

Report of the University Task Force on Improving Student Success and Mathematics Readiness

November 18, 2011

A. Composition of the Task Force.

President Watts announced the charge and composition of the University Task Force on Improving Student Success and Mathematics Readiness in a letter dated September 20, 2011. Henceforth, this committee will be referred to simply as the Task Force. The members of the Task Force are: Ramiro Bravo, Doug Hale, Bill Harlow, Chris Hiatt, Jason Lagapa, Jim Olson (Chair), Juli Ratheal, and Diana Younger. The Office of Institutional Research, Planning, and Effectiveness, Denise Watts¹, Director, served as the primary resource of the Task Force. A report from the Task Force advising President Watts of its recommendations was requested by December 1, 2011

B. Statement of the Problem and Charge of the Task Force.

“These are challenging times.enrollment is up, funding is unreliable, and colleges are increasingly held responsible for learning outcomes of an ever more diverse student population” (Schuetz, 2005, p. 60). The State of Texas is demanding that higher education be more accountable, be more efficient in the use of its resources, graduate more bachelor’s level students in a shorter period of time, and offer a quality education. Colleges and universities in Texas have come to be evaluated more and more on outcome measures such freshman-to-sophomore retention, bachelorette degree production, and 4- and 6-year graduation rates. Raymund Paredes, Texas Commissioner of Higher Education, stated that the Texas Higher Education Coordinating Board is developing formula such that that State assisted funding for public colleges and universities in Texas will be, in part, a function of such outcome measures (2011). Such outcome measures of retention and degree productivity have both been referred to collectively as measures of “persistence” or student “success”. In Texas, student persistence is clearly one of the most important criteria used to evaluate the effectiveness of an institution. With this background the Task Force is charged with two major purposes.

¹The Task Forces wishes to thank the staff of Institutional Research, Planning, and Effectiveness, particularly Amber Lummus, for her patient collection of data and timely analyses for this report.

One purpose of the Task Force is to make recommendations aimed at improving scores of measures of student retention/persistence as follows:

- 1) Review and make recommendations for enhanced freshman retention (fall to spring and fall to fall). Can AVID make a greater contribution?
- 2) Review and make recommendations for developmental student work with focus on math. How can UTPB enhance math success? What are the obstacles to students being successful in math? (See I-B, below, for subdivisions of this variable.)
- 3) Review and make recommendations on transfer from UTPB to both 2- and 4-year institutions. What can we do to retain more of our students?
- 4) Review and make recommendation on improvement in the four and six year graduation rates that are based on freshmen and transfer students.
- 5) Review and make recommendation on improving the number of degrees awarded to part-time students.

The second purpose of the Task Force is to review and make recommendations for developmental student work with focus on math. For example, how can UTPB enhance math success? What are the obstacles to students being successful in math? Further considerations are as follows:

- 1) Review the literature and current practices regarding placement testing, cut scores, remediation, and entering student success in mathematics and its relationship to retention and graduation.
- 2) Review the current practices and procedures for developmental math courses at UTPB.
- 3) Make recommendations on ways to improve entering students' success in mathematics leading to graduation including possible modular or accelerated instruction.
- 4) Take into consideration the legislative charge to the Coordinating Board to establish a single cut score for placement tests and the "best practices" the Board is likely to adopt.

C. Measures of Student Persistence and Success

Students who enroll full-time (12 semester credit hours or more) at UT—Permian Basin for the first time in the fall term of a given year (called the cohort year) constitute the first-time freshmen cohort. First-time freshmen include the following: (1) one who has earned no previous college credit hours; (2) one who has earned college credits while in high school through dual credit courses; (3) one who graduates from high school in the cohort year, then enrolls in a college for the first time that summer and also enrolls in the fall term of the cohort year. To be included in the "freshman cohort" however, a first-time freshman must also be enrolled in 12 or more semester credit hours at UT—Permian Basin and be a degree-seeking student.

Retention rates are thus measures of academic progression of a first-time/full-time freshman cohort from one period of time to the next. A retention rate is the percentage of

freshmen in a given fall semester cohort who are enrolled at UT—Permian Basin the following spring, or one year, two years, three years, or four years later. The number of students in the original freshman cohort serves as the denominator of the rate and the number of these cohort students enrolled during a given subsequent semester is the numerator of the rate.

There are three common measures of graduation rates. One is the success of UT—Permian Basin students in a given cohort attaining the bachelor’s degree from UTPB in a given window of time. The State standard references are the percentage of first-time full-time freshmen who earn their Baccalaureate degrees within four years and six years. The second may be referred to as the “Transfer-Out Graduation Rate” and is the success of UT—Permian Basin students who transfer from UTPB to another State institution who complete their Baccalaureate degrees in two or four years. The third is referred to as the “Transfer-In Graduation Rate” and is the success of students transferring into UTPB from another institution who receive their Bachelor’s from UTPB in two or four years.

This report will first present the retention and graduation data for each cohort overall at UT—Permian Basin. Second, this report will propose and describe the BASIC Retention Plan and offer recommendations aimed at facilitating student success.

D. UTPB Data of Student Persistence & Success

The data in Table 1 show the retention rates of first-time/full-time freshmen at UT—Permian Basin. One can see from these data that 14% will fail to re-enter UTPB their second, spring semester, and 57% will not re-enter UTPB the fall of their third year (after two years). We presently do not have State-wide data to compare these retention rates to, but clearly these data are alarming for several reasons, one of which is that they reveal little or no improvement with each successive annual cohort. Figure 1 graphically depicts this lack of productive change more clearly. Further analysis from Institutional Research, Planning, and Effectiveness (IRP&E) indicates that the GPA during the first year is a significant predictor whether a student will re-enter UTPB the following fall; the higher the GPA, the more likely one is to re-enter. Furthermore, students enrolled in developmental courses the first year were more likely to have lower GPAs.

Table 1
 First-time/Full-time Freshman Cohort Retention Rates at UT—Permian Basin by Cohort Year

| Entering fall cohort | Fall cohort size | Students who re-entered the subsequent spring semester | | Students who re-entered the fall of their second year | | Students who re-entered the fall of their third year | | Students who re-entered the fall of their fourth year | | Students who re-entered the fall of their fifth year* | |
|----------------------|------------------|--|-------------|---|-------------|--|-------------|---|-------------|---|--------------|
| | | N | % | N | % | N | % | N | % | N | % |
| Fall 2006 | 308 | 265 | 86.0 | 192 | 62.3 | 147 | 47.7 | 124 | 40.2 | 74 | 24.0* |
| Fall 2007 | 367 | 310 | 84.5 | 199 | 54.2 | 139 | 37.9 | 108 | 29.4 | | |
| Fall 2008 | 328 | 284 | 86.6 | 202 | 61.6 | 148 | 45.1 | | | | |
| Fall 2009 | 325 | 283 | 87.1 | 199 | 61.2 | | | | | | |
| Fall 2010 | 338 | 292 | 86.4 | | | | | | | | |
| % Retained | | | 86.1 | | 59.6 | | 43.3 | | 48.6 | | 24.0* |

* 14.2% graduated at the end of their fourth year.

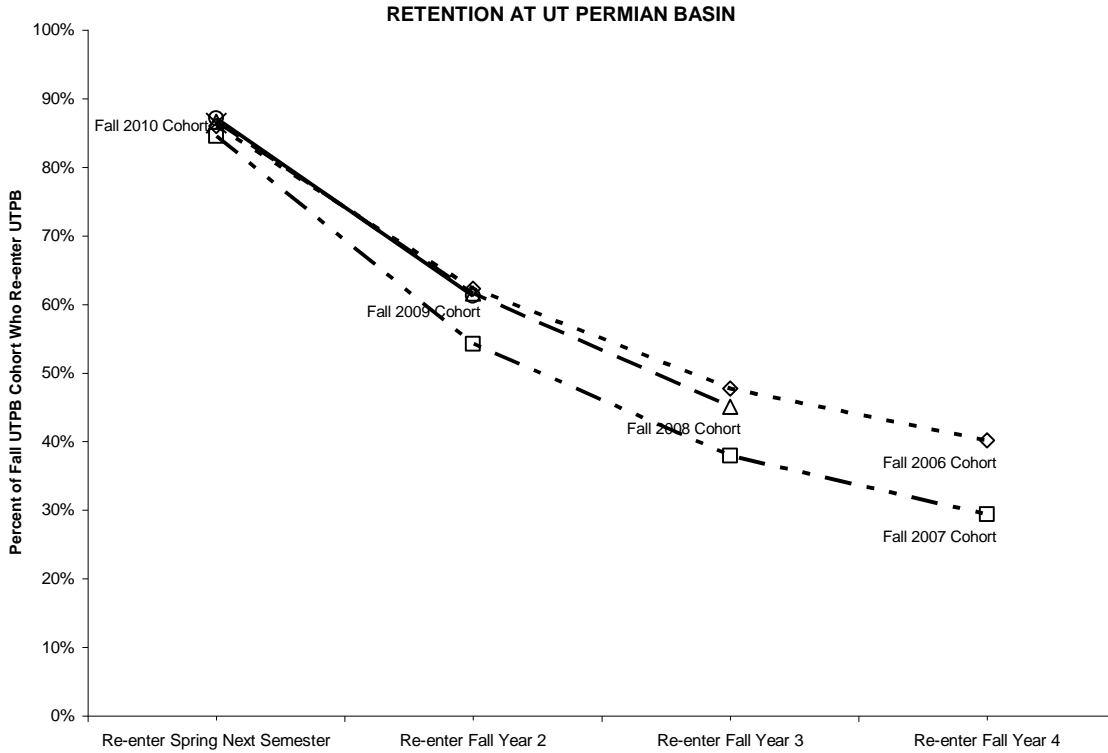


Figure 1. Percent of first-time/full-time freshman cohort retention rates at UT—Permian Basin by cohort year.

Table 2 shows the 4-, 5-, and 6-year graduation rates at UT—Permian Basin as compared to the Statewide rates. These data reveal that UTPB falls well behind the Statewide rates at all time-windows, particularly the 5- and 6-year rates. In addition, these data, like those in Table 1, show essentially no improvement at UTPB with each successive annual cohort. Figure 2 depicts UTPB’s 4-year and 6-year graduation rates compared to Statewide and the lack of improvement.

Table 2. First-time/Full-time Freshman Cohort Graduation Rates at UT—Permian Basin by Cohort Year

| Entering fall cohort | 4-Year graduation rate staying at initial campus | | 5-Year graduation rate staying at initial campus | | 6-Year graduation rate staying at initial campus | |
|-------------------------------|--|-------------|--|--------------|--|--------------|
| | Statewide | UTPB | Statewide | UTPB | Statewide | UTPB |
| Fall 2001 | | | | | 48.8 | 33.9 |
| Fall 2002 | | | 42.3 | 24.3 | 49.2 | 31.0 |
| Fall 2003 | 22.8 | 17.6 | 41.2 | 26.4 | 47.3 | 31.2 |
| Fall 2004 | 24.8 | 15.0 | 43.4 | 28.5 | | |
| Fall 2005 | 26.5 | 17.5 | | | | |
| | | | | | | |
| Mean % retained | 24.7 | 16.7 | 42.3 | 26.4 | 48.4 | 32.0 |
| UTPB minus Statewide % | | -8.0 | | -15.9 | | -16.4 |

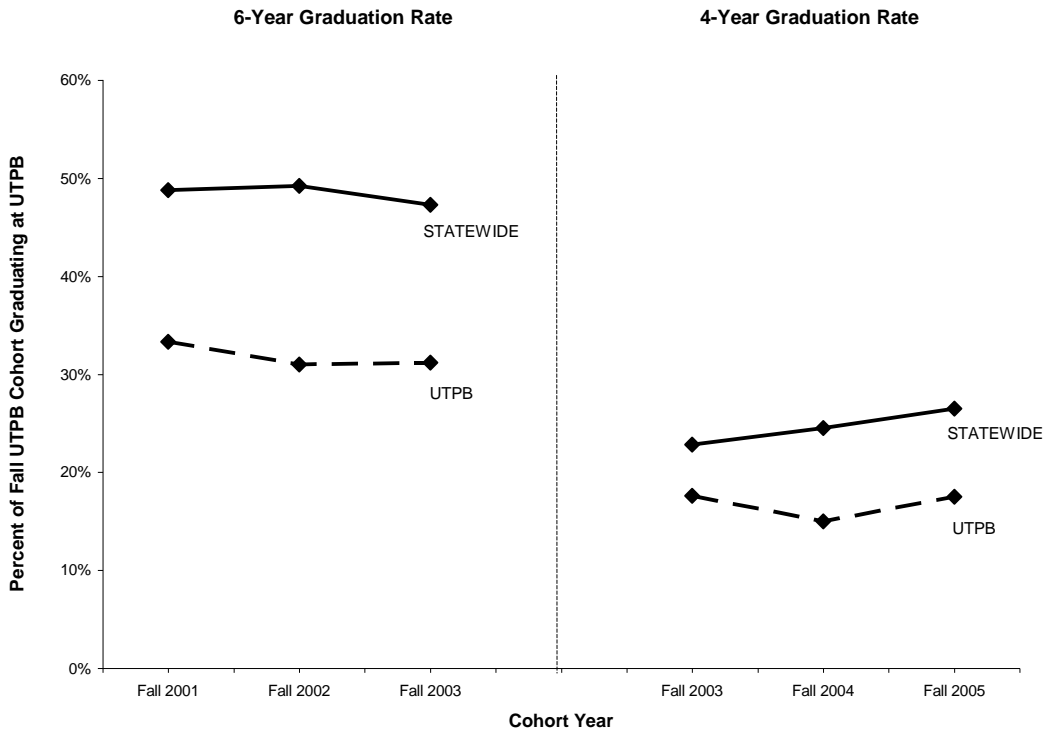


Figure 2. Percent of first-time/full-time UTPB freshman cohort 4-year and 6-year graduation rates at UTPB compared to Statewide data by cohort year.

Table 3 shows the 4-year, 5-year, and 6-year graduation rates for students who initially entered UT—Permian Basin as first-time/full-time freshmen who subsequently left UTPB and graduated elsewhere. Compared to the State-wide rates, clearly UTPB compares favorably at all time windows. Figure 3 depicts the data shown in Table 3 for the 4-year and 6-year rates.

Table 3. Percent of First-time/Full-time UTPB Freshman Cohort Who Have Graduated from Another Texas Institution of Higher Education (by Cohort Year)

| Entering first-time/full-time fall UTPB cohort | 4-Year graduation rate transferring out and then graduating elsewhere | | 5-Year graduation rate transferring out and then graduating elsewhere | | 6-Year graduation rate transferring out and then graduating elsewhere | |
|---|---|----------------------|---|----------------------|---|----------------------|
| | Statewide | Former UTPB Students | Statewide | Former UTPB Students | Statewide | Former UTPB Students |
| Fall 2001 | | | | | 7.4 | 6.1 |
| Fall 2002 | | | 5.3 | 9.6 | 7.6 | 11.6 |
| Fall 2003 | 2.5 | 3.4 | 6.3 | 7.1 | 8.6 | 10.5 |
| Fall 2004 | 2.2 | 3.8 | 5.7 | 9.2 | | |
| Fall 2005 | 2.1 | 2.0 | | | | |
| Mean % who transfer and graduate elsewhere | 2.3 | 3.1 | 5.8 | 8.6 | 7.9 | 9.4 |
| UTPB minus Statewide % | | +0.8 | | +2.8 | | +1.5 |

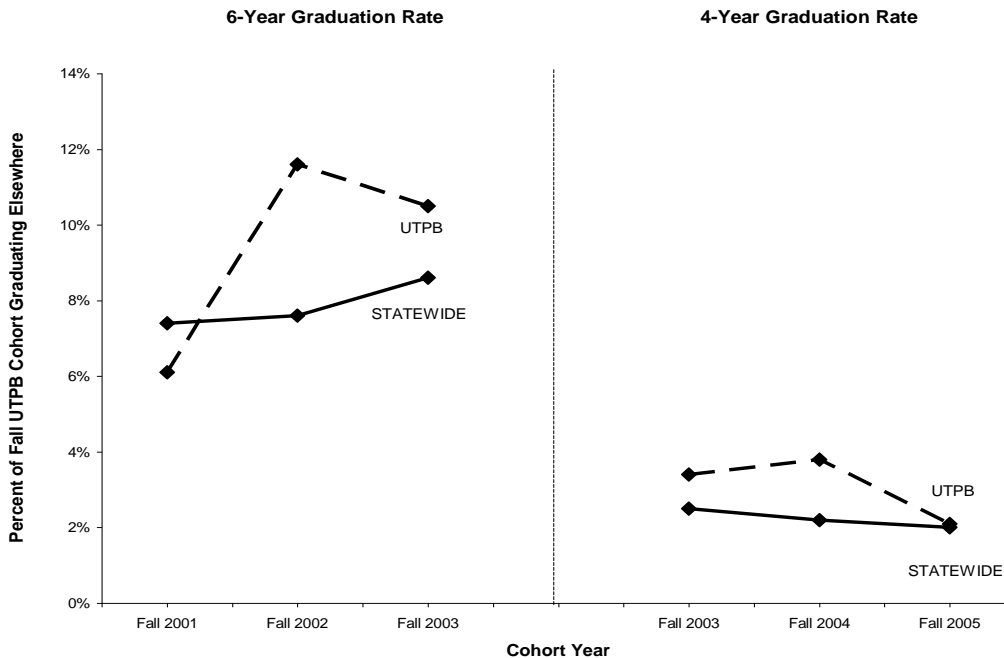


Figure 3. Percent of first-time/full-time UTPB freshman cohort who transfer elsewhere and graduate in four or six years from other institutions in the State, as compared to Statewide.

Further analysis from IRP&E indicates students with higher GPAs their first year were more likely to stay at UTPB or transfer to a 4-year institution (as opposed to a 2-year institution). Students with lower first-year GPAs are more likely to drop out of college or transfer to a 2-year institution.

Table 4 shows the 2-year and 4-year graduation rates for students who initially entered a 2-year or 4-year institution other than UT—Permian Basin as first-time/full-time freshmen who subsequently transferred to UTPB and graduated from UTPB. There are no State-wide rates to compare these data to, but there are some data points from UT—Arlington and UT—Pan American available for comparison. UTPB compares favorably to these campuses.

Table 4
First-time/Full-time Freshman Cohort Transferring-In Graduation Rates by Cohort Year

| Entering fall transfer cohort | 2-Year graduation rate for students transferring to UTPB | 4-Year graduation rate for students transferring to UTPB | 2-Year graduation rate for students transferring to UTAr1 ¹ & UTPA ² | 4-Year graduation rate for students transferring to UTAr1 ¹ & UTPA ² |
|-------------------------------|--|--|--|--|
| Fall 1996 | | 59.0 | | |
| Fall 1997 | | 54.7 | | |
| Fall 1998 | | 67.2 | | |
| Fall 1999 | | 63.3 | | |
| Fall 2000 | | 62.5 | | |
| Fall 2001 | | 64.1 | | |
| Fall 2002 | | 75.0 | | |
| Fall 2003 | | 60.6 | | |
| Fall 2004 | 27.4 | 66.3 | | |
| Fall 2005 | 25.9 | 64.9 | | 51.8 ¹ , 64.1 ² |
| Fall 2006 | 24.5 | 65.7 | | |
| Fall 2007 | 33.3 | | 32.2 ¹ , 38.0 ² | |
| Fall 2008 | 45.2 | | | |
| Mean % graduated | 31.3 | 63.9 | | |

E. The BASIC Retention Program.

Vincent Tinto, one of the first and foremost scholars on college retention in the United States, recently said:

For over 40 years access to higher education has improved, and college enrollments swelled from nearly 9 million in 1980 to over 20 million today. But while enrollments have more than doubled, overall college completion rates have increased only slightly. Only about half of all college students in the U.S. earn a degree or certificate within six years.....The facts are clear. Despite our success in improving access to college, we have been unable to convert these gains into higher completion rates.....It is not for lack of effort. Over the past 20 years, if not more, colleges, universities, states and private foundations have all invested considerable resources in the development and implementation of a range of improvement programs. Though several of these efforts have achieved some degree of success, most have not made a significant impact on college completion rates for two reasons. First, most of the innovations have failed to reach a significant scale.....it means little if we do not expand the program to reach a critical mass of students. Second, most innovations fail to improve the classroom experience—the one place where students connect with faculty and students engage in learning (2011a, pp. 1 & 2).

Tinto (2011b) made it clear that if a campus' retention rates are less than desirable, the retention program is broken. He suggested two ways to improve retention rates. One was to raise the entrance requirements significantly. A drastic increase in admission requirements is not realistic for most institutions where funding is highly dependent on student headcount and semester-credit hours generated; and as for UT—Permian Basin, it has yet to reach its critical enrollment mass for stable State funding. Nevertheless, the importance of raising admission standards at UTPB is considered very important, and UTPB initiated a plan with incremental raise in admission standards beginning fall 2009, with increases every two years². The second option is to put more support into developmental programs and classroom instruction. Thus UTPB has already employed Tinto's first suggestion with the phasing-in of higher admission standards. And Tinto's second suggestion is what the BASIC Retention Plan described below is designed to accomplish.

In attempts to improve retention and graduation rates, administrators and researchers have looked extensively at various and sundry factors affecting retention and graduation rates. These factors can be divided into two general categories: (1) student-based variables; and (2) institution-based variables.

²An applicant who graduated from high school or equivalent program and successfully completed the state mandated curriculum requirement will be admitted unconditionally if the applicant has a score of 600 on the critical reading (verbal) and minimum score of 550 on math sections and a combined critical reading/math only score of 1160 on the SAT or a score of 25 on the ACT. This standard was raised to 1200 on the SAT(CR+M) score or a 26 ACT for Fall 2011 and will increase to 1250 on the SAT(CR+M) or a 27 ACT score for Fall 2013.

1. Student Variables

Student variables that have been examined to explain retention and graduation rates are, but not limited to: (1) age; (2) commitment to earn a degree; (3) distance from permanent home; (4) educational aspirations and career goals; (5) financial resources/financial aid dependent; (6) first-generation to attend college; (7) mental health; (8) motivation to succeed; (9) personal coping skills; (10) physical health; (11) preparation for college; (12) socio-economic advantage/disadvantage; (13) student involvement; (14) study skills; (15) support from significant others; (16) dependent children (or adults); (17) marital status; and (18) work demands.

2. Institution Variables

Some have argued that colleges cannot control retention and graduation rates, and that the primary causes are students' lack of academic preparation, lack of campus engagement, work, and family responsibilities. However, Schuetz (2005) reports that graduation rates vary significantly between colleges for students sharing similar demographics and curricula. Consequently, retention research has come to focus not only on "what's wrong with the student", but, in addition, on "what's wrong with the institution". Bean (1990) wrote that, "a student's leaving school is the joint responsibility of the school and the student" (p. 149). Some institutional variables that have been explored in retention research are: (1) academic advising; (2) academic support services or learning centers; (3) administrative style and attitude of faculty/staff toward students; (4) career exploration services; (5) centralized vs. decentralized academic support services; (6) class size and student-faculty ratio; (7) extracurricular programs; (8) financial aid availability; (9) first year seminars/orientation courses; (10) general expenditures per full-time student; (11) library services; (12) number of full-time students enrolled; (13) on-campus housing; (14) percentage of students between the ages of 17 and 23 years (the "traditional" aged student); (15) personal contact between students and faculty; (16) personal counseling services; (17) public versus public institutions; (19) revenue and expenditure of the institution; (20) size of the institution; (21) student-faculty ratio; (22) student-institution fit; (23) student involvement in campus life; (24) social environment; (25) teaching quality; and (26) tutoring services.

3. The BASIC Retention Plan

One can see that there are a myriad of complex variables that can and do interact to support, or hinder, student retention and persistence to the degree. Isolating the "one" factor that is most important to retention or persistence is not realistic, nor even possible. Each student brings with him or her a unique history, and each campus, likewise, is unique in tradition and student support systems. Both retention rates and graduation rates are affected by student characteristics, choices, and behaviors and by institutional characteristics and programs. Retention and persistence involves a constellation of variables, and more often the case, a unique constellation for each student. Thus, the reasons for students dropping out of college before

Table 5

The Five Components of the BASIC Retention Plan

| B uildings (and virtual campus) | A dministration (organization of retention programs) | S cholastics (academics) | I ndividual (student characteristics) | C ommunity (social opportunities) |
|--|---|--------------------------------------|---|--|
| Signage | Someone responsible for all | Advising | Age | Student Involvement |
| ADA issues | Oversight of teaching quality | Career services | Gender | Sense of belonging |
| Study areas, comfort | Attitude of staff, administration, and faculty | Class size and Student/faculty ratio | Financial Status | Student life issues |
| Classroom tidiness and arrangement | Coordination of programs aimed for student success | Programs for Student Success* | Preparation for College, SAT, GPA, etc. | Student housing and social opportunities |
| A/C and heating | | library | Marital status | Clubs, etc. |
| Student housing | | AVID, etc. | Dependent children | Athletic events |
| Webpages: friendliness | | Teaching Effectiveness | 1 st semester grades & 1 st year grades | Campus events on campus |
| Outdoor SAC tidiness | | Faculty Access & Availability | Physical Health & Mental Health | Student life issues |
| Parking | | Developmental courses | Provisional Admission or Regular status | Work-study for freshmen |
| Grounds | | Orientation | Athletics | Student Involvement |
| | | Early Alert | Work | Sense of belonging |

completing their bachelor’s degrees or persisting to their degrees are complex with no simple answers (Bean, 1990), and research and opinion over the past 20 years have moved from examining isolated student factors to a broader “campus ecology” position that encompasses the entire institution environment (Banning, 2008). The BASIC Retention Plan offered in this report uses the concept of the whole campus ecology and focuses on the various and sundry interdependent interactions between students, faculty, staff, contexts, buildings, and behaviors with emphasis on how UTPB’s campus ecology can be modified to better support retention and graduation goals. Clearly, by the data observed in Tables 1 and Table 2 whatever UTPB has been doing is not working, and the system must be changed.

The BASIC Retention Plan consists of five components. The first letters of each of these components for the acronym BASIC: **B** refers to the buildings and grounds, including student housing, classrooms, and UTPB’s website; **A** refers to the administration of those units of the campus having a bearing on student success, particularly during the first-year experience; **S** refers to scholastics, the academic component, again, particularly during first-year experience; **I** refers to the individual, the unique history that each student brings to the first-year experiences, strengths and weaknesses; and **C** refers to the community, the social environment in which the student interacts with others on campus and the local citizenry. The components of the BASIC Retention Plan are summarized in Table 5 above.

The assumption is that the BASIC Retention Plan comprises the entire range of interactions with a student at UT—Permian Basin to not only support scholarship, research, creative imagination, and human experience, but, in so doing, to make productive gains in student retention and graduation rates. These interactions are depicted in Figure 1. Below we will describe each component in more detail and submit recommendations for improvement.

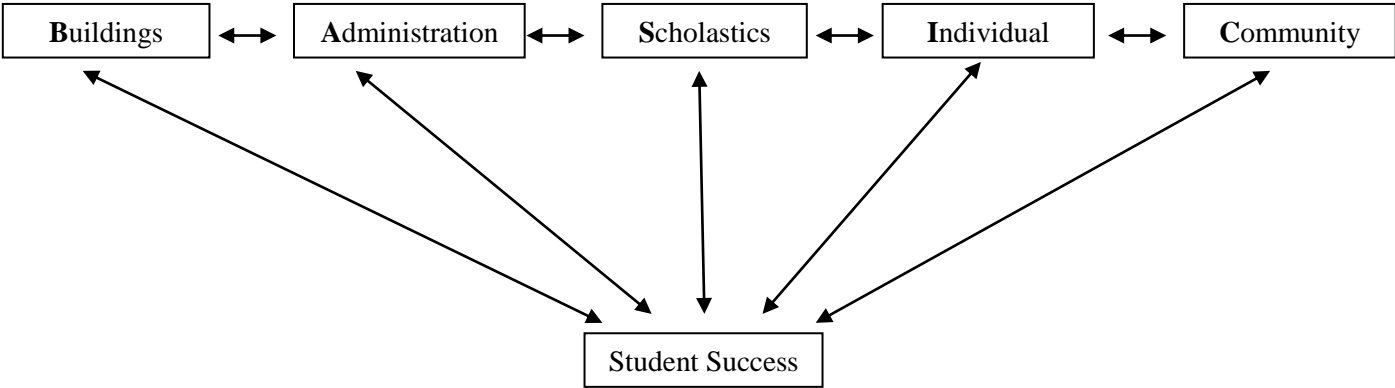


Figure 1. Interactions of the five components of the BASIC Retention Plan with student success.

F. The “B” in the BASIC Retention Plan, Buildings and Grounds.

Institutions of higher education must seriously work toward providing students with a salient environment to increase learning by feeling connected to the institution. This development of belongingness within the student body is vital to retention of students. While there are multitude of complex and interrelated reasons named for the failure to retain students by an institution, contributions toward leaving may be due, in part, to a failure of the institution to create a pleasing environment both inside and outside of the classroom.

The importance of the environment in which a person must interact has been researched both in the workplace and the academic world. It has been found that employees in the work place consider the working environment to be the number one reason they stay or leave a job, (Harter, Schmidt, & Hayes, 2002). The amount of pay received is second to a safe and pleasant environment consideration. Similarly, research in both secondary schools and schools of higher education has revealed that the physical environment is important to lower the frequency of bad behavior and increase the frequency of behaviors leading to success in academics (Kumar, O'Malley, & Johnston, 2008). An environment where students and faculty feel safe and enjoy positive relationships increases the positive outcomes for students as they interact with their professors (Pascarella & Terenzini, 2005).

UT—Permian Basin has a large physical campus. Much of its campus is in its natural state with abundant wildlife. This has often been thought of as a “plus” to making the campus an interesting place to ride bikes, skateboard, and enjoy the pathways that wind around the campus. On-campus housing is state-of-the art and contributes to retention as students who live on campus are more likely to have a sense of community and belongingness and thus persist in their academic journey at UTPB. The newly completed buildings have given a physical diversity to the campus with evidence of attention to ADA needs. All of these physical attributes of the campus may help to increase retention of students. However, there may be details within this positive environment that could increase the sense of belongingness and success for the student and perhaps secondarily to faculty as well. The following suggestions are thought to be important to increasing the positive atmosphere of the university physical plant and its resulting academic and social strengths:

1. The set of classrooms known as the GAB needs to be more ADA compliant in its access to the two buildings. While the GAB building housing such room numbers as GAB 003 does have a ADA accessible ramp, the second GAB building closest to the Mesa Building has no ramp, but rather two stairs. This means that students who have disabilities, particularly motor disabilities requiring the use of canes or wheelchairs, must open three different heavy doors, often opening inward which is more difficult, to get to a class that is in the

building farthest from the ramp. They cannot do it alone and teachers and students help them. It is vital to build a ramp out of one of the two stairs available on the opposite side of the buildings from the one available ramp. This would be of negligible cost and ease the burden of attending class for the ADA student. This would also assure that we are compliant to the ADA student needs. ADA accessible doors (automatic sliding doors or push-handicap-button doors) should be provided.

2. With the completion of the Science and Technology (ST) Building, several departments left the Mesa building space and migrated to this new building. Faculty, staff and students have been left in the dark as to where all these departments are now housed as the only signage in the entire building is for the Men's and Women's bathrooms. Upon inquiry to several sources in the new ST building, it was found that the signage would be forthcoming. This begs the question as to when? We are well in the last weeks of the fall semester. This signage is vital to the ease of students finding classrooms and labs and having a predictable environment.
3. Currently it has been noticed that there are quite a few students who choose to get around campus on skateboards. There has been agreement of many faculty members that this is a positive thing and in keeping with a pleasant, casual environment that students like. Temporary signs tell students that they may not skateboard in the hallways. This is in keeping with safety issues and is fine. However, it would be a positive move to put in skateboard racks in the largest lecture halls, library, the SAC and to accommodate these boards when students are in class. The racks should be within the classroom, up front, so the student can feel comfortable putting his board in the rack and seeing it throughout class. Recently, in a group of skateboarders, the question was asked if they would use these racks. There was an enthusiastic yes and excitement about the prospect. Although it is not feasible to put racks in all rooms, this gesture of racks in the larger areas where students congregate would also allow the students to know that the university is interested in their needs.
4. Along with skateboard racks, additional bike racks should be placed strategically near the Mesa building, the Library, the SAC and the Science and Technology (ST) Building—but out of the way of pedestrian and skateboard traffic. This would accommodate students, faculty and staff who choose to bike to campus and increase the feeling of a positive environment. For example, at the ST building, bike racks should be placed at the south entrance at the parking lot, and the west entrance nearest the large lecture hall.
5. Schuetz (2005) and Strange and Banning (2001) offer many suggestions about the physical environment in which students negotiate their way from class to class, including classroom

set up and study areas. These authors argue that campus' physical environment can foster a sense of comfort, security, and connectedness. If one walks through the classrooms and corridors of the Mesa Building, particularly on the third floor, one sees general untidiness, broken tables, and mismatched and misplaced furniture in the hallways. The central sections on the 2nd, 3rd, and 4th floor levels have become *de facto* student study areas. This is good and should be fostered with comfortable chairs and tables, and electrical outlets for laptops. One notes on the third floor that there are study carrels dating back to 1973 which no one uses; perhaps because there are few chairs for them, poor lighting, and no electrical outlets. One sees old and uncomfortable airport terminal style chairs on one wall. One also notes that the tables and chairs on these floors are hand-me-downs. On the 2nd and 3rd floors students may study at what once were eating tables in the cafeteria. Students want to study, often in a group-conducive environment, to be seen and to see others. Of note is that students tend to study on the third floor middle section with their backs to the windows. Obviously to be seen and to look, perhaps a chance to interact with another. Comfort and opportunity for interaction are the key to preferred study areas. Individual study tables where the students' backs face the hallway and noses face sterile walls, Formica, or brick should be disposed of. Most study tables in rooms and corridors should not face walls. Someone should be identified to be responsible for designing and maintaining comfortable, practical, and tidy classrooms, corridors, and student-study environments on campus, particularly in the Mesa Building and the ST building outside the large lecture hall.

Presently there are fine round tables seating four and couch/cousin-like seating outside the large lecture hall in the ST building. More of such tables and chairs need to be provided at this site, and similar furniture at key congregating areas should be provided in the Mesa Building.

6. Outdoor congregation/seating areas should be provided at student housing. For example, picnic table areas with metal canopies, such as one sees in picnic and roadside stops along Texas' highways. A basketball court is also recommended.
7. Install ADA accessible doors (automatic sliding doors or push-handicap-button doors) in the first level of the west wing of the Mesa building for ADA students. For example, Admissions, Accounting, Financial Aid, and the Registrar's Office all have non-automatic interior doors.
8. Although on first blush it may not seem to be a building and grounds issue, a consideration should be given to centralizing academic programs aimed for student success by clustering units in the same location as much as possible. For the developmental courses and tutoring/mentoring programs, after Boylan et al. (1997), merge AVID, ADA, the Literacy Center, the Math & Science Center, SI, and the Writing Center in one location. Merge also Business Academic Advising, CAS Academic Advising and Career Services as close together as possible. The common thread of all of these units is classroom success. These units should be as proximal to one another as possible (Olson et al., 2011).

9. Classroom, corridor, study areas, and general campus tidiness and comfort are issues that warrant more attention and maintenance. . At one time, over 15 years ago, an Ad Hoc pair of faculty and administrators (i.e., Jaramillo and Olson) would survey the classrooms, corridors and study areas and make annual recommendations to the President. A new committee such as this should be established. For example, consider the aluminum painted chairs and tables outside of the SAC building. These are not maintained. They are invariably dirty and in a state of disarray. The care of campus facilities where students may congregate is very important.

10. UT—Permian Basin was at the forefront of developing online courses when other universities and colleges around the nation were just starting to discover the possibilities and potential of the internet. UTPB won recognition for its forward thinking and applications via the UT--TeleCampus. However, UTPB’s current website has been constructed in a cumbersome manner. There are too many examples to enumerate here, but the following will illustrate a subset of the problems.
 - A. If a potential student or a current student wishes to access the academic catalog, they need to know to click on “Academics” on the front page. Then in the left column they will see the catalog for graduate and undergraduate programs. By clicking on the button for “Catalog-Undergraduate”, the only thing it takes you to is a massive PDF file that asks if you would like to download the catalog. No one wants to do that. By scrolling down, the potential student or current student can click the button “psychology” to look at that part of the catalog. However, the only thing that happens is the ability to print all the pages of the catalog for psychology. There is no informational page that opens to tell the person what the course requirements are for psychology. There is no immediate listing and descriptions of courses in psychology.

There is no reason why all catalog areas cannot open to show that part of the catalog and simply have a button for downloading or printing. Faculty and students alike have been left totally in the dark.

 - B. The second example of having needless layers of UTPB’s website to obtain information is found in accessing academic departments. To get to a member of the psychology faculty, there are at a minimum of 6-9 buttons depending on the electronic path chosen. An example of needless layering of the website can be seen when one must click on the following buttons to begin to get to the Psychology department: Academics ---to---College of Arts and Sciences---to---Academic Departments---to---Psychology---to---Psychology again on an otherwise almost blank page---to---finally the front page for psychology. Moreover, to finally access a member of the psychology faculty, one must see the “faculty” link

embedded in the paragraphs about the psychology department. There should immediately be links to each member, perhaps in a left-hand column.

C. Try to find the times of operation and location of the Medical Services.

Furthermore, in addition to being cumbersome, many items on UTPB's web pages are out of date.

11. The new coffee shop in the SAC building is wonderful, except its hours of operation are unpredictable. Signs on campus say it's open 7am to 9pm, but it's really open until 7pm. Furthermore, depending on the day or week, one may or may not find someone working there. Consistency in operation and product availability is important if students are to return to any retail site.

G. The "A" in the BASIC Retention Plan, Administration

Del Favero (2002) argues that the norm is for administrators in higher education is to focus on campus priorities other than the primary functions of the institution: student learning and effective instructional activity. Deans and department chairs, Del Favero asserts, need to take greater responsibility for "student learning and the faculty work required to facilitate it" (p. 80). The college, school, and department classroom learning-focus thus becomes the hub around which research, teaching and service are conducted. To the extent that administration and faculty focus create a climate fostering student success, then student outcomes such as satisfaction and retention/persistence are enhanced (Kuh, 2002). Haycock (1998, p.4) said, ".....the most significant factor in student achievement [is]: the teacher." Echoing this sentiment, Tinto (1999) wrote, "To be serious about student retention, institutions would recognize that the roots of attrition lie not only with their students and the situations they face, but also in the very character of the educational settings in which they ask students to learn, namely the classrooms, laboratories, and studies of the campus (p. 5). Of interest here is that Tinto (2011b) stated that college teachers by and large have no classroom training before their first day of classes, or afterward. At UT—Permian Basin, and most other four-year colleges and universities throughout the nation, there are no developmental programs for poor teachers, and all too often, no Chair or Dean is looking closely.

Several authors have suggested that centralized student academic service programs lead to higher retention rates than decentralized developmental programs (e.g., Roueche & Baker, 1986; Boylan, Bliss & Bonham, 1997). Here, a centralized developmental program consists of one

administrative unit with its own director (one director) who oversees all developmental courses and associated services, such as tutoring. A decentralized developmental program is one in which the academic department, such as English and mathematics, provide the remedial courses. Boylan et al., examined characteristics of 6,000 students semi-randomly selected from 160 2-year and 4-year campuses. They reported that students on 4-year campuses participating in centralized developmental programs had higher cumulative GPAs, and were more likely to pass developmental courses than those who had participated in decentralized programs.

Swartz, Carlisle and Uyeki (2007) wrote, “Institutions of higher education are complex, decentralized organizations that rely on the specialized knowledge and skills of faculty and staff for most of their day-to-day operations. Although our institutions benefit from this expertise, common drawbacks of such decentralization and specialization include territoriality, “silo” thinking, and the presence across campus of key individuals who may be unaware of the talents and interests of professionals in other departments” (p. 109). The silo phenomenon for developmental classes and centers aimed at student success is prevalent at UT—Permian Basin. As a result of the interviews with heads of various units aimed at student success at UTPB listed in Table 6, three themes were very clear in the Olson et al. study: (1) we have multiple silos; (2) a lack of coordination/integration between various units aimed a student success; and (3) we have no cohesive proactive strategy. It is true that heads of units may talk to one another, but it’s only about an individual student. For example, the student academic support units listed in Table 6 report to one of four different supervisors (two deans and two vice presidents), and are peppered all about campus. Those with natural affinity are not proximal to each other nor may they report to the same supervisor. Although some units interact more with some units than others, those who do interact do so only as it pertains to an individual student. For example, the CAS Academic

Advising Center might refer a specific student to Career Services for career exploration. There appears to be little coordination or general strategies overarching all units to facilitate student learning, and hence retention/persistence to the degree. Rarely, if at all, are common student learning and retention strategies discussed between units.

Table 6.

List of centers, offices, and programs identified that are aimed at student success spring 2011 (with amendments)

| Name of Student Academic Support Unit | Director/Coordinator | Reports To | Location |
|--|---|------------|--------------------------------------|
| AVID (Freshman Seminar) | Dr. William Harlow | VPAA | 4 th floor, east and west |
| Business Academic Advising | Gayla Van Zandt | Dean Bus. | 2 nd floor west |
| Career Services | Tony Love | VPSS | 1 st level east |
| CAS Academic Advising | Louise Whelan | Dean CAS | 1 st level east |
| Counseling Center | Dr. Tom Stanger | VPSS | Founders Building |
| Library | interim | --- | Library Building |
| Literacy Center | Leticia Madrid | VPSS | 4 th floor east |
| Math & Science Center. | Jill Miller | Dean CAS | 4 th floor east |
| Medical Services | John Garcia, MD | VPSS | Gym & Odessa |
| Mentoring & Dual Credit | Stephanie Hernandez & Heather Cress | VPSS | 4 th floor east |
| PASS: ADA, Assessment, Proctoring, SI | Dr. Efren Castro (PASS Office & Prometric Center) | VPSS | 1 st level east |
| Retention Services (and Early Alert) | Vickie Gomez | VPSS | 4 th floor west |
| Student Housing & Parker House Tutorials | Chermae Morris | VPSS | South Campus Apartments |
| Writing Center | Kellye Manning | Dean CAS | 2 nd floor east |

A good example of the lack of communication, symmetry, and coordination and “administration” has to do with the oversight of courses in developmental Math (Math 0398 and 0399) and developmental English (ENGL 0399). Kellye Manning, Director of the University Writing Center at UTPB, solely hires all adjuncts for ENG 0399 developmental courses; she is not part of the English faculty. New adjuncts receive about two hours of training before the beginning of the semester, and may meet with Ms. Manning perhaps four times throughout the semester. She does not provide formal written reviews, nor does she review the end-of-course student evaluations (K.Manning, personal communication, November 4, 2011). In developmental math, Jill Miller, Director of the Math/Science Center, also hires adjuncts; she is part of the Math faculty. New adjuncts receive some training by Ms. Miller. She does not visit the classroom, nor does she provide formal written reviews. Ms. Miller reports that these tasks, including hiring, fall under the supervision of Paul Feit, Chair of Mathematics and Computer Science (J. Miller, personal communication, November 4, 2011). Dr. Feit reported that he “doesn’t have much to do with it [developmental math]”, except to write annual merit reviews for Ms. Pumphrey, a full-time Lecturer teaching developmental math courses. He reports that he does not observe developmental math teachers in the classroom, nor seek end-of-semester course evaluations to review (P. Feit, personal communication, November 4, 2011). No one is at fault here; this is how the programs have evolved and everyone has just become used to it. The point is, there is no real formal, dedicated training of teachers on how to teach developmental students, and there is no real oversight within or between units; there is nothing going on to even imply any sense of proactivity. It appears that the modus operandi that prevails is “hear no problem, see no problem.” In reference to a unit aimed at promoting student success, someone reported to one of the members of the Task Force for Retention Committee that, “if it ain’t broke, don’t fix it.” implying that all was just fine and dandy.

The “if it ain’t broke, don’t fix it” quote above is an excellent example of naiveté and “silo” thinking, and the “hear no problem, see no problem” approach defines inertia and the status quo in many units. We need to connect the dots; we need to be proactive. We recommend:

1. Centralization and coordination of academic support services is essential, including developmental and general education courses; someone needs to be in charge of the whole picture and be *proactive* and coordinate the retention enterprise, including advising, teaching, tutoring, etc. We need to “connect the dots,” so to speak.
2. A. Create a University College with a Dean. This office would oversee advising and academic support for entering freshman, returning students, and transfer-in students. In addition, this administrator would work with new part-time and full-time faculty, especially those teaching developmental and/or general education courses, and supervise or lead training in preparation to the classroom or online environments.

Or

B. Create a position of Vice Provost or Assistant Provost. Like the Dean of the University College, this post would oversee advising and academic support provided for entering freshman, returning students, and transfer-in students. In addition, this administrator would work with new part-time and full-time faculty, especially those teaching developmental and/or general education courses, thorough/extensive training in preparation to the classroom or online environments.

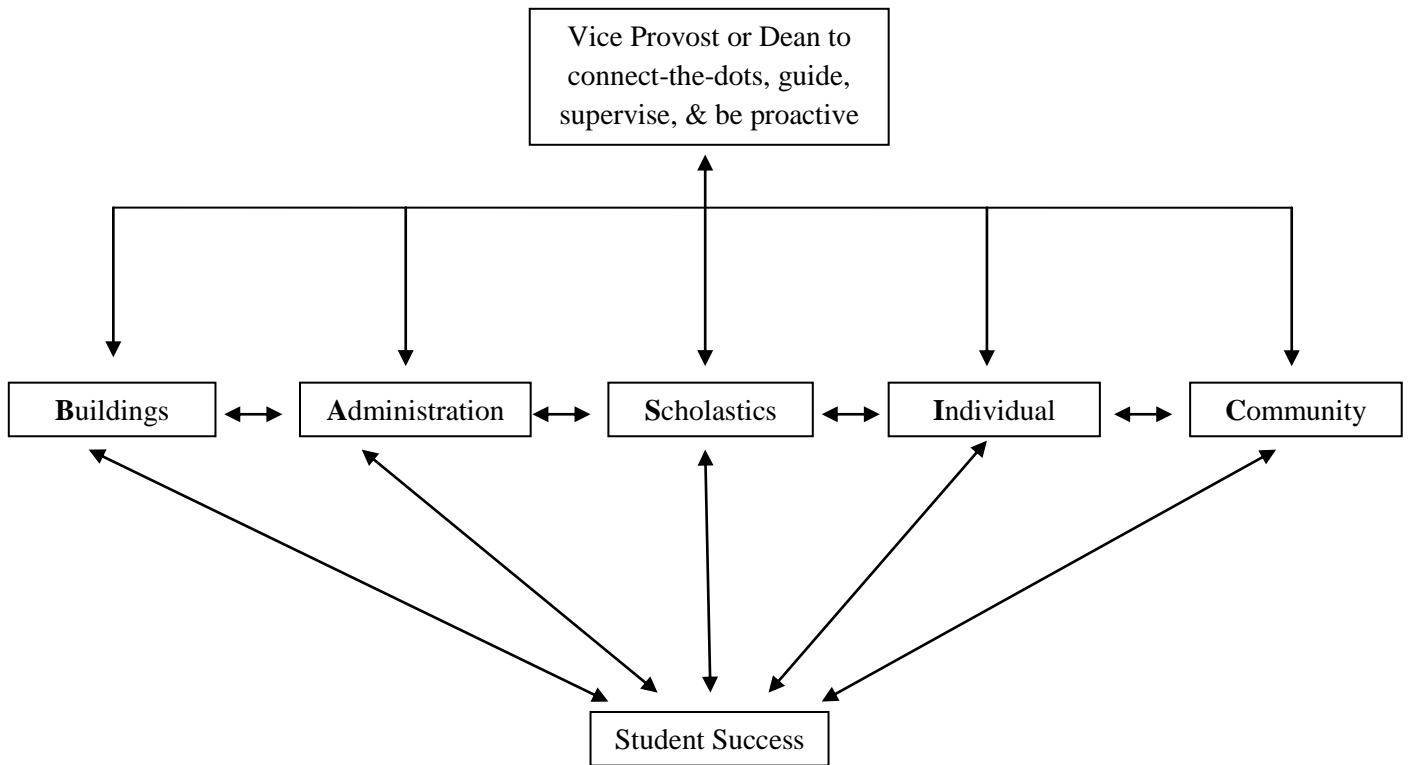


Figure 2. Interactions of the five components of the BASIC Retention Plan with the addition of a Vice Provost or Dean to guide and supervise the retention efforts, and to act proactively.

3. At UT—Permian Basin it has been observed the various tutoring outlets do not coordinate with one another, and often overlap in their services (Olson et al. 2011). Of course, tutoring/mentoring is variously defined. It can consist of study strategies, time management, specific skills training such as grammar and math, financial budgeting, personal relationships, and so forth. Many of the units provide some form, whether formal or informal, of tutoring/mentoring services: (1) ADA services; (2) AVID; (3) the Library (i.e., database searching); (4) the Literacy Center; (5) the Math & Science

- Center; (6) the Mentoring & Dual Credit programs; (7) Supplemental Instruction (SI); and (8) the Writing Center. A Vice/Assistant Provost or Dean of the University College should supervise all of these units and ensure a sufficient training in common principles and discipline-specific knowledge and skills.
4. The following services aimed at student services should be placed under the supervision of the proposed Vice Provost or University College Dean: (1) ADA services; (2) AVID; (3) the Library (i.e., database searching); (4) the Literacy Center; (5) the Math & Science Center; (6) the Mentoring & Dual Credit programs; (7) Supplemental Instruction (SI); (8) the Writing Center; (9) Academic Advising for Business and the College of Arts and Sciences; (10) Career Services; (11) Early Alert Services; and (12) the PASS Office.
 5. Administration (including department chairs) should always have classroom teaching effectiveness (and online effectiveness) at the forefront.
 6. Administration, faculty, and staff need to emphasize at all levels the need for treating students with unconditional positive regard, fairness, and value.
 7. Following Haycock (2006), colleges need to work with changing the public high schools from which their come, aligning their courses and standards, and work on creating consistent placement standards. The proposed Vice/Assistant Provost or Dean of the University College should spearhead these partnering efforts.

H. The “S” in the BASIC Retention Plan, Scholastics

The scholastics section of the report is divided into six subsections: (1) academic advising; (2) faculty accessibility; (3) classroom and online teaching effectiveness; (4) tutoring support services; (5) early alert services; and (6) developmental math in particular. Each will be discussed below.

1. Academic Advising

There are methods in place to advise first-time freshmen in their first semester course slate of classes. In no cases should a student who has placed into two or more development classes be allowed to enroll in more than 10 semester hours of classes until he or she can enter the regular general education courses without restrictions. This is important because students who are required to take two developmental courses are more at risk for dropping out of college. This will help them succeed, and they will not be included in the first-time/full-time cohort.

Martinez (2004) cited qualitative data indicating that students who felt more informed about their course of study were more likely to stay in college. Drop-in advising at the academic advising offices (Business Academic Advising and CAS Academic Advising) is highly recommended. Whenever possible, advising should be on a drop-in basis, without having to “sign-up” for tomorrow, or the next day, or next week.

If the student has declared one of the majors offered in the School of Business, then the student is routed to Business Academic Advising. The task force recommends that a student who has completed 45 hours, who has declared a major, and has explored the services offered by the Career Center, be switched to a faculty member to continue the advising process until the student graduates. The value of this suggestion is in linking the student with a faculty advisor who would also serve a mentoring role in so far as the discipline is concerned.

Contact with faculty appears to be very important for retention/persistence, and as soon as the “switch” from a staff person to faculty member in the field can legitimately be made, the better. However, this “switch” assumes that faculty are available to the student for advising in a timely fashion. The fact is, faculty are required to be in their offices only five hours per week, and these times are to be posted in syllabi and outside the faculty member’s door. One notes that on the UT—Permian Basin campus, all too many faculty have no office hours posted or their posted office hours are out of date. At best, this is not student friendly. Why aren’t office hours posted, one has to wonder? One also questions whether five hours of office hours per week is adequate to be “available” and “accessible”. Clearly one can sit in one’s office for hours on end during office hours and a student will not appear. But.....what would be the problem raising office hours to 7 or 8 hours per week? According to some faculty who have been around UTPB for decades, the campus appears “deader” than ever. Surely online course offerings have taken a bite out of campus student traffic, but it appears that faculty aren’t around much either, except for meetings, class-times, and office hours.

2. Faculty Accessibility

Roberts & Styron (2010) found that faculty approachability was a key factor in retention. Heverly (1999) found that compared to non-returning students, returning students had a much more favorable attitude toward their faculty interactions, stating: “Instructors know when students do not know the material”; “My instructors seem show respect for me as an individual”; and “My instructors are concerned with my success” (p. 10). In regression analysis after surveying 313 students of all ranks in a 4-year university Patti, Tarpley, Goree, and Tice (1993) found that in general, students who perceived that administration, faculty and staff had a genuine concern for them as individuals accounted for a significant proportion of the retention rate variance. Clearly, the general attitude that administrators, faculty and staff show to their students is detected and is important in retention, and, as Pascarella and Terenzini (2005) asserted, the more positive student-faculty contacts, the greater the likelihood of retention/persistence. As for UT—Permian Basin, the more involved faculty are with students outside of the classroom, the better. The comments above concerning faculty morale are equally appropriate here as well.

Muraskin, Lee, Wilner, & Swail (2004) examined selected public and private 4-year institutions selected on the basis of their high graduation rates and compared these with comparable institutions with low graduation rates, and found numerous factors that they attributed

to enhanced graduation rates. Muraskin et al, Lee, Wilner, and Swail (2004) reported that a caring, accessible, and dedicated full-time faculty was very important to retention.

3. Classroom and Online Teaching Effectiveness

Martinez (2004) cited several studies showing factors generally construed to reflect poor teaching (e.g., boring lectures, poor lecture/course organization, etc.) were correlated with withdrawing from college. Although Haycock (1998) draws on an example from high school, the point is true in higher education as well. She writes, “They [parents] may not always know which teachers really are the best, but they are absolutely right in believing that their children will learn a lot from one teacher and only a little from another—even though the two teachers may be in adjacent classrooms (p. 5).” Tinto (2011a) offers several attributes of college teachers whose students are more likely to succeed: (1) set student expectations high, not low; (2) provide academic and social support outside of the classroom (tutoring, etc., especially for the underprepared students); (3) provide early and frequent assessment of performance (before midterms) so that early alert systems can work most effectively; (4) provide speedy feedback of performance; and (5) be involved with students outside of the classroom.

As mentioned previously, faculty in higher education rarely receive training on how to be effective teachers, much less training in classroom ethics (i.e., implicit bias, favoritism, dual relationships, and so forth). Furthermore, quality control of teaching is nominal at best, and often *pro forma*, especially for tenured faculty. For faculty who do need assistance in classroom effectiveness at UT—Permian Basin, there are no formal avenues to travel to gain help or coaching. End-of-semester student course evaluations are the only tangible measure of faculty classroom effectiveness, and they come with legitimate criticisms about their validity and usefulness. At UTPB, end-of-semester course evaluations are different for the traditional classroom versus the online virtual classroom; they really can’t be compared. Most important to retention, perhaps, is one wonders who is overseeing the quality of teaching in developmental courses and general education courses; and how is quality being evaluated, if at all? Again, oversight seems insufficient and uncoordinated. Someone needs to coordinate, train, coach, and provide avenues to remediate classroom and online teachers who are sub-norm. Naturally, this assumes norms and criteria for teaching quality are in place, and they are not.

At UT—Permian Basin, for better or worse, the standard for evaluating classroom effectiveness for annual merit has been the end-of-semester course evaluation form. However, there are no norms, and common descriptive statistics such as the standard deviation are not available for instructors, departments, or the college and schools. Be that as it may, if one assumes that the distribution of end-of-semester evaluations across the College of Arts and Sciences (CAS), for example, is normal in shape (it may really be slightly positively skewed), it makes sense to say that every instructor teaching development courses and general education courses should be at least in the top 50% of teachers. Again, assuming a normal distribution, the data in

Table 7 indicate that for CAS instructors the mean of 1.65 end-of-semester rating for instructors cuts off the top half from the bottom half, with low scores meaning better classroom effectiveness.

Table 7

Mean of Questions Pertaining to the Instructor for End-of-Semester Student Course Evaluations for the Instructor for All Instructors in the College of Arts and Sciences by Semester by Year.

| Academic Year | Spring | Fall |
|---|---------------|-------------|
| | | |
| 2007 | 1.6 | 1.7 |
| 2008 | 1.7 | 1.7 |
| 2009 | 1.6 | 1.7 |
| 2010 | 1.6 | 1.6 |
| | | |
| Overall Mean Fall & Spring | 1.65 | |

The data in Table 8 show the mean instructor ratings for various instructors teaching developmental and first-year core courses in English and mathematics over the past five years. These data reveal that, on the whole, teaching effectiveness means per class match that for CAS. It also reveals two key things. First, there is considerable variability between teachers teaching English, and between those teaching mathematics. Second, that we have some very effective teachers in both English and mathematics, effectively negating the assertion that, “course evaluations are poor because no one wants to take those ‘required’ courses.” A student may, indeed, have a poor attitude about taking one or more of these “required” courses, but that attitude, if it exists, cannot account for the better-than-average course ratings of several.

Clearly the data in Table 8 reveal several outliers who should never have been teaching these students. For someone to get an end-of-semester rating of 4.4 is outrageous. Obviously there is no quality control for these courses at UT—Permian Basin. Instructors with mean ratings in the 2s and 3s also indicate they do not belong before this population of students. Again, back to the silo phenomenon. One wonders who is in charge, such as training, and quality control? As part of the BASIC Retention Plan, the Task Force recommends that only the best instructors should be teaching developmental and general education courses. We want these teachers to be at least in the top 50% in terms of classroom effectiveness. Clearly these end-of-semester norms have their downside and should be interpreted cautiously, so other criteria of classroom effectiveness need to be employed as well. Oversight, training and monitoring processes need to be in place. It likely means hiring more full-time faculty so that at the last minute an untrained adjunct isn’t put before students in the classroom. As for Graduate Teaching Assistants (GTAs), such as those in English teaching ENGL 1301 and 1302 (GTAs do not teach developmental ENGL courses), we applaud

the youth and vitality that the GTA brings before students, and recommend thorough before-class-starts training and additional oversight the first semester.

Table 8

Mean of questions pertaining to the instructor for end-of-semester student course evaluations per instructor in ENGL 0398, 1301, and 1302, and MATH 0398, 0399, and 1312 (college algebra). These means were derived by collapsing all traditionally courses taught by one instructor from Fall 2006 through Summer 2011. These data do not include online courses. In parentheses is the number of student respondents on which these means are based. Each cell mean reflects an independent instructor and rows are not to be interpreted such that a row of means pertains to one instructor.

| | ENGL 0399 | ENGL 1301 | ENGL 1302 | MATH 0398 | MATH 0399 | MATH 1314 |
|---------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | 1.9 (26) | 2.0 (9) | 1.8 (53) | 1.9 (14) | 1.4 (24) | 3.6 (21) |
| | 1.2 (5) | 1.0 (13) | 2.0 (120) | 1.3 (80) | 1.5 (16) | 1.5 (39) |
| | 1.8 (44) | 1.8 (12) | 4.4 (10) | 3.3 (16) | 1.7 (37) | 1.5 (57) |
| | 1.3 (10) | 1.7 (66) | 2.0 (177) | 1.0 (7) | 1.1 (29) | 3.1 (23) |
| | 1.9 (14) | 1.7 (23) | 1.2 (129) | 1.3 (25) | 1.7 (181) | 1.5 (44) |
| | 1.3 (9) | 1.3 (14) | 1.4 (187) | 1.2 (7) | 2.3 (29) | 1.5 (65) |
| | | 1.4 (34) | 1.7 (26) | 2.1 (57) | 1.3 (369) | 1.2 (6) |
| | | 2.8 (10) | 1.9 (7) | 1.6 (91) | 1.4 (7) | 2.9 (11) |
| | | 1.9 (13) | 1.5 (71) | 1.9 (21) | | 2.0 (36) |
| | | 1.9 (104) | 1.6 (8) | 1.3 (196) | | 1.9 (36) |
| | | 1.5 (53) | | 1.7 (19) | | 3.1 (7) |
| | | 1.1 (26) | | 1.4 (11) | | 1.4 (33) |
| | | 1.5 (169) | | 1.1 (16) | | 1.8 (26) |
| | | 1.2 (102) | | | | 1.7 (49) |
| | | 2.7 (59) | | | | 1.7 (30) |
| | | 1.4 (54) | | | | 1.6 (24) |
| | | 1.8 (18) | | | | 1.4 (30) |
| | | 2.0 (14) | | | | |
| | | 1.3 (69) | | | | |
| | | | | | | |
| Overall Mean | 1.7 (108) | 1.6 (862) | 1.7 (788) | 1.5 (560) | 1.5 (692) | 1.8 (537) |

Quality teaching in developmental and general education courses should not only positively affect persistence and graduation rates of our students, but reduce the probability of students transferring out of UT—Permian Basin and graduating elsewhere. These are clearly capable students who UTPB needs to retain. Quality teaching is the first step in any retention plan.

4. Tutoring Support Services

Cooper (2010) found that freshmen who visited the tutoring center at a large 4-year campus ten or more times (on a drop-in basis) had significantly higher rates of persistence than cohorts who had not visited the tutoring center. One might argue that students who report for tutoring services may be more motivated, and that motivation is the critical variable at work here. However, Landrum and Chastain (1998) found productive results of tutoring at the end of the semester even with motivation levels between those who received tutoring and those who did not were the same. Of interest is that although UT—Permian Basin has many outlets for tutoring, tutor training has been only vaguely addressed. AVID (the Freshman Seminar program) is the acronym for Advancement Via Individual Determination. Jonathan Brown of AVID and Leticia Madrid of the Literacy Center provide, at first blush, what appears to be same holistic-style tutoring/mentoring to students. Following the recommendations of Olson et al (2011), these units should combine forces in some fashion and coordinate all tutoring/mentoring activities at UTPB and provide training and oversight. UTPB has grant funding from the Texas Higher Education Coordinating Board through 2012 to provide AVID tutor training, and this funding might ease the transition to a unified support services model. All tutors would have a common core of knowledge and skills and some would be able to tutor in multiple settings as need arose. These unified services here would be the responsibility of the proposed University College Dean or Vice Provost/Assistant Provost, as suggested previously.

5. Early Alert Services

Vickie Gomez is the coordinator of retention services; she is half-time. She meets with the following at-risk students: (1) students on academic probation; (2) students whose admission is conditioned on continued academic probation; (3) returning students who had been dismissed; and (4) students newly admitted with provisional admission status. Last spring 2011, she met regularly with 130 students in one of these four categories. In addition, Ms. Gomez is in charge of Early Alert Services (EAS), involving approximately another 130 students. Students who are brought to the attention of EAS are contacted and follow-up contacts are arranged to increase the likelihood that the student either drops a class formally or begins attending regularly. There are presently six persons contacting these students (Ms. Gomez, Ms. Madrid, Ms. Hernandez, Ms. Cress, Mr. G. Sanchez, and Dr. Castro). Ms. Gomez estimated that last spring 2011 that fewer than 20% of the faculty participated in EAS. In her meetings with students Ms. Gomez determines the reason for the students' lack of academic success and then refers them to one of the academic centers for assistance, most often the Literacy Center.

The question here is why only 20% of the faculty participate in this important endeavor? Answers are varied and speculative, but one answer rests in the webpages. Namely, it's a hassle to inform EAS via the faculty portal on the web. Nevertheless, all faculty teaching developmental

and general education courses need to get on board with EAS, and early in the semester, to be of any value.

6. Developmental Math.

The results of an IRP&E study indicate that GPA during the first year at UT—Permian Basin is the strongest predictor of whether a student will remain enrolled the subsequent fall semester. The same study found that students enrolled in one or more developmental course, especially math or English, are more likely to be at risk of a lower GPA. Students with low GPAs tend to drop their programs and eventually leave the university. Moreover, for five successive fall semesters (fall 2006 through fall 2010) one finds that of the 624 who were enrolled in MATH 0398 in the fall and: (1) the probability of passing MATH 0398 that fall was .67 (or 67%); (2) the probably of passing MATH 0398 and subsequently passing MATH 0399 is .46 (or 46%); and (2) the probably of passing MATH 0398, MATH 0399, and subsequently pass MATH 1314 is .17 (or 17%).

Another analysis conducted by the IRP&E and displayed in Table 9 shows that some students that took and passed Calculus in high school, were placed in Math 0398 or Math 0399, which are very low level courses. Also, according to the same table, most students in these classes took and passed Pre-calculus in their high school. In addition, some of the students interviewed during registration claimed that were not informed that they had to take the exam ACCUPLACER during orientation. Therefore, the current practice to place students in the different math classes using the ACCUPLACER exam alone may not be a reliable method of placement. Students may be incorrectly assigned to Math 0398 and 0399 because of their low score in the ACCUPLACER exam.

Table 9.

Last High School Math Course Taken by UTPB Students Enrolled in Developmental Math in Fall 2011

| Course | Freshman | Sophomore | Junior | Senior | Missing Class | Grand Total |
|--------------|----------|-----------|-----------|------------|---------------|-------------|
| Algebra | 1 | 6 | 25 | 35 | | 67 |
| Pre-cal | | 2 | 35 | 103 | | 140 |
| Calculus | | | | 5 | | 5 |
| Geometry | | 3 | 4 | 2 | | 9 |
| Other | | | 2 | 6 | 1 | 9 |
| Missing | | | 4 | 1 | 36 | 41 |
| Total | 1 | 11 | 70 | 152 | 37 | 271 |

There are several goals to improve the developmental mathematics program that we will explore: (1) improve the placement requirements for mathematics courses; (2) improve retention

of students in developmental mathematics classes; and (3) increase 4-year and 6-year graduation rates

First we will look at how to improve the placement requirements for mathematics courses. The problem is not in the exam itself, but in the way that it is administered; students need to prepare for this exam. Placing students in the wrong math course will influence their success in the university. Students placed at the wrong higher level math course may obtain lower scores or even fail the course. Students placed in the wrong lower level course may feel that they are wasting time and money, and that they were not treated fairly. Thus, they may decide to find another institution that recognizes their efforts in high school. For this reasons, it is very important to place students in the correct math course.

We believe students should be placed in math courses using more than one measure. Trine University used to place students according to the results of a math placement exam until eight years ago when they changed their placement to use high school GPA and SAT/ACT as described Tables 10 and 11.

Table 10. Math placement as a function of student scores on the math portion of the SAT (M SAT) and high school GPA

| | | GPA | | | GPA | |
|----------|-----|-----------|-----------------|-----------------|-----------------|------------------|
| | | GPA >=3.5 | 3.5 > GPA >=3.2 | 3.2 > GPA >=3.0 | 3.0 > GPA >=2.5 | 2.5 > GPA >= 2.0 |
| M SAT >= | 620 | MATH 2413 | MATH 2413 | MATH 2413 | MATH 2413 | MATH 2413 |
| | 610 | MATH 2413 | MATH 2413 | MATH 2413 | Math 2412 | Math 2412 |
| M SAT >= | 600 | MATH 2413 | MATH 2413 | Math 2412 | Math 2412 | Math 2412 |
| | 590 | MATH 2413 | Math 2412 | Math 2412 | Math 2412 | Math 1314 |
| M SAT >= | 580 | MATH 2413 | Math 2412 | Math 2412 | Math 1314 | Math 1314 |
| | 570 | Math 2412 | Math 2412 | Math 1314 | Math 1314 | Math 1314 |
| M SAT >= | 560 | Math 2412 | Math 2412 | Math 1314 | Math 1314 | Math 1314 |
| | 550 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0399 |
| M SAT >= | 540 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0399 |
| | 530 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0399 |
| M SAT >= | 520 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0399 |
| | 510 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0399 |
| M SAT >= | 500 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0399 |
| | 490 | Math 0399 | Math 0399 | Math 0399 | Math 0399 | Math 0398 |
| M SAT >= | 480 | Math 0399 | Math 0399 | Math 0399 | Math 0399 | Math 0398 |
| | 470 | Math 0399 | Math 0399 | Math 0399 | Math 0399 | Math 0398 |
| M SAT >= | 460 | Math 0399 | Math 0399 | Math 0399 | Math 0399 | Math 0398 |
| | 450 | Math 0399 | Math 0399 | Math 0399 | Math 0399 | Math 0398 |
| M SAT >= | 440 | Math 0399 | Math 0399 | Math 0399 | Math 0399 | Math 0398 |
| | 430 | Math 0399 | Math 0399 | Math 0399 | Math 0399 | Math 0398 |
| M SAT >= | 420 | Math 0399 | Math 0399 | Math 0399 | Math 0399 | Math 0398 |
| | 410 | Math 0398 | Math 0398 | Math 0398 | Math 0398 | Math 0398 |
| M SAT >= | 400 | Math 0398 | Math 0398 | Math 0398 | Math 0398 | Math 0398 |

Table 11. Math placement as a function of student scores on the ACT and high school GPA.

| | | GPA | | | GPA | |
|--------|----|-----------|-----------------|-----------------|-----------------|------------------|
| | | GPA >=3.5 | 3.5 > GPA >=3.2 | 3.2 > GPA >=3.0 | 3.0 > GPA >=2.5 | 2.5 > GPA >= 2.0 |
| ACT >= | 28 | MATH 2413 | MATH 2413 | MATH 2413 | MATH 2413 | MATH 2413 |
| | 27 | MATH 2413 | MATH 2413 | Math 2412 | Math 2412 | Math 2412 |
| ACT >= | 26 | MATH 2413 | Math 2412 | Math 2412 | Math 1314 | Math 1314 |
| | 25 | Math 2412 | Math 2412 | Math 1314 | Math 1314 | Math 1314 |
| ACT >= | 24 | Math 1314 | Math 1314 | Math 1314 | Math 1314 | Math 1314 |
| | 23 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0399 |
| ACT >= | 22 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0398 |
| | 21 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0398 |
| ACT >= | 20 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0398 |
| | 19 | Math 1314 | Math 1314 | Math 1314 | Math 0399 | Math 0398 |
| ACT >= | 18 | Math 0399 | Math 0399 | Math 0399 | Math 0399 | Math 0398 |
| | 17 | Math 0398 | Math 0398 | Math 0398 | Math 0398 | Math 0398 |
| ACT >= | 16 | Math 0398 | Math 0398 | Math 0398 | Math 0398 | Math 0398 |
| | 15 | Math 0398 | Math 0398 | Math 0398 | Math 0398 | Math 0398 |

There is considerable research to support the use of high school GPA to predict student’s success in college (e.g., Geisser & Santelices, 2007; Zwick, 2004). If a student is unsatisfied with their placement using their GPA and SAT/ACT scores then they are given the option to take the ACCUPLACER to try and place higher. Also, their mathematics placement is sent to them with their acceptance letter so they can spend the summer preparing to take the ACCUPLACER and place into a higher course or plan on taking a summer bridge course. Currently students come to freshman orientation and take the ACCUPLACER without any preparation and generally place into developmental classes. Because of this many student may be placed in the wrong course. We believe that this method will place more students in the “right” course for them.

Another method many campuses implemented to prepare students for a math placement exam was a summer bridge course to refresh or catch-up students before they take the placement exam. There are several ways to accomplish this. One way is to use one of several inexpensive computer programs such as CATCHUPMATH or ALEKS which test students and target teaching at the student’s deficiencies. This will require coordination from a faculty member to keep the students on track. Another is to have a two to six week accelerated summer course teaching students the material needed to succeed in Math 1314 (college algebra). As mentioned above, a survey of the students in developmental mathematics courses in fall 2010 showed that over 53% of them had either pre-calculus or calculus in high school. These data indicate that a large number of the developmental students would benefit from a summer bridge course. Placing students in a summer bridge course obviously assumes that students who would benefit are identified as early as possible.

Another problem with students in the developmental math courses is that they take many other courses, and as consequence, do poorly in all their courses. For example the average GPA of

students in mechanical engineering in the fall of 2009 was of 1.84. The goal of all these students should be to get out of the developmental math courses as soon as possible.

One possible solution to help these students is to use the JUMP START program implemented in the University of Alabama at Birmingham (UAB; see Appendix 1). This program allows students to take their developmental classes in the summer so that when they start the fall semester they will be out of the developmental program. This will increase four and six year graduation rates. These classes at UAB have a strong lab component and are self paced with due dates throughout the semester, attached as an appendix is an example of a developmental syllabus from UAB. We can direct students to use free resources such as The Kahn Academy which was created by Salman Khan to help students struggling with mathematics. His web site www.khanacademy.org has 2400 online videos that include lectures, examples, and exercises. This web site is so popular that Bill Gates (the founder of Microsoft) is providing monetary support to this academy, the public channel PBS presented a documentary in it, and millions of students all over the world, including our students in our universities are using it. Mr. Khan did not do any research to demonstrate the validity of his ideas, but his popularity demonstrates that his method works (his web site indicates that more than 76,000,000 lectures were delivered). Students all over the world are using these lectures to supplement or replace the regular classroom lectures.

Another possible solution is to combine Math 0398 (elementary algebra) and Math 0399 (intermediate algebra) into a 6 credit course. Middle Tennessee State University combined these two courses and offered them together as a 3 credit course that meets 5 hours a week (3 lecture 2 lab) (Lucas & McCormick, 2007). This would reduce the time it takes to get out of developmental mathematics to one semester.

Another method was implemented by the University of Maryland, College Park. To all the students placed into Math 0399 they give another placement exam and place the top 60% in an accelerated Math 0399 course. This is a five week course which meets five days a week, after the five weeks the class is given a test and those passing are placed into an accelerated Math 1314 (college algebra) course which meets five days a week for the rest of the semester. Those students that don't pass the test after the first five weeks are placed into a self paced Math 0399 with the 40% who didn't pass the first placement exam. The Math 0399 class meets six hours a week in a lab. The University of Maryland, College Park was able to let 89% of the students in the five week Math 0399 course continue into the Math 1314 course. This allows over 53% of the students who start in a developmental math 0399 class to finish their general education mathematics requirement in one semester and the students who aren't ready the opportunity to complete their developmental requirements in a self-paced environment.

We also believe that there is a need for a highly centralized or coordinated remedial program because according to Boylan and Saxon (2002) this contributes to successful remediation.

Based on the data from IRP&E and the success at other institutions, we recommend that UT—Permian Basin take the following actions:

1. Implement the new mathematics placement depending on high school GPA and SAT/ACT scores as describe in the above table with ACCUPLACER as a secondary placement tool.
2. Implement a summer bridge course using one of the computer programs such as CATCHUPMATH or ALEKS which test students and target teaching at the student's deficiencies and assign a faculty member to coordinate the summer bridge course as a summer teaching load.
3. Implement a five week accelerated math 0399 course followed by a college algebra course for the rest of the semester.
4. Implement self-paced combined Math 0399 and math 0398 course with strong lab components as modeled in the UAB syllabi (see Appendix 1). A policy regarding the extent of the use of calculators in developmental math courses will need to be made by the Faculty of Mathematics such that the extent of their use is consistent across MATH 0398, 0399, 1314, 1324, and 1332.
5. Assign or hire someone such as a Vice Provost or University College Dean to oversee and guide the developmental programs (including mathematics, English and reading), including teaching quality.
6. Students who are liable to take two or more developmental courses should be restricted to a 10 hour (plus Freshman Seminar their first semester) maximum load until all developmental obligations have been successfully completed. Furthermore, students should not be allowed to progress to their junior year without all developmental obligations being successfully completed.
7. Integrate the activities of developmental English, mathematics, and reading into the activities of Freshman Seminar.

Each of these recommendations will help fulfill our goals of increasing the 4-year and 6-year graduation rates and increase the retention of students in developmental mathematics courses.

I. The “I” in the BASIC Retention Plan, the Individual Student

This section of the report is divided into two subsections. The first describes the demographic characteristics of UT—Permian Basin students and from those data attempts to extrapolate who is staying at UTPB. The second reports the results of a survey in which first-time/full-time freshmen report their motivations for staying (or not) at UTPB.

1. Student Demographic Characteristics

Seven risk factors have been found to be negatively correlated with retention and degree attainment (Horn & Premo, 1995). These factors are: (1) enrolled part-time; (2) have children or dependents; (3) work full-time while enrolled; (4) are single parents; (5) are financially independent; (6) delayed postsecondary enrollment by one or more years; and (7) have a GED or high school dropout. Students with three or more of these risk factors have been found to graduate at substantially lower rates than other students (Berkner, Cuccaro-Alamin, & McCormick, 1996). A follow-up study by Horn, Peter, and Rooney (2002) they reported that three quarters of students had at least one of these seven risk factors, while the average number was 2.2. Noting that the seven risk factors are “largely related to age” they found that traditional-aged students had fewer risk factors than those aged 24 or more years. They found that the students with the most risk factors are undergraduates who are parents. These students were more likely to work full-time and attend college part-time, with an average of 4.3 risk factors, nearly double that for “all” undergraduates. Three of the risk factors are measured in the National Survey of Student Engagement (NSSE). NSSE data for UT—Permian Basin fall 2011 of freshmen reveals that: (1) 40% cared for dependents; (2) 40% worked 20-plus hours per week; and (3) 9% were age 24 years or older. For those students who work and care for dependents, who for various and other reasons cannot commit to a college education as his or her first priority, these students should be identified early and advised with particular care—and be prevented from taking more than 10 hours per semester.

Data from UT—Permian Basin’s Office of Financial aid reveals for fall 2011 freshmen: , (1) overall, 84% of the first-time freshmen have some form of financial aid; and (2) 98% of the first-time/full-time freshmen are receiving financial aid. While the literature isn’t clear on the role that the receipt of financial aid plays in retention and persistence to the degree, clearly this variable requires more research. The three major grants and scholarships that that require full time enrollment are: (1) the Promise (14% of students had it); (2) TX Grant (21% of students had it); and (3) UTPB Freshman Grant (36% of students had it). Just how to deal with it is another thing, since most of the scholarship or grant awards (94%) require that the student enroll in 12 or more hours per semester. Obviously this will conflict with the need to keep at-risk students limited to a 9-hour maximum load.

In addition to being admitted to UT—Permian Basin regular status, there are three other admissions categories: (1) conditional; and (2) provisional; and probationary. The data in Table 12 reveal that almost 9% of freshmen were admitted in one of these three categories, primarily provisional status. The data from fall 2011 were not available. Fall 2011 was the year that the SAT scores were raised. These students receive a mentor and are monitored. In addition, these students, who are clearly at risk, should not be allowed more than 10 hours (plus Freshman Seminar their first semester) until regular status is achieved. The data from fall 2011 were not available. Fall 2011 was the year that the SAT scores were raised. Further research is necessary to determine how many of these students wind up in the freshman cohort, and to determine their retention rates compared to those on regular status.

Table 12. Conditional, Provisional, and Probationary Acceptance of First-time/Full-time Freshmen Cohorts

| Fall Cohort | Probationary Acceptance | Conditional Freshmen Accept | Provisional Freshmen Accept | Total | Grand Total | Total Percentage |
|--------------|-------------------------|-----------------------------|-----------------------------|-------|-------------|------------------|
| 2006 | 2 | | 21 | 23 | 308 | 7.5% |
| 2007 | 1 | | 33 | 34 | 367 | 9.3% |
| 2008 | 3 | | 17 | 20 | 328 | 6.13% |
| 2009 | 1 | 21 | 9 | 31 | 325 | 9.53% |
| 2010 | 1 | 1 | 27 | 29 | 338 | 8.6% |
| Overall Mean | | | | | | 8.2% |

UT—Permian Basin’s IRP&E was asked to assemble demographic data on UTPB students and sort it into two categories. The first category was first-time/full-time freshman, and the second category was all UTPB undergraduate students. The intent of this design was to extrapolate which students are staying at UTPB and which are leaving. Theoretically, the difference between those two categories would reveal which students were dropping out. There are at least two limitations to this methodology. First, the data would not reveal whether students were persisting in higher education at another institution or whether they were dropping out altogether. However, that would not limit the effectiveness of the report in describing which students remain at UTPB from initial enrollment until graduation. Second, and more significantly, this data does not capture any distortions caused by students who transfer to UTPB since they are included in the “all undergraduates” category. With these limitations noted, this methodology presents a reasonable interpretation of who is present at UTPB and who has left.

The most striking—but not surprising—factor about the data in Table 12 is the role that developmental coursework appears to play in predicting success at UT—Permian Basin. Taking any developmental coursework appears to place one at a much higher risk of dropping out, and, as stated before, attention should be focused on this area. In addition, it appears that more men than

women are dropping out of UTPB. This appears to be a weaker predictor of retention than is enrollment in developmental courses.

Table 12

Entering characteristics of First-time/Full-time freshmen as compared to all UTPB undergraduates fall 2011

| | First-time/Full-time Freshmen | All UTPB Undergraduates |
|---------------------------------------|--------------------------------------|--------------------------------|
| Mean Age (years) | 18.62 | 24.19 |
| Mean Composite SAT | 985 | 994 |
| Mean Composite ACT | 21 | 21 |
| High School Percentile | 25.56 | 25.90 |
| Percent Male | 47.13% | 40.55% |
| Percent Female | 52.87% | 59.45% |
| Dev. Course fall 2011 Semester | 57.86% | 18.16% |
| Pell Grant Eligible | 51.62% | 47.38% |

2. Inferences Drawn from Recent Student Survey Data

In addition to gathering demographic data about UT—Permian Basin undergraduates, the Task Force on Retention surveyed first-time/full-time freshmen at UTPB to determine what would impact their decision to stay at UTPB. The results of that survey are reported here. The survey was distributed to first-time/full-time freshmen in the UTPB Freshman Seminar course. 67 responses were collected. Responses were voluntary, anonymous, and the participants were not compensated in any way. While we report the data at some length, we wish to highlight one particular finding of the survey. Namely, all UTPB freshman reported that they will persist in higher education, but a substantial portion entered UTPB already planning to transfer elsewhere.

Students were asked, “What do you think will be the cause when you eventually leave UTPB? Circle only one response.” 65 students responded to this item, and they were given 7 options:

1. I will have graduated
2. I will have obtained a job without graduating
3. I will not have the funds to pay for continued enrollment
4. Medical reasons
5. Transfer to another school
6. Academic problems
7. Other (explain below)

61.5% (n = 40) reported that they will stay at UTPB through graduation, and 3.1% (n = 2) reported that they will discontinue their studies for lack of funds. However, 38.5% (n = 25) report that they intend to end their studies at UTPB by transferring to another school. No other responses were selected. While 96.9% represents an excellent rate of intended persistence, 61.5% represents a problematic rate of intended retention. This is particularly true if some of the students who intend to remain enrolled are later unable to enroll.

Students were asked, “Why did you decide to attend college? Circle all answers that apply.” Students were given several possible answers, and the data below represents the number of times each was selected. One notes in Table 13 that long-term economic motivations were a primary driver for initial enrollment in college, although student demographic data indicate that immediate financial needs play a limited role in student retention.

Table 13
Frequency of responses to the question, “Why did you attend college? Circle all that apply.”

| Response Option | Frequency of Response |
|--|-----------------------|
| 1. Better employment | 57 |
| 2. Family pressure | 11 |
| 3. I thought I should | 34 |
| 4. Preparation for graduate or professional school | 25 |
| 5. I did not want to get a job | 1 |
| 6. I did not know what else to do | 2 |
| 7. Other (explain below) | 6 |

In order to determine what factors did impact retention, we asked, “What additional tools do you need to be successful at UTPB? Circle all that apply.” The responses are in Table 14.

Table 14

Frequency of responses to the question, “What additional tools do you need to be successful at UTPB? Circle all that apply.”

| Response Option | Frequency of Response |
|---|-----------------------|
| | |
| I have all of the resources I need to be successful at UTPB | 24 |
| Finances | 31 |
| Academic support services | 12 |
| Library | 7 |
| Faculty interaction | 15 |
| Peer interaction | 18 |
| Other (explain below) | 1 |

Students were also given six questions on a Likert scale to report factors which might impact their continued enrollment at UT—Permian Basin. Each question was scored on a scale of 1-7, with 1 indicating “strongly agree” and 7 indicating “strongly disagree.” Two items had particularly high mean scores to these questions and are marked with an asterisk in Table 15: (1) level of high school preparation; and (2) interaction with faculty members. While on first blush there might appear to be a limited amount that UTPB can do about a student’s high school preparedness for college-level work, much of that lack of preparedness is related to things like study skills and time management, which can be ameliorated with an effective Freshman Seminar course. More faculty interaction can be encouraged in a number of ways that will be discussed. One way worth noting here, is to develop ways to integrate developmental course activities with activities in the freshman seminar.

Table 15

Mean response to six questions ranked on a Likert scale from 1 to 7, where, 4 is neutral and scores below 4 indicate stronger and stronger agreement with the question: 1 indicated “strongly agree” and 7 indicated “strongly disagree

| Question | Mean Response |
|---|---------------|
| I feel that my high school experience prepared me for college courses. | 3.65* |
| I received adequate guidance and attention from my academic advisor. | 3.34 |
| I receive adequate guidance and attention from other faculty members. | 3.59* |
| I am receiving a high quality education while attending UTPB. | 3.25 |
| I believe that completing a college degree will help me in the workforce. | 2.68 |
| I feel welcomed at UTPB. | 2.95 |

Two of the biggest risk factors predicting attrition are enrollment in a developmental course, and lack of guidance from the classroom faculty. To facilitate student success, faculty who have direct interaction with students enrolled in developmental courses, Freshmen Seminar, and perhaps other general education courses, must be uniquely recognized and reinforced for their roles as mentors and as effective teachers.

J. The “C” in the BASIC Retention Plan, the Community

One can quickly recognize the importance of a student’s participation in the community of the university he or she attends for student persistence at UT—Permian Basin. As a complement to the academic course of study, extracurricular activities—including student activity clubs, intramural sports, Student Life Performances (including invited performers and acts), attendance at UTPB athletic events, honors societies, theater groups, the school newspaper, *The Mesa Journal*, and *Sandstorm*, UTPB’s literary magazine—provide avenues for students feel a sense of belonging to the larger community at UTPB. According to UTPB’s Student Organizations website, there are over fifty active clubs in which students can participate.

The benefits of extracurricular activities arguably stem from an increase in the involvement with, and the corresponding sense of belonging to, the community of UT—Permian Basin. It can be postulated that the more a student is involved in her or her university the less likely that student is to drop out or leave the university. While the primary reason that students do not remain at UTPB or fail to stay enrolled in classes is due to low grades and poor academic achievement, it seems possible that a student's engagement in extracurricular activities, whether in terms of student clubs or intramural sports, for instance, could aid in retaining students. Elkins Nesheim et al. (2007, p. 436) argue that “high levels of student engagement are associated with a wide range of educational practices and conditions, including purposeful student-faculty contact, active and collaborative learning strategies; and collaboration among faculty, academic affairs units, and student affairs units to produce programs and services”. In other words, successful student activities rely on a coordinated effort between student affairs offices, faculty and the administration, and it takes a cooperative effort among different university sectors to create a rich sense of community for its students. Student activities that aim at promoting retention are often titled “Student Affairs – Academic Affairs Partnership Programs” because these activities draw on a cooperative effort between different segments of the university, including student affairs offices, faculty and university administration.

Such cooperation lends itself to something that Kuh (1996) has called “seamless learning environments,” in which the educational experience of students extends throughout the university, from classroom instruction to social activities. Elkins Nesheim et al. (2007, p. 437) further explain “seamless learning environments” as being “characterized by coherent educational purposes, comprehensive policies and practices consistent with students’ needs and abilities, and a ‘widely shared ethos of learning’”.

One form that a “seamless learning environment” can take is a “learning community” or a first-year program, in which students entering the university either have a shared residential space (or a dormitory devoted to first year students) or become a cohort of students who all take the same classes together. Elkins Nesheim et al. (2007) write that partnership programs “typically included learning communities, developmental courses, or other first-year programs whose goals are focused on facilitating the transition [from high school to college]. Through participation, students gained increased knowledge of institutional processes and resources and developed greater confidence to navigate the institution”. While Elkins Nesheim et al. focused on learning communities, like our own Freshman Seminar here at UT—Permian Basin, one could easily apply similar principles of acclimating students to university life in other aspects of our university, including student clubs. It might even be worthwhile to create an informal student organization for students who are at risk for not returning to the university, whether this new group is for students feeling especially challenged by their math courses or those who feel as if they do not belong in college. We will discuss this option—a club devoted to students who find university work challenging—below, in the section entitled “Recommendations.”

1. Best Models of Student Engagement / Academic and Student Affairs Partnership

For a successful program of student engagement, one that spans both academic and student life arenas, there are some recognized attributes that constitute an effective approach. First, a strongly defined institutional mission and solid institutional budgetary support are necessary components for the best model of developing student engagement. Describing the efficacy of student engagement programs fully supported by institutional resources and mission, Whitt et al. (2008, p. 239) argue that the “importance of clear connections between institutional mission and institutional policies, practices, and programs for creating educationally effective opportunities for students has been well established”. An institution’s commitment to joint student and academic affairs programming signals that institution’s seriousness about student retention. Whitt et al. (p. 239) writes, “Effective partnership programs are grounded in, and extend the influence of, the institution’s mission in their purpose, design, implementation and assessment. In the process, [such programs] demonstrate and enhance institutional commitments to students and their learning”. Moreover, well-designed academic/student affairs programs help to reinforce the identity of the university. For example, DePaul University’s student programs serve as a way to help define it as a Catholic university with a mission to serve the community, to those inside and outside of the university community. DePaul University’s mission—focusing on service to the community, access to education, respect for the individual, and academic excellence—represents its Catholic, Vincentian and urban character. The work of Saint Vincent DePaul emphasized community transformation through community involvement” (Whitt et al., p. 239). As UT—Permian Basin considers its student community as well as programs to enhance student engagement and retention, this concept of a university’s identity might go a long way towards shaping how people—both inside and outside of the university—see UTPB. In other words, we might ask ourselves what the identity and the mission of UTPB is. The more clearly that UTPB can identify itself, the more present students might be apt to commit to UTPB and the more that the immediate community of, and prospective students in, the Permian Basin might view UTPB with an increased awareness of its purpose. A clearly defined identity for UTPB will help in this institutions ability to market itself and to represent a coherent idea—or, for lack of a better word, a “brand”—to the Odessa and Midland region and beyond.

Another important factor in augmenting student engagement through participation in Student Affairs – Academic Affairs programs is faculty involvement. Elkins Nesheim et al. (2007, p. 436) argue that “frequent faculty-student interaction in and beyond the classroom also increases academic achievement and student success”. Martin Lohfink and Paulsen (2005, p. 421) similarly argue for the importance of faculty-student interaction: “As indicated in the Appendix, most of the items that constitute the index used to assess students’ engagement in academic activities are clearly based on frequency of faculty-student interactions. This study may have a particularly important influence on the college experiences and the first-to-second year persistence of [First-Generation Students]”. As many UTPB faculty are already involved in clubs as faculty

advisors, it follows that these faculty members are contributing highly to the mission of retaining students, and as such, their important efforts ought to be recognized, promoted and rewarded.

2. Recommendations

We would like to put forth a few proposals to improve UT—Permian Basin’s student retention and academic performance as they relate to the community in the BASIC Retention Plan.

1. Cohort classes and Freshman Year Living Environments. One strategy to lower drop out rates in math classes and improve retention could be to create classes in which a cohort of students who need remedial courses would all enroll in the same classes. Creating cohorts would allow students to enroll “in a common set of courses throughout their first year in college; such a “blocked scheduling” effect has been shown to reduce anxiety and provide the necessary social support to succeed in college” (Mayhew & Engberg, 2011, p. 22). Cohort classes could supplement the efforts already underway with UTPB’s Freshman Seminar, but for students at risk of failing Math or English courses and dropping out of the university, cohort classes may add an additional means for students to build connections with other students and recognize that they are not alone in their struggles with Math or English courses.

Freshman Year Living Environments or Learning Communities within the UTPB dormitories might be another way to develop a sense of community between students struggling with their courses. If certain floors within university dorms are dedicated to mixing low-achieving and high achieving math students together or, alternately, to bringing students together who are at risk of struggling in their courses, the sense of isolation a student who finds university academics challenging may be lowered.

It should be noted that First Year Learning Communities or the cohort model of enrollment are not panaceas. Talburt and Boyles (2005) for example, argue that such learning communities can have an opposite effect from what is intended, particularly as the “potential for insularity, isolation [in so far as cohort students are separated from the rest of the university] and dependence” can be unwittingly produced (p. 216). In addition, learning communities can foster “adversarial roles towards instructors, the formation of cliques and ‘negative’ community behaviors such as cheating, rudeness or skipping class” (p. 217).

2. Bolstering Student Clubs. It would seem wise to bolster the student clubs already on campus and administered by Student Life, by providing more funding for extant clubs, seeking increased interaction among clubs and rewarding faculty for their involvement with clubs. Moreover, UTPB may bolster its student activities clubs by adding a few more clubs geared towards academic achievement or that entail a service learning component. Tying the club activities towards learning and ethical imperatives would help develop a sense of responsibility towards students’ own learning and their community. It should be recognized that UTPB honors societies and UTPB’s Undergraduate Research Program already perform such a function, but there

seems to room for more informal clubs to achieve similar aims of academic achievement and service to the community.

3. Student Forum for Academic Challenges. This last recommendation is not for a new club but proposes instead a forum and informal meetings for students who find university academics particularly daunting. Freshman Seminar likely provides an avenue for this, but it seems reasonable that students might also benefit from dedicated meetings, preferably student-led, that allow them to discuss their anxieties, problems and challenges. Freshman Seminar may or may not be perceived as another “class” that they must take; a forum, on the other hand, could be viewed as a place where students can freely voice what the aspects of university academics with which they are struggling. An online version of a student forum—whether in the form of a blog or a chat room—might also work as a means to get students to discuss the struggles that they are facing in terms of academics and their transition to the university.

K. Recommendations

1. Overarching Recommendation.

There have been numerous recommendations embedded in this report in the discussions of each of the five components of the BASIC Retention Plan. However, the members of the Task Force hopes that it is clear that the issue of retention and progress to the degree is a large and complex issue requiring a coordinated and proactive effort to bring about productive change. Thus, there is really only one overarching recommendation. Namely, adopt the BASIC Retention Plan with its Vice Provost or University College Dean to guide, coordinate, establish teaching quality control measures, and to be *proactive*. This role is not a part-time position, but rather a full-time position filled with a dedicated and enthusiastic individual with experience. *This plan is about instilling a culture of caring and quality teaching, as well as a positive attitude and positive actions which demonstrate caring of students by faculty, staff, and administrators.* There is much that we can do at UT—Permian Basin, and must do to increase retention rates and persistence to the degree.

The BASIC Retention Plan comes with its five components, with recommendations embedded within each component. The detailed recommendations offered in this report are either evidence-based or based on expert advised best practices; they are not “off-the-cuff” suggestions. They have been offered only following a thoughtful and thorough review of the literature. Like the master quilter, the plan is a whole ecology based on tried and true experience and data, and like the many pieces of a quilt that the master quilter must coordinate and care for, and then stitch the pieces together, paying attention to the whole, and then attending to each piece of fabric, while stitching every thread in place, and then testing it to make sure it holds up over time. The BASIC

Retention Plan is not something on can implement piece-meal. Of course, some of the suggestions offered in the Buildings component may be phased in as money becomes available for rebuilding offices and the purchase of student furniture, and so forth, the remaining aspects of the BASIC Retention Plan can, and should, be implemented in an all or none fashion, beginning with the hiring of the Vice Provost or University College Dean.

2. Other Key Recommendations.

Noted above, there are many recommendations embedded in this report, with the primary aim of creating *a culture of caring and quality teaching*. While all of the recommendations are considered valid, we realize this is not an exhaustive list, nor, perhaps, can all the recommendations be employed. Some will have to be phased in as the budget becomes available. Some of the key recommendations are offered below, with the page number in this report where it was mentioned.

- a. Modify the GAB making it ADA convenient. [p. 12]
- b. Merge AVID, ADA, the Literacy Center, the Math & Science Center, SI, and the Writing Center in one location. Merge also Business Academic Advising, CAS Academic Advising and Career Services as close together as possible. [pp. 14, & 20-21]
- c. Establish a small committee comprised of two faculty and two students who would, once a semester, survey the classrooms, corridors, study areas, student housing, services, and webpages and make recommendations to the new Vice Provost (or University College Dean), or the President. [p. 15]
- d. Overhaul and update the cumbersome website. [p. 15]
- e. Centralize programs aimed to increase student retention and persistence to the degree with the hiring of a Vice Provost or University College Dean. [pp. 19-20]
- f. Place the following units aimed at student success under the supervision of the proposed Vice Provost or University College Dean: (1) ADA services; (2) AVID; (3) the Library (i.e., database searching); (4) the Literacy Center; (5) the Math & Science Center; (6) the Mentoring & Dual Credit programs; (7) Supplemental Instruction (SI); (8) the Writing Center; (9) Academic Advising for Business and the College of Arts and Sciences; (10) Career Services; (11) Early Alert Services; and (12) the PASS Office. [p. 21]
- g. Classroom effectiveness, accessibility to faculty, and faculty advising should be the focus of our retention effort and needs to be overtly rewarded. [pp. 21, 23, & 37]

- h. Faculty teaching developmental courses and general education courses should be our best instructors. Training, oversight, and rewards for these faculty should be employed [p. 24]
- i. Early alert services need to be more generally used by faculty. Faculty can also employ techniques in their classroom to test and assess more often, especially early in the semester. [p. 26]
- j. Establish new mathematics placement depending on high school GPA and SAT/ACT as a secondary placement tool. [pp. 28-29]
- k. Establish a summer bridge course that tests students and targets teaching at the student's deficiencies. [p. 29]
- l. Establish a five week accelerated math 0399 course followed by a college algebra course for the rest of the semester. [p. 30]
- m. Establish self-paced Math 0399 and Math 0398 courses. [p. 30]
- n. Many students are severely at risk for dropping out. Some of these at-risk factors are: (1) liable for one or two or more developmental courses; (2) admitted conditionally/provisionally; work more than 20 hours per week; and (4) care for dependents. A process and criteria for dealing with such students should be in place, and these students should be monitored, mentored, tutored, and be limited to enrolling in a maximum of 10 hours until they demonstrate a sound GPA. [p. 39] Classroom teachers, particularly those in developmental courses, need to interact with and guide these students. [p. 37]
- o. Ways to increase student engagement and faculty-student interactions should be established, such as cohort classes and "blocked" scheduling. [p. 40]
- p. Bolster student clubs aimed at academic achievement, and try to link freshmen to these organizations as soon as possible. [p. 40]

L. Addendum: Review of this Report by Dr. Kati Haycock

President Watts had invited Dr. Kati Haycock, President of the Education Trust in Washington, D.C., to be the keynote speaker for President's Day, November 29th, 2011, at 10:00am. Dr. Haycock is a nationally recognized expert in retention. In anticipation of her visit, President Watts invited the Task Force to submit its November 18th report to Dr. Haycock for her review. He then arranged a meeting between Dr. Haycock and the members of the Task Force on November 29th at 9:00am so that the Task Force could hear and discuss Dr. Haycock's comments. A summary of Dr. Haycock's comments is below.

1. Several quotes from Dr. Haycock during the meeting were very complimentary:

- “This is the most comprehensive report that I have ever seen, and I’ve seen a lot recently; it’s in the top 1%.”
- “Extraordinarily comprehensive”
- “Dead on.” She used this phrase two or three times, referring to the overall report.
- “I’m very impressed by the work you’ve done”
- On developmental math: “You covered this well.”
- “Amazing that you were able to generate this report in just two months.”

2. In addition, Dr. Haycock added:

- She emphasized the Task Force’s point about a single overseeing person, and she recommended that this person be from the Provost's office who is not the Provost. She referred to this individual as the “Deputy Provost.” This is not meant to imply this would be that person's only responsibility if it were a full time appointment.
- There is much that can be done with the high school level. The Task Force mentioned this in the report, but didn’t elaborate much.
- On math bridge courses, she expanded on three-day workshops to refresh students’ memories. This is implied in the report.
- We need to change the culture, and that begins with the President saying how important retention and progress to the degree are. She said this in her presentation at 10am November 29th as well, and with a PowerPoint slide.
- She did not like limiting at risk students to a 10 hour load. After Dr. Haycock left, we of the Task Force disagreed. It’s important for these most vulnerable students, we felt, to take it a bit easy until they get the hang of things. The Task Force noted that this upper limit of 10 hours may need to be adjusted to 11 hours to accommodate new freshman athletes.
- She frequently expressed the value of data, but that data are useless without “action”. She use the word “inspect” several times, referring to inspecting the data that are available and making changes accordingly, and to inspect that policies are being met. The Task Force used the word “monitor” in its report to mean the same thing.
- Move people who can’t teach out of the developmental and general education courses. The Task Force said this too, and she said this in her 10am presentation.
- UTPB needs to reward and make it count, keep data, and inspect those data, and.....do something about those data.....in regard to faculty who are doing their jobs in terms of access, engagement, quality teaching, caring, and nurturing of student. The Task Force also noted this. Again, Dr. Haycock emphasized the “inspect” and “do something about” the data.

In sum, Dr. Haycock thought the Task Force report was “dead on”, and she spent considerable time hitch-hiking on points made in the report. Thus, in light of the feedback Dr. Haycock provided, the Task Force decided that there was no need to modify its report, but appropriate to add this addendum.

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N. Appendix 1, UAB Remedial Mathematics Course Description

1. Summary.

This describes two University of Alabama at Birmingham mathematics courses. This was part of their QEP (Quality Enhancement Plan) of a few years ago. The learning model is mostly instructor supervised computer-based instruction. Students must attend two class and one lab period each week. Attendance points are awarded for each session. Homework must be completed for each “module” and points are awarded for doing so. There are quizzes which can be taken any time (with an option to repeat once) in the lab but tests must be taken during the student’s scheduled lab period. Five tests are to be completed at a pace not less than a given schedule but only after the associated quizzes and homework have been completed. Presumably a student could complete this course in a short time but must finish within the semester. Course materials and assessment activities are all computer-based and provided by the University for a fee. A more complete view can be gotten from the following material which is a compressed version of the actual syllabus. Most of what has been left out is UAB-specific information such as how the student registers, ADA information, and the like.

2. MA 098 – Review of Basic Algebra

Course Description: (3 semester hours). Whole Numbers. Integers. Solving Equations and Problem Solving. Fractions. Decimals. Ratio and Proportion. Percent. Geometry. Polynomials.

MA 098 is roughly our MATH 0398 course. There is a second course, MA 103, using the same approach, corresponding to our MATH 0399 though in Alabama it is a credit course. See description at the end.

Attendance policy: Attendance at every class meeting and lab meeting is required. Roll will be taken. There are 14 weeks of scheduled class meetings (two class meetings per week for most weeks) and 14 scheduled lab meetings. Students earn up to 10 Participation Points per week toward their final grade for class meetings attended and 5 points for each lab meeting attended. *To earn the Participation Points students must be in the classroom or lab at the start of the meeting and at the end of the meeting.* The following rules apply:

1. Students may not sign the roll for another student. Violation of this policy will result in a grade of F for academic misconduct.
2. If you come late to the class/lab meeting, do not ask to sign the roll.
3. Do not sign the roll if you intend to leave the class/lab early.
4. In case of emergency, students may leave the class/lab without the instructor's permission. Just get the instructor's attention and leave quietly with minimal disruption to the rest of the class.
5. NO participation points can be earned if the student is absent, whether or not the absence is excused. If you are absent on official university business, you can obtain tutoring to earn the participation points. Arrangements must be made in advance of the absence.

Course Structure: This course is primarily computer-based. All homework assignments are on-line and can be completed either on your own computer or using one of the computers in the UAB Math Learning Lab (MLL in 202, Heritage Hall). All quizzes must be completed in the MLL (during MLL hours) anytime before the scheduled deadline. All tests are also done on the computer, but they must be taken in the MLL according to your class schedule during your lab meeting time. In order to receive credit for homework and quizzes, the work must be done on or in advance of course deadline dates. See the course schedule for the course deadline dates.

Materials: You must purchase a course ACCESS CODE and the course workbook. You may purchase the access code and the workbook shrink-wrapped together (this is the least expensive way to purchase the access code and the workbook). You may also purchase the access code and workbook separately.

The workbook is *Review of Basic Algebra, UAB Math 098 Student Workbook*.

You must purchase a course ACCESS CODE unless you are repeating the course and the same online textbook is being used. The access code comes in a Student Access Kit for MyMathLab

that you can purchase as a stand-alone item at www.coursecompass.com or the Student Access Kit with the access code comes shrink-wrapped with the workbook. You must purchase the Access code and the workbook. You can purchase these two items separately or you may purchase the access code shrink-wrapped with the workbook.

Getting Started: The first thing you must do is register for your on-line course materials. You cannot complete any assignments until you have registered in CourseCompass. Go to www.coursecompass.com and click the Register button for students. Follow the instructions provided in the MyMathLab handout attached to the back of this syllabus. To register, you will need the following: (omitted by me)

Calculator policy: Scientific calculators may be used for homework and quizzes. Students may not use personal calculators during testing. Note that all tests for this course are administered in the MLL during your scheduled lab meeting times, and there is an on-screen calculator available for your use when testing. Your instructor will not assist you with the on-screen calculator during a test, so it would be to your advantage if you familiarized yourself with the use of the on-screen calculator in the Math Learning Lab, before you have to take a test.

Course Grades: Students earn their grade in the course by accumulating points. There is a maximum of 1000 points available. Student letter grades are awarded as follows. Students who use Internet Explorer can go to info.math.uab.edu to review the status of their grades in the course. Note that grades are awarded by points earned.

| Grade Element | Points | Quantity | Total Points |
|------------------------------|---------------|-----------------|---------------------|
| Homework | 5 | 14 | 70 |
| Participation Pts (per week) | 10 | 14 | 140 |
| Quizzes | 5 | 14 | 70 |
| Lab attendance | 5 | 14 | 70 |
| Tests | 130 | 5 | 650 |
| Total points | | | 1000 |

| Points Earned | Course Grade |
|----------------------|---------------------|
| 900-1000 | A |
| 800-899 | B |

| | |
|-----------|---|
| 700-799 | C |
| 500-699 | D |
| Below 500 | F |

Homework: There are 14 homework assignments. For each assignment you can earn up to 5 points, based on your homework score. An unlimited number of attempts can be made on each homework problem. You can go in and out of the homework as many times as you like before the deadline (all of your work is automatically saved). You earn points for homework completed on or before the due date. After the due date, you can review homework assignments and work similar exercises, but you cannot change your score.

Class Meetings: There are 14 weeks of class meetings. For each week's class meetings, you will earn up to 10 Participation Points. Participation Points are earned if you are on time, and if you stay in the classroom for the entire class meeting. See course schedule for the dates of each class meeting. No participation points are awarded for an absence (excused or unexcused).

Required Weekly Reading Assignments: For each homework and quiz set, students are required to read the corresponding lesson from the *Ma098 Student Workbook*. For example, for Homework 8 and Quiz 8, students should read Lesson #8 from the workbook BEFORE beginning work on Homework 8 and Quiz 8. Students should read each week's lesson before beginning the corresponding homework and quiz set for that week.

Class meeting format and participation points will be addressed at the first class meeting.

MLL Attendance: There are 14 lab meetings. For each lab meeting that you attend, you will earn 5 points. Points are earned if you are on time, and if you stay in the lab for the entire meeting. No points are awarded for an absence (excused or unexcused).

Students can work on their homework, take quizzes, obtain tutoring assistance, and listen to course video lectures in the MLL. (To watch and listen to computer video lectures, students can bring their own headsets or can check out a headset from the MLL.)

When you come into the MLL, you must log on to the course homework system. To log on, click on the appropriate course box. Then you will be prompted to enter your BlazerID and password.

Quizzes: There are 14 quizzes. Each quiz is worth 5 points. You take the quizzes on your own schedule, but you can only earn the quiz points if the quiz is taken on or before the due date. Quizzes must be taken in the Math Learning Lab (any time during the scheduled hours of operation) You must complete the quiz by yourself. You may not obtain assistance from a fellow

student or from a tutor, but you may use your textbook and notes for quizzes. The quizzes are timed. Once you begin a quiz you have 30 minutes to complete it. Each quiz can be taken a maximum of two times. The higher grade attained will count.

All quizzes require a password, and the passwords are available in the MLL. You cannot exit the quiz or that will count as one of your attempts.

Tests: There are five major tests to be taken. Tests will be taken in 202 Heritage Hall during scheduled computer laboratory meeting times. The tests are timed and are 50 minutes long. Students are required to keep a government issued photo ID on their desks during testing (UAB student ID, driver's license, etc).

Make-up policy: No make-ups are allowed for quizzes. There is no appeal for missed lab attendance points, missed homework deadlines or missed quiz dates. If a major test deadline is missed due to a serious verifiable circumstance, the student may submit an Appeal Form (available in the Math Department Office in Campbell Hall) to the Math Department Appeals Committee. The completed Appeal Form, along with supporting documentation attached, may be submitted to Room 452 of Campbell Hall. The Appeal Form with supporting documents attached must be received no later than one week after the missed deadline. The appeal will be reviewed by the Director, the course instructor, the course coordinator and the Supervisor of the MLL. The student will receive a prompt reply as to the adjudication of the appeal but should continue working in the course.

Course Completion: The course is complete once the student takes Test 5. No other points may be earned after test 5 has been taken. You must take Test 5 to complete the course.

Cell Phones. Student cell phones must be TURNED OFF and PUT AWAY during ALL class and lab meetings.

Notebook. Students are required to have a notebook in which they can record class meeting notes, file this syllabus, file instructor e-mail messages, and file other course related information.

3. MA 102

Course Description: (3 semester hours). Absolute values. Cartesian coordinates. Graphs of equations. Concept of a function. Function notation. Lines. Linear systems. Word problems with linear models. Algebra of polynomials. Factoring of polynomials. Polynomial Division. Algebra of fractional expressions. Literal equations. Rational equations. Word problems with rational models. Integer and rational exponents. Algebra of radical expressions. Radical equations. Complex numbers. Introduction to quadratic functions. Quadratic equations.

Details. The parameters of this class are essentially the same as those specified for the class above.

