The College Persistence Questionnaire: Angelo State University Retention Report

Global Analysis of Students Enrolled in Psychology Courses in Fall of 2007, 2009, 2013

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January 2018

Note. Special thanks is offered to Mr. Austin B. Hobbs in the Office of Accountability for supplying the reenrollment data.

Executive Summary

The most powerful form of intervention takes place in one-on-one sessions with students who have been identified to be at-risk to drop out of school prematurely. The *College Persistence Questionnaire* (*CPQ*) Advisor Portal* provides school personnel with a tool for making these encounters helpful, effective, and fruitful in raising retention rates. It identifies individual students who are most at-risk, supplies an in-depth analysis of the problems each one is experiencing, and presents a personalized list of suggestions for helping the student. Testimonials of advisors and counselors who have used the Advisor Portal are uniformly and overwhelmingly positive in describing its value in their sessions with individual students.

This Retention Report provides a perspective that supplements the one-on-one approach just mentioned. By analyzing the aggregate responses of many students at Angelo State University (ASU), patterns and trends emerge that clarify which factors are most important among large groups of students. This perspective presents the opportunity to develop or improve upon large-scale intervention programs which will have maximum effect on retention because they seek to improve persistence-linked qualities in students.

This retention analysis examines the students' reenrollment one year after they completed the *CPQ*. The *CPQ* is divided into two sections: (a) the Student Background Form, which measures a wide variety of background information about students that is relevant to their persistence (such as sex, ethnicity, financial aid, and reasons for choosing to attend the school), and (b) the Student Experiences Form, which measures 12 types of psychosocial attitudes or personality patterns that students develop based on their experiences at the school. This report analyzes the contributions of both types of factors to the students' decision to reenroll or not.

The specific goals of this investigation were to (a) collect reenrollment information on students enrolled in psychology courses during the fall semesters in 2007, 2009, and 2013, (b) determine which student-background factors and student-experience factors predicted their reenrollment in the fall semester one year later, and (c) offer detailed, data-driven guidelines for improving retention rates at ASU, based the results of the quantitative analysis of *CPQ* scores. The samples included students who took psychology courses to fulfill core curriculum, major, and/or minor requirements, as well as those who took the courses as electives.

The analysis was performed on 930 ASU students, using a series of logistic regressions. The results yielded a clear picture of (a) the retention rates for the three samples, and (b) the differences between students who persisted versus those who dropped out.

*Advisor Portal. Immediately after a student completes the *CPQ* online, this portal makes available to authorized school personnel an online profile of the student's scores, the meaning of each score relative to a national database, the probability of the student's

decision to drop out, and a list of individualized strategies for improving the student's areas of vulnerability, based on scientifically-validated techniques for behavioral change.

Results of the Global Analysis of the Three Samples

●The retention rates were pretty high throughout the three years of the study, varying between 68.67% and 83.2%. The fluctuations from one year to the next could be due to any combination of a number of factors such as changes in recruiting strategies or admission standards, initiation or cessation of large-scale university-wide intervention programs or degree programs, and so on. In our analyses of retention at other schools, we have found that even though retention rates do fluctuate somewhat across years, the relationships between reenrollment and *CPQ* variables are quite stable. Therefore, this global analysis of those relationships, which combines the years into one large sample, provides reliable insight into why students stay or leave. The reliability of the insights is based on the large number of students who are included in the study and the fact that the information is based on multiple years. In our opinion, the results of this study will generalize to future students in psychology courses and provide meaningful guidelines - unless there are dramatic changes in the type of students attending ASU or changes in university policies.

●Regressions of reenrollment scores upon the student-background factors and the student-experience factors (or scales) were statistically significant, explaining 19.3% of the variance in reenrollment. Thus, the qualities measured by the *CPQ* instrument are valid and potentially useful predictors of the reenrollment decisions made by students at ASU. The information can serve as a guide to why students decide to stay or leave.

●Only one student-background characteristic distinguished returners from non-returners. The reenrollment rates were higher for students who chose to attend ASU because the school offered the academic program(s) they wanted. This finding may be especially useful in recruiting the type of future students who are likely to persist, so we include ideas about this in the recommendations below.

●The students' post-matriculation experiences were much better predictors of reenrollment status than were the background characteristics. This finding indicates that students' interactions with the academic and social environments at ASU have a profound impact on their decision to stay or leave, and their views as early as midway through a given semester are reliable indicators of their reenrollment decision made much later.

●Six of the 12 student-experience scales predicted reenrollment: *Institutional Commitment, Degree Commitment, Career Integration, Social Integration, Advising Effectiveness*, and *Financial Strain*. When students experienced problems in any of these areas, it affected their inclination to persist. One of the just-mentioned scales was much stronger in its association with reenrollment than the others,

Institutional Commitment. Special effort should be directed toward instilling this quality in students early on. Also, identifying students who have unfavorable levels of it is advisable so that one-on-one sessions can take place.

Conclusions and Recommendations

●The retention rate among students enrolled in psychology courses at ASU is quite high, so the school undoubtedly provides students with many stimulating and supportive academic, social, and financial experiences.

●The high retention rate makes it challenging, from a statistical standpoint, to pinpoint the reasons why some students drop out prematurely. Typically, logistic regression equations explain a higher percentage of variance when the dichotomous criterion variable (reenrollment) is more evenly divided between categories. Nevertheless, the *CPQ* measurements were sensitive enough to reliably foretell which students would persist and who would not stay.

●The reasons why students choose to attend ASU, before starting, do play a role in their later decision to stay. That role is influential for those whose attendance is based on the school having a specifically-preferred academic program. This finding can have an important function in recruiting strategies. Even though many entering freshmen are undecided about their future major, recruiters should query students' interests and mention some of the distinguishing features of disciplines/majors/minors that are relevant to the students' interests.

●The scientific literature reports many empirically-validated, high-impact programs for improving retention. The focus at ASU should be on those that will strengthen students' post-matriculation views in the six areas that are associated with reenrollment: *Institutional Commitment, Degree Commitment, Career Integration, Social Integration, Advising Effectiveness,* and *Financial Strain.* These are malleable qualities, so unfavorable levels can be improved. Table 1 of this report serves as a guide by grouping the best interventions for each of the *CPQ* dimensions just mentioned. The high-impact strategies presented in the table have been validated at schools with high retention rates as well as at those with rising rates.

●The strongest predictor of reenrollment was the *Institutional Commitment* scale. This finding is consistent with what has been discovered at many other schools. Initiatives aimed at instilling this quality, even as early as the students' first semester, have a high likelihood of reducing attrition among vulnerable students. We recommend that ASU maintain or enhance practices from Table 1 that are currently underway, and perhaps add ones that are not yet offered. In addition, steps taken to promote the University's brand elements (such as famous alumni, logo, mascot, alma mater, slogan, individual attention, distinguished faculty, national reputation, physical appeal, endowments, athletics, family tradition, and so on) will benefit retention rates. Also, it is worth noting that previous studies on how college students form *Institutional Commitment* have found that three other student-experience qualities play an

especially large role: *Academic Integration, Social Integration,* and *Career Integration*. The more integrated students become in these three ways, the more committed they become to the school. Therefore, initiatives that raise any combination of these three types of integration are likely to have very positive, additional effects on *Institutional Commitment*.

●The *CPQ*'s Advisor Portal allows schools to sort students according to the favorability of their scores on each of the 12 student-experience dimensions. Those students who are having problems are easily identified along with the particular reasons why they are floundering. Schools that have a strong outreach program are known to sort students on the basis of their *CPQ* profile, contacting and meeting with those who have unfavorable levels of important, retention-relevant qualities. This type of outreach is very successful in retaining many students who would otherwise drop out.

●The Advisor Portal might also be used to identify students who will benefit the most from particular intervention programs. Then they can be contacted with a personal invitation to attend the specific program that focuses on their vulnerability. For example, if a seminar on financial aid were offered, sorting students on the basis of *Financial Strain* would identify those who are most in need of assistance on this quality. We recommend that the sorting be done so that the students who are most in need of specialized assistance are contacted about the focused programs being offered.

The *College Persistence Questionnaire*: Angelo State University Retention Report

Global Analysis of Students Enrolled in Psychology Courses in Fall of 2007, 2009, 2013

Introduction

Approximately half of students who matriculate at American colleges and universities do not graduate within seven years. Although retention has long been an issue within higher education, several factors have greatly augmented efforts to reduce attrition rates over the past three decades. An increasing number of jobs require post-high school training. When students drop out, potentially skilled workers must be incorporated into the already overcrowded semi-skilled and unskilled labor force. If the US is to maintain a high standard of living in the twenty-first century, then American colleges and universities must produce an abundance of skilled workers who can successfully compete in a global economy.

The detrimental effect of attrition on the financial health of colleges and universities has stimulated many retention efforts. Funding at many public schools is based on the number of graduates. When financial support is tied to graduation rates, students who discontinue their education represent a loss of income and an unreimbursed expenditure. Small private colleges with neither state support nor large endowments may suffer catastrophic effects if attrition rates are high. Monies spent on recruitment must be increased to offset students who dropout. In some cases, low retention rates can result in the closure of the college itself.

Retention efforts have also increased because colleges now show a greater sensitivity to students' needs than in the past. Institutions now see their role as helping all their students achieve their potentials. Meeting that potential often requires providing students the support and guidance they need to stay in school. Commonplace are counseling centers, financial aid offices, career development offices, centralized advising centers, seminars and workshops that develop basic academic skills, and social engagement programs.

In our view (Beck and Davidson), the most significant reason for improving retention is that a student's premature departure often constitutes the death of a dream. Higher education remains the most well-travelled path to a good and better life. College graduates will have a greater earning capacity and a broader choice of careers than persons with only a high school diploma. Attrition often precipitates not only reduction in income but an overall lower quality of life. The college experience instills psychological qualities in students that not only enhance their academic success but also their effectiveness in the workplace and beyond.

The *College Persistence Questionnaire* (*CPQ*) measures 12 malleable psychological qualities that are known to strongly affect the students' decision to stay in school or depart prematurely. These qualities are instilled in each student after matriculation, to a greater or lesser extent, and empirical studies on thousands of students across a wide variety of colleges and universities have validated that when *CPQ* scores are unfavorable on any combination of the 12 qualities, the student is very likely to drop out prematurely.

Fortunately, all of the 12 qualities can be strengthened. This Retention Report includes a lengthy list of the ways in which successful schools have done so. It provides a perspective that supplements the one-on-one approach offered by the Advisor Portal (which profiles the specific vulnerabilities of each student and provides individuated suggestions). By mapping the aggregate responses of many students at ASU onto reenrollment, patterns and trends emerge that clarify which factors are most important among large groups of students. The specific goals of this investigation were to (a) calculate the reenrollment rates of students enrolled in psychology courses, (b) determine if the *CPQ* predicts reenrollment, (c) identify those factors most strongly associated with reenrollment, and (d) offer data-driven guidelines for improving retention.

Method

Participants and Procedure

The respondents were students enrolled in psychology courses offered during the fall semesters in years 2007, 2009, and 2013. The three samples had a total of 1110 students: 516 first-year, 261 sophomores, 153 juniors, and 177 seniors. As an assignment in the courses, students had the option to complete the questionnaire online or participate in other research projects being offered. Those who chose to complete the *CPQ* questionnaire did so after the first six weeks of the semester. At the start of the fall semester one year later, their reenrollment status was determined and recorded along with their *CPQ* scores. Seniors were omitted from data analysis because many had graduated prior to the semester in which reenrollment status was determined.

The respondents self-reported the following characteristics: 69.9% were females and 30.1.% were males; the ethnic backgrounds were 58.8 % White, 28.1% Hispanic, 1.4% Asian, 8.6% Black, and 2.9% Other; financially, 5.9% indicated that they worked on campus, 69.7% were on scholarship, 49.7% had taken out a loan, and 14.5% received no financial aid. Residentially, 42.8% lived in a residence hall or dormitory on campus. For a variety of reasons, schools are often interested in whether or not the students' parents attended college. In this sample, 28.62% were first generation college students (neither parent had attempted college).

The participants were presented with a list of seven common reasons why students choose to attend a particular school. They indicated which ones were important in their own decision, as follows: the school's location is close by (45.0%) or appealing (25.2%); it has preferred academic programs (36.8%); friends attend the school (28.2%); family or relatives attended the school (13.8%); the sports programs (16.0%) or the school's reputation (34.8%) are attractive.

The Instrument

The *CPQ* has two sections. (1) The Student Background Form consists of questions that measure pre-matriculation characteristics (age, sex, ethnicity, marital status, parents' education level) and items that characterize students at-matriculation (residence, work and financial resources, and reasons for attending the particular school).

(2) The Student Experiences Form has 39 questions that measure the students' post-matriculation views of themselves and their experiences at the school. The Student experiences Form is the most important part of the *CPQ*. A series of published investigations involving thousands of students in a wide variety of schools reported 12 distinct, homogeneous clusters or scales (Beck & Davidson, 2015; Davidson & Beck, 2016; Davidson, Beck, & Grisaffe, 2015; Davidson, Beck, & Milligan, 2009). The scales (and their defining aspects) are: *Institutional Commitment* (confidence in school choice, feelings of loyalty, intention to reenroll), *Degree Commitment* (the personal importance and value that students and their supportive network place on degree completion, sense of certainty in degree attainment), *Academic Integration* (positive views of instruction, instructors, and own intellectual growth), *Social Integration* (sense of belonging, shared values, and similarity to others at the school; positive involvement behaviors), *Collegiate Stress* (feelings of distress, pressure, and sacrifice), *Motivation to Learn* (interest and enjoyment in academic tasks; willingness to spend extra time), *Scholastic Conscientiousness* (timely performance of academic responsibilities), *Academic Self-Efficacy* (confidence in academic skills and outcomes), *Financial Strain* (financial worries and difficulties; sense of disadvantage relative to others), *Advising Effectiveness* (positive views of advising and school communication processes), *Career Integration* (perceived connection between the training provided at the school and obtaining a desirable career), and *Grit* (tendency to sustain interest, effort, and persistence in long-term pursuits). In addition to the brief descriptions of the scales provided here, their meaning is also clarified by examining the items that form them, presented in the Appendix.

The questions on the Student Experiences Form are answered on a five-point Likert scale. Although the response choices for the questions differ depending on the item wording, all are converted to a favorability continuum that ranges from -2 (least favorable answer) to +2 (most favorable answer).

Results

Retention Rates Across Three Years

For each sample of students, we calculated the percent who were reenrolled one year after completing the *CPQ* (percent / sample size): 2007 (73.5% / n = 309), 2009 (75.7% / n = 296), 2013 (83.2% / n = 179). As expected the retention rates increased as students progressed beyond the first year: first-year (n = 448 / 68.8%), sophomores (n = 218 / 88.1%), juniors (n = 118 / 84.7%).

These figures are probably somewhat higher than the university-wide retention rates, which is undoubtedly due to the extensive retention programs which were developed and run on psychology students under the leadership of Dr. Kristi Moore during the years covered by this study.

Validity of the CPQ at Angelo State University

The psychometric credibility of the *CPQ* has been established across dozens of schools in the US and internationally. However, it is important to verify its validity at specific institutions (such as ASU) so that the meaning of low scores, which place students "at risk", is clear. While validity can be established in many ways, two are readily available in the data collected at ASU. The first is "concurrent validity," which examines whether the scale scores relate to one another as expected. In other words, is the intercorrelation among the scales on data collected at ASU similar to the coefficients calculated at other schools? In every sample of *CPQ* scores collected at ASU and reported previously in published studies, *Institutional Commitment* scores have been meaningfully related to the other student-experience scale scores, as expected. Therefore, concurrent validity is well established at ASU.

The second type of validity is particularly germane to this report, "predictive validity." It addresses the question of how well the *CPQ* scores foretell what students will do or decide at some future time. Specifically, will they reenroll? The *CPQ* is valid to the extent that the students' answers to the questions in the fall of one year are statistically associated with their enrollment status the next fall. The remaining parts of this report focus on predictive validity, combing the scores collected in three previous samples (years 2007, 2009, 2013).

The analysis of the combined samples produces more definitive conclusions about the predictive validity and the meaningfulness of *CPQ* scores than could be attained with individual sample analyses. To study the differences between students who reenroll versus those who do not, we divided their *CPQ* scores into three blocks of variables: (1) pre-matriculation student-background characteristics that are typically on file in the school's student record system, (2) student-background information that is available at-matriculation but which is not ordinarily included in the school's student record system, and (3) student-experience variables that reveal their impressions of themselves and the school based on at least six weeks of experiences.

Delineation of the Correlates of Retention at Angelo State University: Pre-Matriculation Characteristics

A direct logistic regression was performed on the students' enrollment status during the fall semester, one year after completing the *CPQ* (1 = enrolled, 0 = not enrolled). The predictors were pre-matriculation variables that are typically on file in the school's student record system: sex, ethnicity (headcounts allowed for analysis of Hispanics and Whites), and whether or not the students' parents attempted college, sometimes referred to as "first generation" if they are the first in their family to attend. These variables were coded 1 if the characteristic was present and 0 if it was not present. The students' age was omitted from the analysis because the vast majority of the students in the samples were of a traditional college age, 18 to 22. A test of the full model against a constant-only model achieved statistical significance, X^2 (4, N = 2997) = 1.13, p = *ns*, Nagelkerke R^2 = .003 (Nagelkerke index is adjusted to maximum value of 1.00). The amount of variance accounted for in the full model is very small and not statistically significant.

The next step in the analyses was to examine the individual contributions of the predictor variables in this block. Ordinarily, this is done by calculating the Wald chi-square statistic and odds ratios for each variable within the overall equation. However, such an analysis runs the risk of underestimating true effects when any of the relationships are strong or when the predictors share the same reenrollment variance. To reduce these possibilities, we calculated separate bivariate relationships between reenrollment and the predictors; the bivariate statistic was chi-square, because predictors were categorical variables. The analyses yielded no statistically significant effects for the retention rate (% who reenrolled) of any of the pre-matriculation characteristics.

Delineation of the Correlates of Retention at Angelo State University: Student Background Information Available At Matriculation

While the Background Form collects information on the aforementioned pre-matriculation variables (sex, ethnicity, first generation), it also queries other characteristics which are available at matriculation but are not typically included in schools' records, variables that sometimes play a role in retention. They fall into three categories, "Residence on Campus", "Work and Financial" and "Reasons for Attending" the ASU. A logistic regression was performed upon the students' enrollment status using the aforementioned block of pre-matriculation variables plus a second block that included twelve at-matriculation variables as predictors: whether or not students (1) live on campus, (2) work on-campus, (3) are on scholarship, (4) have a loan or (5) receive no financial aid; and whether they chose to attend ASU because of its (6) reputation, (7) preferred academic programs, (8) sports, (9) location, or (10) it is close by, or the school is/was attended by (11) friends or (12) relatives. The other at-matriculation variables had too few cases to evaluate. A test of the full model (two blocks of variables) against a constant-only model achieved marginal statistical significance: X^2 (16, N = 930) = 21.73, p < .06, Nagelkerke R^2 = .047. An analysis of the 12 at-matriculation variables found that the model with these variables was reliably

different from the model without them, and the increase in explained variance (from 0% to 4.7%) was marginally statistically significant: X^2 (12, N = 930) = 20.60, $p < .06$.

Therefore, it is worthwhile to analyze the individual contributions of the variables in the second block of at-matriculation characteristics. The same precautions were taken as with the pre-matriculation variables. Rather than report the Wald chi-square statistic and odds ratios from the full equation, we calculated stand-alone chi-squares on each categorical characteristic. The analyses yielded only one marginally statistically significant effect. Among the "reasons for attending", students were more likely to reenroll if they indicated that the reason they chose to attend ASU was because the school offered the academic program(s) they wanted (80.3% compared with 74.3% for those who did not) [X^2 (1, N = 930) = 3.58, $p < .06$]. None of the other variables were associated with reenrollment.

Overall, relationships between reenrollment status and the student background characteristics (pre-matriculation and at-matriculation) were much smaller in this study than is ordinarily found at other schools. This was probably due to the fact that the ASU samples included a lot of students who were well beyond the first year, so the role of background factors had already taken its toll on drop-outs and removed them from this analysis. Nevertheless, it is worth noting that students who had the highest probability of reenrolling were those who had originally chose to attend ASU because of its *preferred academic program(s).* This finding supports the value of current recruiting initiatives at ASU that emphasize the goodness of fit between the prospective students' academic interests and school's offerings, as well as the distinguishing aspects of those offerings.

Delineation of the Correlates of Retention at Angelo State University: Post-Matriculation Student Experiences

The third block of variables, scores on the ten original scales measuring students' post-matriculation experiences, were added to the logistic regression equation. A test of the full model against a constant-only model achieved statistical significance: X^2 (26, N = 930) = 92.93, $p < .0001$, Nagelkerke $R^2 = .193$. An analysis of block 3 variables found that the model with these variables was reliably different from the model without them, and the increase in explained variance (from 4.7% to 19.3%) was statistically significant: X^2 (10, N = 930) = 71.20, $p < .0001$),

Consequently, it is worthwhile to analyze the individual contributions of the 10 scales in this block. The same precautions were taken as with the Student Background variables. Rather than report the Wald chi-square statistic and odds ratios from the full equation, we

calculated point-biserial correlation coefficients between reenrollment status and each of the 10 scale scores. Five relationships were statistically significant at $p \leq .05$* or $p \leq .01$** or $p \leq .001$** (*r*): *Institutional Commitment* (.30***), *Social Integration* (.11**), *Degree Commitment* (.09**), *Advising Effectiveness* (.08*), and *Financial Strain* (.07*). The direction of these relationships indicated that students who did not return tended to have unfavorable scores on these characteristics. The remaining five post-matriculation scales did not have a statistically significant relationship with reenrollment.

It is noteworthy that a much higher proportion of the variance was explained with the addition of the post-matriculation variables in the third block (19.3%) than was the case with the student-background characteristics in blocks 1 and 2 (4.7%). This finding suggests that the students' interactions with the academic and social environments have a powerful effect on their decision to reenroll at the ASU. It is important to note that these results are consistent with other investigations indicating that the variables available to institutions "before matriculation" or "at matriculation" have a smaller effect on the persistence decisions of college students than do their experiences after matriculation.

Analysis of the Two New Scales on the Student Experiences Form: Career Integration and Grit

The analyses reported above covered three years, that latter of which utilized a revised version of the *CPQ.* The revised version included the same questions that measured the original ten scales plus two new scales: *Career Integration* and *Grit.* To study the possible role of the two new scales in students' reenrollment decision, we calculated point-biserial correlation coefficients between each of the two new scales and retention. One relationship was statistically significant: C*areer Integration* ($r = .15$, $p < .05$); *Grit* ($r = .02$, *ns*). The direction of the significant relationships indicated that students who scored unfavorably on the C*areer Integration* scale tended not to reenroll. The strength of the coefficient for *Career Integration* was the second highest among the 12 student-experience scales.

Overall, the analysis of the twelve post-matriculation student-experience scales yielded six that predicted whether or not students reenrolled. These scales can provide salient guidance for high impact interventions. Table 1 provides many, nationally well-established, effective interventions that pertain to each of these scales. ASU is likely to experience substantial retention benefits by focusing on these seven, either by enriching relevant activities that already exist or by adding new interventions not currently underway.

One scale, *Institutional Commitment*, was a much stronger predictor of reenrollment than the others. The results of this study substantiate using the *Institutional Commitment* score to identify students who are most at-risk to drop out and offer assistance before it is too late. Also, the guidelines that are provided in this report and in the Advisor Portal have specific recommendations for instilling and improving this quality among all students. When students are prompted to develop and grow in their positive thoughts, feelings, and actions toward ASU and its brand elements (such as famous alumni, logo, mascot, alma mater, slogan, personalized attention, distinguished faculty and academic programs, location and physical appeal, endowments, athletics, family tradition, and so on), their intention to reenroll becomes very strong.

Comment on the Overall Strength of the Relationships Found in the Three Blocks of Variables

Most of the statistically significant relationships between reenrollment and the individual predictors reported above are somewhat deflated in strength compared with the size of the coefficients obtained at other schools. There are at least two reasons for this deflation. First, the samples in this study had a much higher retention rate than most other schools (where the focus is on first-year students), so the amount of variance to be explained in the key variable – reenrollment – is quite small. From a statistical point of view, when the variance to be explained shrinks, so does the size of the predictor-variable coefficients. Nevertheless, the practical importance of the predictors remains, because these predictors define the types of vulnerabilities that are more prevalent in the relatively small group of students who do drop out prematurely, compared with the much larger group of students who do not drop out.

The second reason why the predictors of reenrollment at ASU are not quite as strong as at other schools is because many students who take psychology courses participate in a specialized retention program offered within the department. Consequently, many students who have unfavorable *CPQ* scores are retained instead of dropping out.

Conclusions and Recommendations

The logistic regression equations developed on the students in this study and on thousands of students at other schools has enabled us to calculate a very reliable *probability of return* estimate that can be applied to future students. This score, which is posted in the Advisor Portal along with each student's profile of scores on all *CPQ* variables, then serves as a guide to identify which students are

at risk to drop out. These at-risk students can then be contacted and invited to receive assistance, support, and counseling. The one-on-one sessions are able to address the particular problems that are pinpointed the *CPQ* profiles.

In considering the results of the aggregate analysis, it is important to remember that the combination of factors that make one student vulnerable to drop out prematurely are not necessarily the same factors for other students. Consequently, just because a particular factor is weakly associated with reenrollment does not mean it is unimportant; undoubtedly some students do drop out because of it. The value in aggregate analysis, however, is in serving as a guide to large-scale interventions, to which we now turn.

Across the three types of predictors (pre-matriculation, at-matriculation, post-matriculation) of reenrollment, seven variables were found to be statistically significant. Some of the relationships were modest in strength, but two were substantially stronger than others and merit special attention. The retention rate was considerably higher for students who (a) perceived that the training they were receiving would enable them to obtain a desirable career (*Career Integration*), and (b) had developed favorable levels of loyalty to the school (*Institutional Commitment*). Retention strategies that highlight these two qualities have a high likelihood of success. At the risk of oversimplifying the numerous possibilities for addressing these two qualities, we briefly discuss a few.

With regard to *Career Integration*, major courses often emphasize the connections between what students are learning and their later professional roles, but this emphasis is often missing in core curriculum courses and other lower level courses. Our previously published research on first year students reported that the association between reenrollment and *Career Integration* is a key factor in retaining such students (Davidson & Beck, 2016). The sophomore course in applied psychology focuses extensively on career opportunities for psychology majors and is likely to improve retention. Also, other psychology courses might include the ways in which the insights they instill are relevant across a broad spectrum of occupations, which would help students who have majors in other disciplines.

With regard to *Institutional Commitment*, the school already takes many steps to increase this quality in the student body, including everything that promotes the school brand in the minds of students. Since it is a malleable quality, such efforts are likely to instill and enrich the students' feelings of loyalty. Our findings in this study and also published studies (Beck & Davidson, 2015) suggest that it is especially important to build this quality in students as soon as possible in their first semester. Previous research on the formation of *Institutional Commitment* has found that the three types of integration measured on the *CPQ* (*Academic Integration, Social*

Integration, and *Career Integration)* play a pronounced role, so the steps taken to improve any combination of these qualities are likely to have an additional positive impact on their *Institutional Commitment*.

Also, behavioral scientists have focused extensive studies on how best to build *Institutional Commitment* not just in college students but in people generally; that is, their feelings of belongingness and loyalty to their employers and to other organizations in which they participate. While this body of knowledge is far too large to summarize here, we mention a not-so-obvious finding that the relationship between loyal feelings and loyal actions is bidirectional. The common assumption is that feelings/attitudes cause people to act upon them. However, causal forces also work in the other direction, meaning that people sometimes change their feelings/attitudes *after* their actions, especially if their actions require efforts that outdistance the strength of the feelings. So if a student makes effortful actions, such as volunteering for activities that benefit or promote the department or college or school, then their feelings of loyalty will increase in order to catch up with the level of efforts they exerted. To apply this idea, the school might present students with a wide variety of opportunities to use their skills to assist fellow students, prospective students, staff members, on-campus organizations, and other school entities. Everything positive they say or do in this regard has the potential to raise their *Institutional Commitment.*

In making decisions about how to maintain or raise retention rates, most schools are guided by at least two, general considerations: (a) what are the nationally-acclaimed best practices that are used by successful schools, and (b) which of those practices are most likely to work well with our particular student body. This report provides guidance on both types of considerations. Table 1 lists 39 nationally-recognized best practices. It also specifies which particular *CPQ* qualities are most affected by each of the best practices. To use the table, simply match (a) the *CPQ* qualities that predict retention at ASU with (b) the best practices that can have a positive impact on those qualities. It would be fruitful to identify which "best practices" in the table are not currently offered at ASU and then determine the feasibility of implementing some that are missing and/or enhancing others that are currently in place.

When offering an activity or program that is known to benefit students and affect retention, it is cost-effective to consider which students will reap the most gain if they participate. If students have completed the *CPQ*, the Advisor Portal provides a sorted list of students who have reported their problems in each of the 12 student-experience scales. Helpers can conduct sorts for at-risk students in the six reenrollment-related scales at ASU and use the lists as guides for personally inviting these students to the special programs or activities that match their area(s) of vulnerability.

Once programs are established, we can be reasonably certain that the persons charged with instituting these programs will believe that they are successful. Such testimonials, though useful, are obviously subject to bias. Therefore, an objective evaluation system needs to be developed to determine if programs are achieving their goals and to better understand why retention rates vary from year to year. For example, let's assume that a new program to decrease attrition was begun at ASU. If effective, then we might expect that students exposed to the program would show more favorable scores on the *CPQ* scales than similar students not exposed to the program.

Developing an effective retention program requires knowledge of the empirical literature on interventions, the characteristics of the students who will be affected by the program, and the infrastructure, staff and financial resources of the institution. Fortunately, there is a rapidly growing list of empirically validated interventions that can guide program development. In addition to the high-impact interventions appearing in Table 1 of this report, the references listed below provide an excellent introduction to the field. Some of the interventions would not be practical to implement at ASU. Others will be within the realm of current staff and financial resources. The key is to find interventions that build upon the strengths of ASU.

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Table 1 HIGH-IMPACT INTERVENTIONS AND THEIR OUTCOMES

Once a school identifies the students' psychosocial reasons for premature departure, it must then design ways to strengthen these important qualities in vulnerable students. The *College Persistence Questionnaire* enables schools to assess the psychosocial qualities that place students at-risk, but the question still remains what to do about it. To be maximally effective, the interventions must match the students' weaknesses. The purpose of this document is to fill this void. It provides a comprehensive list of interventions used nationwide, classified by the 12 *CPQ* dimensions they are most likely to impact.

The list of interventions is based on a 2010 ACT report entitled, "What works in student retention: Public four-year colleges and universities." The results of a national survey of 258 schools yielded ratings of 94, some of which were similar enough to be combined, producing the 39 high-impact interventions listed here. We *italicize* nine that have had the most pronounced effects on attrition nationwide in that they are practices that differentiate the top quartile schools with the best retention rates from lower quartile ones with the worst retention figures.

This document is divided into four sections. Section 1 is a list of the 12 CPQ dimensions and their meanings. Section 2 is a list of the 39 high-impact interventions. Section 3 presents the interventions grouped together on the basis of the CPQ dimension that is most affected by them. And Section 4 provides guidance on how schools can use this information to improve retention.

SECTION 1: CPQ DIMENSIONS (and their meanings)

A) INSTITUTIONAL COMMITMENT (confidence in choice of school; feeling of loyalty; intention to persist)

B) DEGREE COMMITMENT (personal importance attached to earning a degree; sense of certainty about finishing degree)

C) ACADEMIC INTEGRATION (favorable impression of instruction; sense of personal intellectual growth)

D) SOCIAL INTEGRATION (favorable impression of social interactions; feeling of belongingness)

E) COLLEGIATE STRESS (concern and distress about being able to handle the demands of being in school)

F) FINANCIAL STRAIN (concern and worry about being able to handle the costs of attending college)

G) ADVISING EFFECTIVENESS (satisfaction with the information provided by school personnel to assist with the attainment of academic goals)

H) ACADEMIC EFFICACY (confidence in one's capability to successfully complete academic work)

I) MOTIVATION TO LEARN (interest and enjoyment in learning new information)

J) SCHOLASTIC CONSCIENTIOUSNESS (tendency to be punctual and responsible in completing academic work)

K) CAREER INTEGRATION (belief that the skills learned in courses are relevant for good employment; confidence that the training will eventuate in desirable job opportunities)

L) GRIT (PERSEVERENCE) (ability to sustain interest in and pursuit of long-term goals; tendency to overcome distractions and complete projects that last several months or longer)

SECTION2: MASTER LIST OF INTERVENTIONS & CODES FOR CPQ OUTCOMES

1 extended orientation (summer or fall) A D G

2 freshman seminar A C H

3 parent-family orientation F

4 living/learning community (residential) C D

5 learning community (non-residential) C

6 training for academic advisors G

7 advising interventions with selected high-risk student populations G

8 increased number of academic advisors G

9 assessment of advising G

10 workload credits for faculty advisors G

11 advising centers G

12 integration of advising with other programs such as career planning, first year transition, etc. G K L

13 specification of student learning outcomes for advising G

14 application of technology and online tools to advising G

15 placement of students into basic skills courses on basis of pre-matriculation test scores H

16 diagnostic academic skills assessment H

17 assessment of career interests and aptitudes, learning styles, values, and personality B K L

18 internships, service-learning, and job shadowing opportunities B K

19 career guidance in face-to-face and computer-assisted formats B K

20 summer bridge programs A C H

21 remedial/developmental programs H

22 academic skills centers for reading, writing, mathematics, language-learning, time-management, study skills, tutoring, supplemental instruction, online-learning support H J

23 early warning system / mid-term progress reports J

24 performance contracts for students in academic difficulty J

25 organized study groups C J

26 library orientations, workshops, and/or course J

27 mentoring by peers, faculty, staff, and/or community members I

28 faculty development initiatives for teaching, assessing student performance, use of technology in teaching and communicating with students, online instruction, and interdisciplinary courses C

29 pre-enrollment financial aid advising F

30 workshops in money management F

31 short-term loans F

32 programs for specific student sub-populations such as non-traditionals, commuters, ESLs, first-generationals, racial/ethnic minorities, veterans, honors D

33 school-sponsored social activities D

34 diversity information/training D

35 student leadership opportunities D

36 physical and mental health and wellness programs E L

37 residence hall programs D

38 social organizations such as fraternities, sororities, and clubs D

39 required on-campus housing for freshmen A D

SECTION 3: INTERVENTIONS GROUPED BY THE 12 CPQ DIMENSIONS

A) INSTITUTIONAL COMMITMENT

1 extended orientation (summer or fall)

2 freshman seminar

20 *summer bridge programs*

39 required on-campus housing for freshmen

B) DEGREE COMMITMENT

17 assessment of career interests and aptitudes, learning styles, values, and personality

18 internships, service-learning, and job shadowing opportunities

19 career guidance in face-to-face and computer-assisted formats

C) ACADEMIC INTEGRATION

2 freshman seminar

4 *living/learning community (residential)*

20 *summer bridge programs*

25 organized study groups

28 faculty development initiatives for teaching, assessing student performance, use of technology in teaching and communicating with students, online instruction, and interdisciplinary courses

D) SOCIAL INTEGRATION

1 extended orientation (summer or fall)

4 living/learning community (residential)

*32 programs for specific student sub-populations such as non-traditionals, commuters, ESLs, first-generationals, racial/ethnic minorities, veterans, *honors.*

33 school-sponsored social activities

34 diversity information/training

35 student leadership opportunities

37 residence hall programs

38 social organizations such as fraternities, sororities, and clubs

39 required on-campus housing for freshmen

E) COLLEGIATE STRESS

36 physical and mental health and wellness programs

F) FINANCIAL STRAIN

3 parent-family orientation

29 pre-enrollment financial aid advising

30 workshops in money management

31 short-term loans

G) ADVISING EFFECTIVENESS

1 extended orientation (summer or fall)

6 training for academic advisors

7 advising interventions with selected high-risk student populations

8 increased number of academic advisors

9 assessment of advising

10 workload credits for faculty advisors

11 advising centers

12 integration of advising with other programs such as career planning, first year transition, etc.

H) ACADEMIC EFFICACY

2 freshman seminar

15 placement of students into basic skills courses on basis of pre-matriculation test scores

16 diagnostic academic skills assessment H

20 summer bridge programs

21 remedial/developmental programs

22 academic skills centers for reading, writing, mathematics, language-learning, time-management, study skills, tutoring, supplemental instruction, online-learning support

26 library orientations, workshops, and/or course

I) MOTIVATION TO LEARN

17 assessment of career interests and aptitudes, learning styles, values, and personality

27 mentoring by peers, faculty, staff, and/or community members

J) SCHOLASTIC CONSCIENTIOUSNESS

22 academic skills centers for reading, writing, mathematics, language-learning, time-management, study skills, tutoring, supplemental instruction, online-learning support

24 performance contracts for students in academic difficulty

25 organized study groups

23 early warning system / mid-term progress reports

K) CAREER INTEGRATION

12 integration of advising with other programs such as career planning, first year transition, etc.

17 assessment of career interests and aptitudes, learning styles, values, and personality

18 internships, service-learning, and job shadowing opportunities

19 career guidance in face-to-face and computer-assisted formats

L) GRIT (PERSEVERANCE)

12 integration of advising with other programs such as career planning, first year transition, etc.

17 assessment of career interests and aptitudes, learning styles, values, and personality

36 physical and mental health and wellness programs

SECTION 4: DECIDING WHICH INTERVENTIONS TO IMPLEMENT

Given the reality of limited resources, the choices to be made about intervention activities are extremely important. The obvious goal is to maximize the benefits to students and minimize the costs. It is necessary to realize that the interventions that best suit one school will not necessarily do so well at others. They might be more or less costly due to variations in infrastructure and the personnel who deliver them. And they might be more or less beneficial to students depending on characteristics of the student body, not necessarily shared across schools, that catalyze or dampen the effects.

Once schools use an instrument like the CPQ to identify the psychosocial vulnerabilities of their students and peruse the list of interventions that target those weaknesses, administrators and/or policy makers must still narrow the list of choices. Certainly the italicized, high-impact interventions are attractive, but they may not coincide with the ideas mentioned in the previous paragraph. Therefore, some expert advice from outside consultants may be helpful. Ideas about this are available from the Beck-Davidson partnership as well as other outlets.

APPENDIX

College Persistence Questionnaire (CPQ): Item Content

INSTITUTIONAL COMMITMENT

- Likelihood of earning a degree from here
- Likelihood of enrolling next semester
- Confidence in choice of school
- Thoughts about stopping out

DEGREE COMMITMENT

- Intention to persist in pursuit of degree
- Feelings of uncertainty about overcoming degree obstacles
- Commitment to earning a degree

ACADEMIC INTEGRATION

- Rating the quality of instruction
- Feelings of capability instilled by instructors and courses
- Satisfaction with the quality of instruction

SOCIAL INTEGRATION

- Impact of interactions with other students on personal growth
- Impact of interactions with other students on intellectual growth
- Qualities in common with other students

FINANCIAL STRAIN

- Difficulty in handling college costs
- Strain in purchasing course materials
- Feelings of financial disadvantage relative to others students
- Worrying about money to meet personal needs

COLLEGIATE STRESS

- Overall feelings of distress while at school
- Feeling overwhelmed by academic workload
- Feeling pressured to meet deadlines in courses

ADVISING EFFECTIVENESS

- Satisfaction with academic advising
- Ease of obtaining answers to questions about educational matters
- Rating of academic advising

SCHOLASTIC CONSCIENTIOUSNESS

- Tardiness in submitting assignments
- Tardiness in attending classes and other events
- Unexcused absences from classes

ACADEMIC EFFICACY

- Confidence in making desired grades
- Doubt about making desired grades
- Self- assurance of doing acceptable academic work

MOTIVATION TO LEARN

- Willingness to devote extra study time when necessary
- Enthusiasm for academic tasks
- Size of workload in an ideal course

CAREER INTEGRATION

●Certainty that training will lead to enjoyable employment

●Likelihood that training will eventuate in preferred job

●Confidence that training will qualify for good-paying job

●Belief that training imparts relevant, necessary skills

GRIT (PERSEVERANCE)

●Ability to sustain interest in activities

●Overcome distractions and finish projects

●Continue pursuit of long-term endeavors beyond a few months