



**A Cadet Profile of the Successful Language Learner**  
**at the United States Military Academy**

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An increase in foreign language requirements and amount of contact hours per basic and intermediate language courses at the United States Military Academy (USMA) has necessitated a relooking at language placement procedures, both to enhance the process and also to benchmark data useful in predicting success in foreign language learning. This pilot study was designed to use the abundance of standardized test results and additional data from cadet's composite records to identify factors that reliably predict achievement in foreign language study at USMA. Preliminary results indicate the primary objective of developing profiles of successful language learners is attainable. Data obtained show that certain factors moderately to strongly correlate with success in foreign language study, although initial analyses indicate that these factors are to a certain extent language-specific, necessitating further research on how multiple factors interact and differ both between and within languages.

***Background.*** The primary goal of the current study is to identify the data points in a cadet's composite record at the United States Military Academy (USMA) that are most useful for assessing potential for success in foreign language learning and to determine what components in a student's academic background augur for success in foreign language study. Obtained results will be used to develop profiles of successful language learners in Arabic, Chinese and Russian. The profiles will supplement and enhance USMA language placement procedures, with the additional aim of empowering students to be more motivated and proficient in the completion of the foreign language course of study.

***Introduction.*** The study consists of two key components. The first is to develop a profile of successful language learners who have participated in USMA's Semester Abroad Programs (SAP) and who have taken the Defense Language Proficiency Test (DLPT) upon their return to the Academy. Their DLPT results, along with other standardized testing and assessment instruments, such as the Scholastic Aptitude Test (SAT), the American College Test (ACT) and

College Entrance Exam Rating (CEER) will be used to create a preliminary profile of students who are likely to succeed in foreign language learning. (see Appendix A for all Predictor Variables)

The second set of data to be examined will focus on those cadets who have already completed the standard two-course language sequence (LX203/LX204). For the purposes of this pilot study, success in the LX203/LX204 sequence is broadly defined as achieving a grade of B- or better (a GPA of 2.67 or higher) in the second-semester course, LX204. This cut-off was chosen partly to account for the small sample size of the study and the necessity to further sub-divide the sample into language specific groups. Follow-on data obtained in future statistical analyses will allow for finer-grained analysis both at the individual language and academic performance levels.

**The Student Sample.** Data for the current study was obtained from a sample of 235 student records from 2007 graduates of the United States Military Academy (USMA), West Point who completed the standard two course language sequence, LX203/204 in Arabic, Chinese and Russian. Investigators examined data from cadets' College Entrance Exam Rating (CEER), Whole Candidate Score (WCS), Cadet Leadership Score (CLS), High School Rank (HSR), High School Number (HSN), mathematical and verbal scores on the Scholastic Aptitude Test (SAT) and English, Mathematics, Scientific Reasoning and Reading Scores on the American College Test (ACT). Grades from the standard two course English, Math, and Chemistry sequence were also obtained, as well as the grades received for the three required Military Development courses. Of the 235 student records examined, 30 were female, 205 were male. 99 had completed the two course Arabic sequence, 77 took the two course Chinese sequence (68 male, 9 female), and 59 had concluded the two course Russian sequence. Additionally, 141 had taken the SAT, while 94 completed the ACT. 21 students in the sample had not taken the second semester English course, 10 had not taken the first semester Chemistry course, and 11 did not enroll in the second semester Chemistry course.

**Data Analysis.** Pearson's  $r$  Correlations was used to answer the preliminary research question of which data points are related to performance in foreign language learning. These correlations indicate only the positive or negative linear strength between each pair of variables, not any multivariate correlations among variables. Follow-on work will employ more advanced statistical techniques to assess interaction among the various predictor variables. For the current analysis, only variables that exhibited a weak positive correlation of  $+0.20$  or higher (Hinkle, 2003) with significance at the 0.01 or 0.05 (two-tailed) were used to begin to develop a finer-grained evaluative framework used to predict success in the domain of foreign language learning. Pair-wise deletion was used to account for any incomplete data (indicated above).

Data analysis was performed on four different data sets. Results from all languages established a baseline for the variables, and separate analyses of data from Arabic, Chinese and Russian students were conducted to ascertain if there were any factors that appeared to be correlated specifically with one or more languages. Only variables that showed a weak positive correlation with LX204 across all three languages were re-analyzed, using subsets of the 235 original student records that were grouped according to overall performance in LX204. The investigators are interested in constructing a profile of the successful language learner; as such

they have defined success as attaining a B- (2.67) or higher in LX204. All student records exhibiting a Grade Point Average (GPA) of no less than 2.67 in LX204 comprised members of the Successful Learner data set. Correlations were also computed on subsets of students who scored between 3.0 and 3.66 and those who received 3.67 or above in LX204 to ascertain if superior language performance was more closely tied to certain of the predictor variables. Correlations between the various subsets of student data yielded slightly different results, but none that were significant. As expected results did not obtain, and also due to the small sample sizes, 88 for Arabic, 54 for Chinese, and 44 for Russian, correlations reported in this study correspond to students who received a 2.67 or higher.

**Results.** Variables identified as having a weak positive correlation overall (.200 or higher with  $p > .05$  '\*' or  $p > .01$  '\*\*') with grade obtained in LX204 are grades received in the two-semester English, Math, and Chemistry sequences (Figure 1). Interestingly, it was course grades, not standardized assessments that were more highly correlated with foreign language performance. Fine-grained analyses of grades achieved in LX204 across languages did not yield any highly significant correlations, and served only to indicate very general tendencies. Analysis of individual languages suggest that what defines a successful language learner may be to some extent language dependent.

	All	Arabic	Chinese	Russian
ENG1	.219**	.226*	.296*	.309*
ENG2	.235**	.294**	-----	.404**
MATH1	.274**	-----	.466**	.403**
MATH2	.288**	.341**	.413**	-----
CHEM1	.217**	.221*	.368**	-----
CHEM2	.349**	.303**	.557**	.296*

**Figure 1: r-Correlations with LX204 by Language**

**Discussion.** Preliminary results were not as promising as were expected. Correlations between success in the second semester language course and the predictor variables, when calculated over all students in the sample exhibited a low positive correlation overall. When the data is separated by language, however, more positive results obtain, with some interesting cross-language differences.

As Figure 1 shows, Math and Chemistry grades exhibit a moderate to strong positive relationship with grade obtained in second semester Chinese, while it is English and Math grades that seem to be better predictors of success in Russian. Arabic data patterns more closely with the overall language results.

It should be noted also that the statistical techniques employed were quite basic; r-Correlations only allow for interpreting strength of positive or negative correlation between two variables in a strictly linear relationship; work currently underway is employing multivariate analysis to ascertain the interactions and relative influence of multiple variables in concert. It is hoped that this will provide more useful data that will identify additional factors for further research and analysis.

Without further study, results seem rather spurious; it has yet to be determined what the relationship is between the predictor variables and also what language-specific factors, if any, are coming into play. It also remains to be seen how success in other academic disciplines relates in any quantifiable way to language study. Follow-on work should be conducted to identify relationships between disciplines, such as Chinese and Chemistry, and attempt to tease out implicit factors, such as influences of orthography and tonality, psycholinguistic influences and language acquisition and teaching methods.

**References:**

Hinkle, D.E., Wiersman, W. & Jurs, S. (2003). Applied Statistics for the Behavioral Sciences, 5th ed. Chicago: Random House.

R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-3-07-0, URL <http://www.R-project.org>.

Appendix A: Predictor Variables:

**College Entrance Exam Rating (CEER):** High School Rank and SAT or ACT scores.

**Physical Aptitude Exam (PAE):**

Administered by high school physical education instructor to USMA candidates.

**Community Leadership Score (CLS):**

**Whole Candidate Score (WCS):** = 6 x CEER + 3 x CLS + 1 x PAE

**High School Rank (HSR)**

**High School Number (HSN)**

**Scholastic Aptitude Test - Verbal (SATV)**

**Scholastic Aptitude Test - Math (SATM)**

**American College Test - English (ACTE)**

**American College Test - Math (ACTM)**

**American College Test - Scientific Reasoning (ACTSR)**

**American College Test - Reading (ACTR)**

**ENGRD1:** English Composition (EN101)

**ENGRD2:** English Literature (EN102)

**MAGR1:** Modeling/Intro to Calculus (MA103)

**MAGR2:** Calculus (MA104)

**CHGRD1:** Chemistry 101

**CHGRD2:** Chemistry 102

**MILDEV1:** Military Development 100

**MILDEV2:** Military Development 101

**MILDEV3:** Military Development 102