Air Traffic Selection & Training (AT-SAT) Test Success Predictability and Preparation

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Air Traffic Selection & Training (AT-SAT) Test
Success Predictability and Preparation
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Introduction
The College of Aviation entered into an Air Traffic Collegiate Training Initiative (AT-CTI) partnership agreement with the Federal Aviation Administration (FAA) in April 2010. This partnership allows WMU College of Aviation students to participate in the FAA’s AT-CTI program which will shorten their time at the FAA academy if they successfully apply for Air Traffic Control Specialist positions with the FAA.

WMU aviation majors must complete their degree program and take specific AT-CTI elective courses to graduate from this FAA initiative. When AT-CTI students are within 12 months of graduation they are eligible to take the FAA’s pre-employment exam for air traffic controllers called the Air Traffic Selection and Training (AT-SAT). Students must earn a passing score on the AT-SAT examination to be considered for employment as an air traffic controller with the FAA regardless of their academic achievement in their degree program.

We are attempting to determine whether the College of Aviation can use a pretest instrument to assess a student’s ability to achieve a passing score on the AT-SAT test battery. If a successful pretest instrument is found, then we would use it to help us with curriculum improvements and student career counseling to improve our student’s chance of successfully completing the AT-CTI program.

Air Traffic Selection & Training (AT-SAT) Test Battery
The AT-SAT is an aptitude test and does not test an applicant’s air traffic control knowledge. The test is only available through the FAA and is administered via computer. The test battery consists of 8 subtests that are shown in table below. Seven of the subtests are designed to assess cognitive ability, while the eighth subtest assesses issues in personal history and personality.

All subtests are weighted and combined into a single composite score. Applicants that score 70 – 84.9 are classified as “qualified” and those who score 65 and above are classified as “well qualified.” Job applicants that score as “well qualified” are considered for employment before considering applicants in the “qualified” pool. If an applicant scores below 70, they are considered not qualified and are not eligible for hire as an air traffic controller.

AT-CTI students who do not achieve a passing score on the AT-SAT exam may retake one time, but must wait 1 year before retaking. If an applicant receives a passing score in the qualified range, they may not retake to try to improve their score into the well qualified range.

Test Instrument Selection
A single test will not simulate all the characteristics of the eight different subtests in the AT-SAT battery, but many of the subtests share common skill characteristics. The AT-SAT subtests are not designed to be difficult to answer, but rather test an applicant’s ability to process information quickly and accurately. The tasks are simple and repetitive, but all subtests are timed so the applicant must answer quickly to complete the sections. They are scored not only correct responses, but the timeliness of the response, number of questions answered, and in some cases the frequency in which they repeat or review the question information.

We selected the Tabular Speed Test from Damos Aviation Services to evaluate for possible AT-SAT success prediction. This test has historically been used to evaluate skills and traits that are desirable in pilots and used to help predict their success in training. Pilots and air traffic controllers share many similar skill sets and characteristics so we resolved to research the possible applicability of using the Tabular Speed Test to evaluate the probability of success in training of potential air traffic controllers.

We believe the Tabular Speed Test will evaluate many of the same skills sets as some of the AT-SAT subtests. The following traits are common between the Tabular Speed Test and many of the AT-SAT subtests:
- Simple tasks that require attention to detail
- Timed evaluation to force quick responses
- Repetitive tasks that can cause complacency and fatigue

Tabular Speed Test Description
The Tabular Speed Test is a standardized psychometric testing instrument and its origins date back to 1942. The original version of the test was called the Table Reading Test and was used by the United States military to help select suitable candidates to become pilots, bombardiers and navigators in aircraft. A version of the Table Reading Test is still used by the United States Air Force as part of their Air Force Officer Qualifying Test (AFOQT).

Development of the Tabular Speed Test began in 2003 and is based conceptually on the Air Force’s Table Ready Test. It is a slightly longer test and has no actual items in common with its predecessors.

The test consists of 50 similar questions and the applicant has 9 months. Other potential tests may also be explored at a later date to create a battery of tests the College of Aviation could use in conjunction with each other to produce a more robust evaluation similar to the AT-SAT test.

Assessment Questions
- Will the use of a standardized test by the College of Aviation help in predicting student success on the AT-SAT test battery?
- Will the use of a standardized test by the College of Aviation aid in pre-screening students and counseling them on their potential success as an air traffic controller?
- Will data from standardized testing aid the College of Aviation in making curricular improvements or additions that increase the success rate of students on the AT-SAT test battery?
- Could the use of a standardized test be further developed by the College of Aviation to simulate the AT-SAT test battery?

AT-SAT Subtests

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Dials (DI)</td>
<td>Scan and interpret readings from a cluster of analog instruments</td>
</tr>
<tr>
<td>Applied Math (AM)</td>
<td>Solve basic math problems as applied to distance, rate and time</td>
</tr>
<tr>
<td>Scan (SC)</td>
<td>Scan dynamic digital displays to detect targets that regularly change</td>
</tr>
<tr>
<td>Angles (AN)</td>
<td>Determine the angle of intersecting lines</td>
</tr>
<tr>
<td>Letter Factory (LF)</td>
<td>Participate in an interactive dynamic exercise that requires categorization skills, decision making, prioritization, working memory (incidental learning) and situational awareness</td>
</tr>
<tr>
<td>Air Traffic Scenarios (ATST)</td>
<td>Solve traffic interactive, dynamic low-fidelity simulations of air traffic situations requiring prioritization</td>
</tr>
<tr>
<td>Analogies (AY)</td>
<td>Solve verbal and nonverbal analogies that require working memory and the ability to conceptualize relationships</td>
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<tr>
<td>Experience Questionnaire (EQ)</td>
<td>Respond to Likert scale questionnaire about life experiences</td>
</tr>
</tbody>
</table>

Literature Cited

