant at above the 95% level (98.25%).

The logit model regression was then run. The results are presented in Table 7 which follows. Only the number of "C" courses was significant.

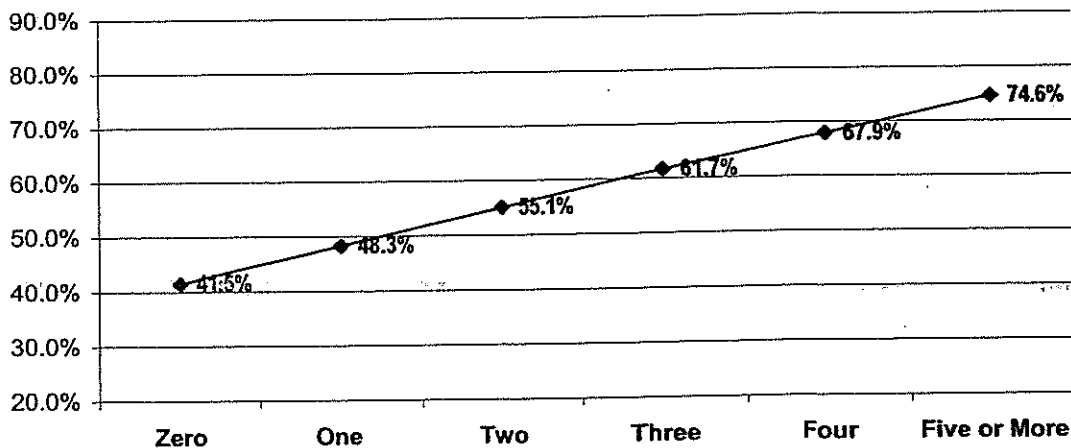
**Table 7: Logit Estimates of Pass 1<sup>st</sup> by Number of "C" Courses for DSP Students**

Pass 1st	Coefficient	Standard Error	Z	P> Z	95% Confidence Interval
"C" Courses	.2730294	.0880809	3.100	0.002	.1003941 - .4456648
Constant	-.341596	.3000381	-1.139	0.255	-.9296598 - .2464678

Once again, the predicted pass rates were obtained, and are reported in Chart 15.

Using the predicted values of both of the previous regressions, the DSP students who take no "C" courses can expect their pass rates to trail those of the overall group who took no "C" courses by about 29.3%. However, those DSP students who complete the full sequence would expect their pass rates to lag those of all students who complete the full sequence by only 5.7% and to lag the overall group average by just over 2%.

**Chart 15: Predicted Probability of Passing the WPR on the First Attempt for DSP Students By Number of "C" Courses Completed**



These differences suggest that completing the full sequence of "C" courses was particularly important for students who entered through the DSP program.

## Non-Native English Speakers

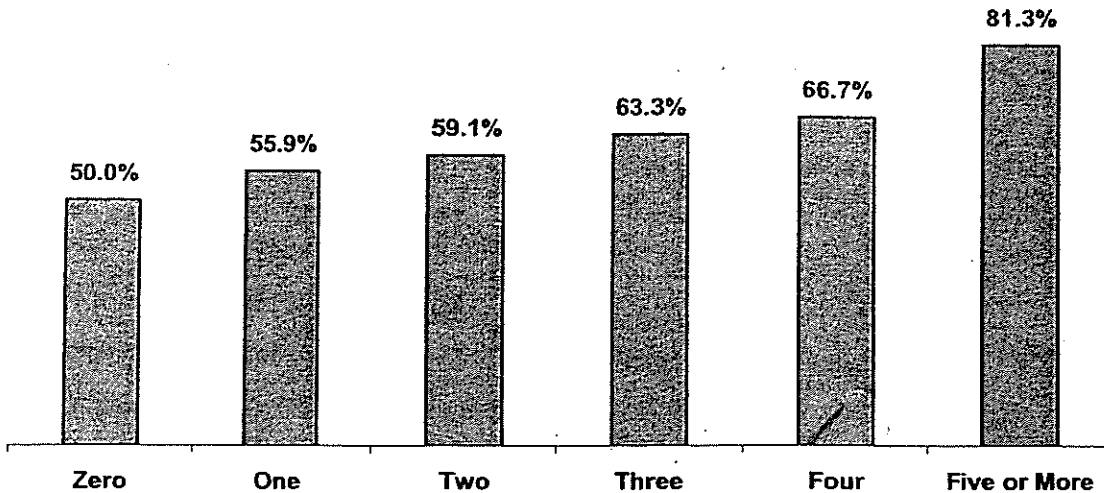
DSP student performance may be related to native language status. Over 48% of the DSP students were identified as non-native English speakers. In this analysis, we used two separate indicators for native language status. One is "ESL". While some people object to the term "ESL", here it has a specific meaning. ESL students are students whose English language skills needed enough additional work that their EPA recommendations were for a sequence of English as a Second Language courses, or who did not have such a recommendation but took ESL courses anyway. Overall, about 10% (N=100) of all freshmen in the study were ESL.

The other language group was for non-native English speaking status. I will follow the practice of Hamp-Lyons (1996) and use NNS for non-native speakers and NS for those who are native speakers of English. This group is very difficult for us to identify because we have no flag for it in our computer systems. Non-native English speakers were identified by an ESL recommendation or course, the presence of a score for an ESL assessment, the presence of a TOEFL score, or a recommendation for or presence of one of the English composition courses designed specifically for non-native English speakers. While all ESL students were non-native English speakers, many non-ESL students were NNS. Overall, about 19.8% (N=197) of all freshmen in the study were identified as NNS. We understand this to be a serious undercount. Results from the 2000 administration of the National Survey of Student Engagement, from surveys administered in fall 2000 and spring 2001 in UMB First Year Seminar (FYS) courses, and from an ongoing retention study indicate that the true percentage of NNS in our student population is probably closer to 40%. Separate regressions were run for the NNS students and for the ESL subset of NNS.

A comparison of means test was run on the number of "C" courses completed by NNS vs. NS students. On average, NS students completed 3.3 courses while NNS students completed only 2.7 courses. This difference of about .6 of a course had an associated T-statistic with an absolute value of 4.5955, which falls significantly above the 99% confidence level. When the ESL students are removed from the NNS group, the other NNS students completed about 2.9 "C" courses. This difference of about .3 of a course has an associated T-statistic with an absolute value of 2.2357, which is statistically significant at above the 95% confidence level. These

differences become important if there is a positive relationship between completing the courses and success for NNS students. The observed pass rates for NNS students are presented in Chart 16 which follows.

**Chart 16: Observed Pass Rate on the First WPR Attempt for Non-native English Speaking Freshmen Entrants By Number of "C" Courses Completed**



In this case, the strength of the pattern is also immediately noticeable. A comparison of means was run on the pass rate variable by the full\_c variable. Those NNS students who did not complete the full sequence (N=203) passed at a rate of 59.6%, while those who did (N=48) had a pass rate of 81.3%. The difference of over 21.5% has an associated T-statistic with an absolute value of 2.8389, which was significant at above the 99% level (99.51%).

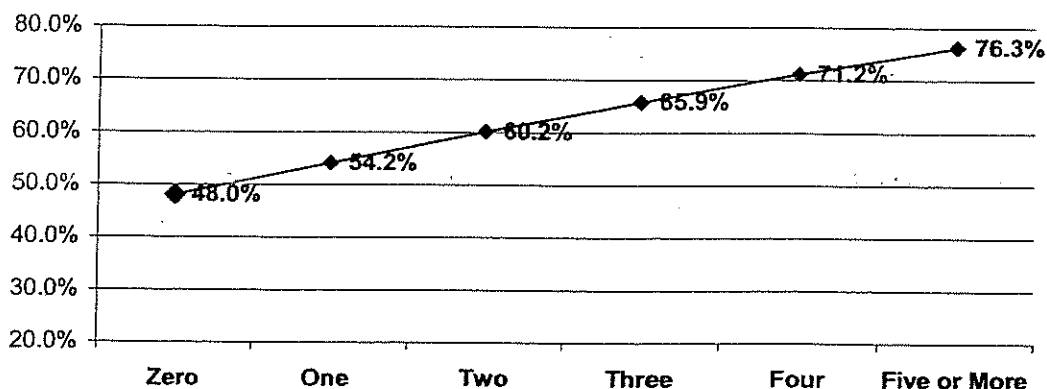
The logit model regression was then run. The results are presented in Table 8 below. Only the number of "C" courses was significant

**Table 8: Logit Estimates of Pass 1<sup>st</sup> by Number of "C" Courses for NNS Students**

Pass 1st	Coefficient	Standard Error	Z	P> Z	95% Confidence Interval
"C" Courses	.2453326	.0803607	3.053	0.002	.0878284 - .4028367
Constant	-.0782742	.2433763	-0.322	0.748	-.5552829 - .3987346

Once again, the predicted pass rates were obtained, and are reported in Chart 17 on the following page.

**Chart 17: Predicted Probability of Passing the WPR on the First Attempt For Non-native English Speaking Freshman Entrants By Number of "C" Courses Completed**



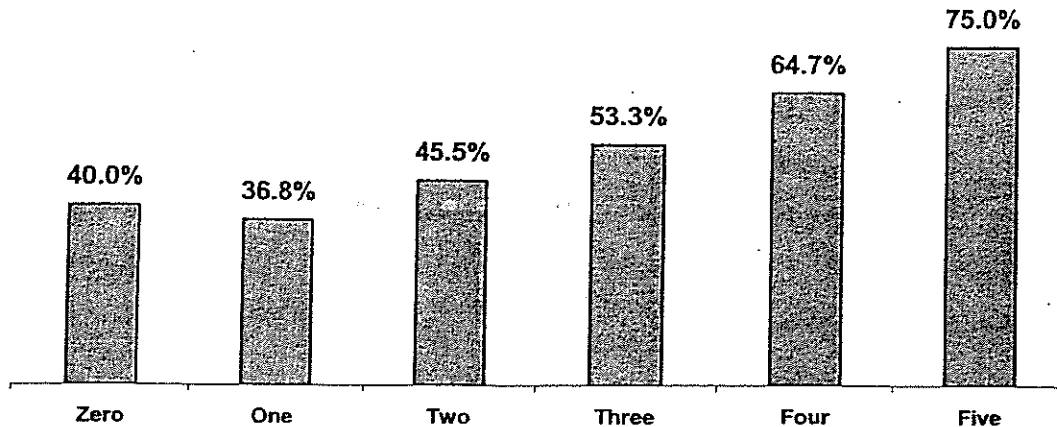
Using the predicted values of the regression, the NNS students who take no "C" courses can expect their pass rates to trail those of the overall group who took no "C" courses by about 22.8%. Those NNS students who complete the full sequence would expect their pass rates to lag those of all students who complete the full sequence by only 4%, and to lag the overall group average of 76.7% by 0.4%. While these differences are important, they suggest that completing the "C" courses can significantly narrow the gap between NNS and other students.

### ESL Students

A comparison of means test was run on the number of "C" courses completed by ESL vs. non-ESL students. On average, non-ESL students completed 3.2 courses while ESL students completed only 2.4 courses. This difference of about .8 of a course had an associated T-statistic with an absolute value of 4.8008, which falls significantly above the 99% confidence level.

The observed pass rates for ESL students are presented in Chart 18 on the following page. In this case, the strength of the pattern is also immediately noticeable. A comparison of means was run on the pass rate variable by the full\_c variable. Those ESL students who did not complete the full sequence (N=88) passed at a rate of 47.7%, while those who did (N=12) had a pass rate of 75%. The difference of over 27% has an associated T-statistic with an absolute value of 1.7833, which was not statistically significant ( $P > |T| = 92.24\%$ ).

**Chart 18: Observed Pass Rate on the First WPR Attempt For Freshman Entrants with an ESL Recommendation or Course By Number of "C" Courses Completed**



Because of the very small numbers, statistical significance is hard to attain, but the numbers still bear reporting. It is troubling that only 12% of the ESL students completed the full sequence of "C" courses. This is significantly below the overall mean of 28.1%. Although the NNS students also have a full compliance mean significantly below the group mean, when the ESL students are eliminated from that group, the difference is no longer statistically significant.

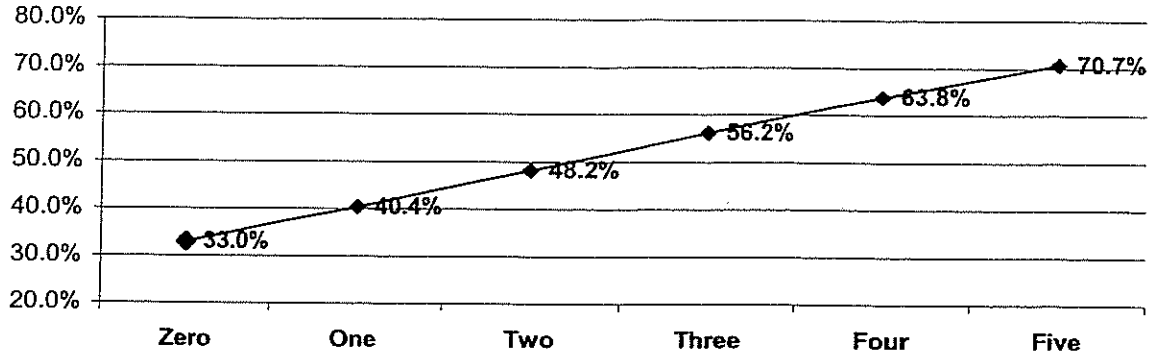
The logit model regression was then run. The results are presented in Table 9 below. Only the number of "C" courses was significant, but the constant is very close and the number of observations is small.

**Table 9: Logit Estimates of Pass 1<sup>st</sup> by Number of "C" Courses for ESL Students**

Pass 1st	Coefficient	Standard Error	Z	P> Z	95% Confidence Interval
"C" Courses	.3181964	.1324398	2.403	0.016	.0586192 - .5777737
Constant	-.7069913	.3713679	-1.904	0.057	-1.434859 - .0208765

Once again, the predicted pass rates were obtained, and are reported in Chart 19 on the following page.

**Chart 19: Predicted Probability of Passing the WPR on the First Attempt  
For Freshman Entrants with an ESL Recommendation or Course  
By Number of "C" Courses Completed**

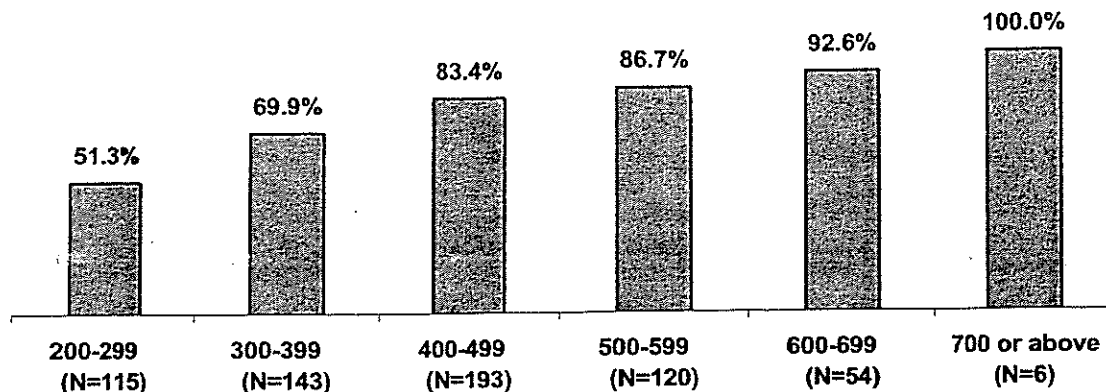


Each course completed raises the probability of passing by about 7%. Using the predicted values of the previous regressions, the ESL students who take no "C" courses can expect their pass rates to trail those of the overall group who took no "C" courses by about 37.8% (see Chart 13, page 28). However, those ESL students who complete the full sequence would expect their pass rates to lag those of all students who complete the full sequence by only 9.6% and to lag the overall group average of 76.7% by just 6%. While these differences are important, they suggest that completing the "C" courses significantly improves the first attempt WPR performance of the ESL students, and narrows the performance gap between ESL and other students considerably.

### **Academic Preparation and Verbal SAT Scores**

The next difference we wanted to test was for academic preparation. We used the Verbal SAT (VSAT) as a proxy. Although many of our students are exempt from submitting SAT scores, about 63.5% (N=631) of all freshmen submitted scores, including 77.2% of the DSP students, 60% of the ESL students, and 54.2% of the NNS students. Of the 631 students who submitted VSAT scores, 451 scored below 500. Our first step was to look at the pass rates by VSAT score. To do this we set up 100 point groupings, the pass rates for which are reported in Chart 20, on the following page.

Chart 20: Percent of Students Passing on the First Attempt  
By Verbal SAT Score

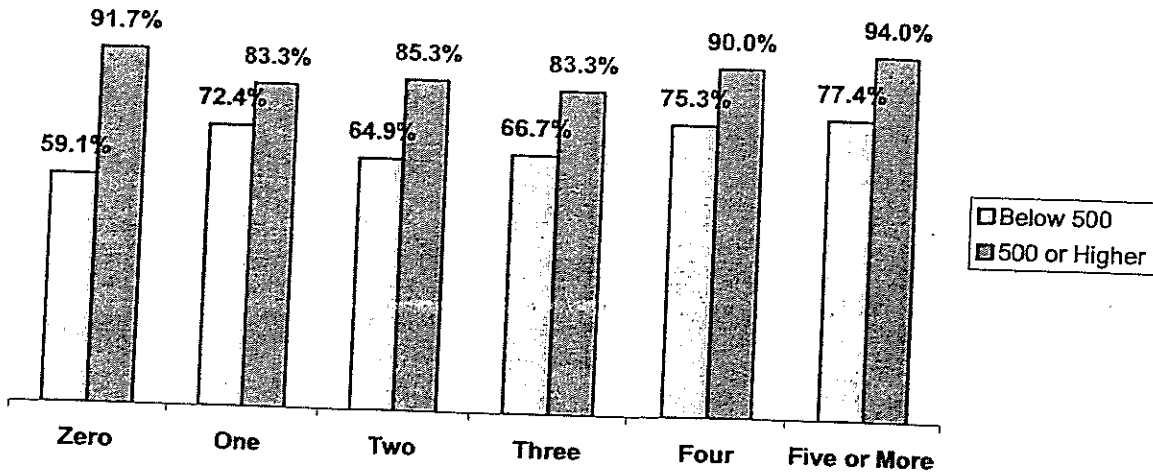


It seems obvious that whatever the shortcomings of the VSAT, it has fairly strong predictive power for success on the WPR.

We set an arbitrary cutoff of 500 to test for impacts on these students. Among other uses, a score of above 500 on the VSAT exempts incoming freshmen from certain entrance assessment testing mandated by the Massachusetts Board of Higher Education. We then conducted significance tests on the mean number of “C” courses completed by VSAT level. The mean number of completed “C” courses was the same for the two groups. For both of the groups, the students who failed the WPR completed about .4 of a course less than those who passed on the first attempt. This was statistically significant for the below 500 group ( $|T|=2.3736$ ) but with no statistical significance for the above 500 group.

The observed pass rates for students who submitted Verbal SATs by the number of “C” courses completed are presented in Chart 21 on the following page. In it we see that regardless of the number of “C” courses completed, the mean pass rate for students with above 500 scores is above that of the students with below 500 scores, and above the mean for the overall group.

**Chart 21: Observed Pass Rate on the First WPR Attempt  
By VSAT Level and Number of "C" Courses Completed**



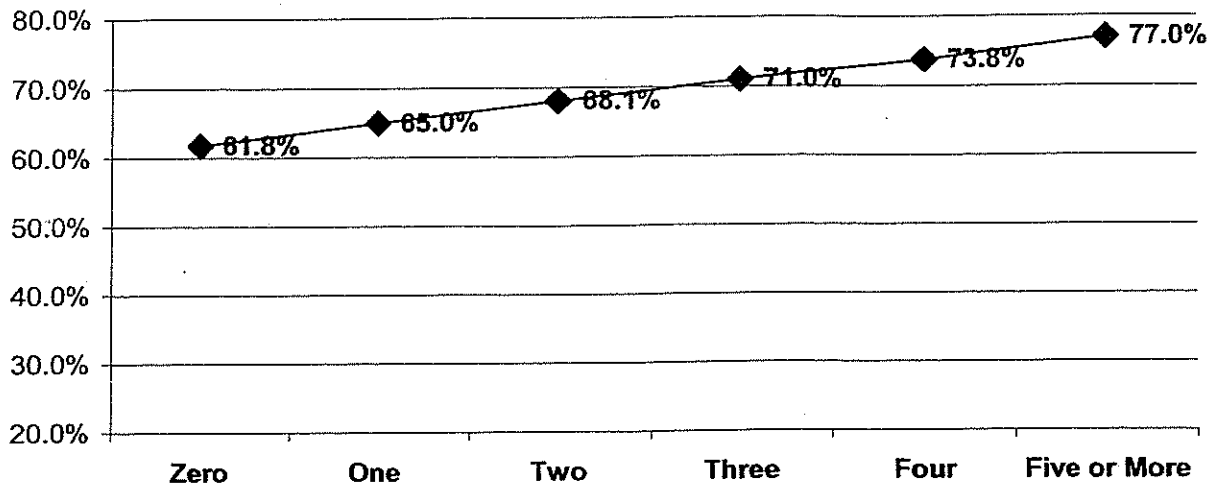
Logit model regressions were run for the group as a whole and for those above and below 500. The results were significant for the group as a whole, but virtually all of the power is for the students below 500. For the group with 500 or above scores, there is no statistically significant relationship between the number of "C" course and passing the WPR on the first attempt. However, for the group who scored below 500, the relationship was significant. The results are presented in Table 10 which follows. Both the number of "C" courses and the constant were significant.

**Table 10: Logit Estimates of Pass 1<sup>st</sup> by Number of "C" Courses for Students with Sub-500 VSAT Scores**

Pass 1st	Coefficient	Standard Error	Z	P> Z	95% Confidence Interval
"C" Courses	.1384777	.0588701	2.352	0.019	.0230945 - .253861
Constant	.4791467	.2001355	2.394	0.017	.0868885 - .871405

Once again, the predicted pass rates were obtained, and are reported in Chart 22 on the following page.

Chart 22: Predicted Probability of Passing the WPR on the First Attempt  
For Freshman Entrants with Verbal SAT Scores Below 500  
By Number of "C" Courses Completed



For the students with VSAT scores below 500, each course completed raises the probability of passing by about 2%. Completion of the full sequence of courses raises the probability of passing on the first attempt to above that of the overall group.

### Section 3: Conclusions and Recommendations

The "C" courses were designed to teach a number of skills and to prepare the student for the Writing Proficiency Requirement. The variation in the number of courses completed allowed us to assess the effectiveness of the "C" courses in preparing students for the WPR.

It seems clear that there is a positive relationship between the number of "C" courses completed and success on the first WPR attempt. However, it is also clear that this relationship is not equally strong for all students. The effect has various degrees of strength for:

1. ESL students
2. Non-native English speakers
3. DSP Program students
4. Those who enter with lower Verbal SAT scores.

With the exception of the sub-500 VSAT group, completing the full sequence of "C" courses does not fully eliminate the difference in pass rates between these students and the overall group. However, we would expect that the gap would be closed considerably if the sequence had been completed. When a logit model regression is run for only those students who do not fit into any of these categories (N=466), there is no statistically significant relationship between the number of "C" courses completed and success on the WPR.

ESL students completed "C" courses at significantly lower rates than their comparison group. It should be noted that the ESL students complete a number of courses that do not carry degree credit. It may be that they are less likely than other students to complete other "off track" courses even though the courses may be particularly beneficial for them. This is especially noticeable among students who are both DSP and ESL, where non-ESL DSP students completed an average of 3.5 "C" courses while the ESL DSP students only completed an average of 2.3 courses. This "C" course completion rate was the lowest for identifiable group in the first time freshman data asset. The non-ESL non-native English speakers also completed "C" courses at a significantly reduced rate when compared to the overall group.

Given the widespread noncompliance with the old system, it is reasonable to believe that there will be similar behavior in the new system. If so, it is important that as resources are allocated to tracking students and encouraging them to fully utilize the system, these resources and efforts should be focused on the types of students who most benefited under the old system.

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