Interest and Aptitude Assessments Toward a Larger, More Diverse Workforce for Computer Technology, Manufacturing, Construction, and Healthcare
Research Summary- Not for Distribution

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Background

Various factors have been identified as important predictors of career exploration, choice and success. One such factor is vocational interest, or the attraction to or preference for a certain field, which has become the basis for many career assessments (Leuty & Hansen, 2013). However, because interests involve subjective interpretations, they are influenced by external factors, such as societal norms regarding gender roles (Betz, 2007; Fassinger, 2005). Therefore, career assessments solely based on interest measures may perpetuate the gender gap in fields that have been traditionally dominated by one gender.

Aptitude measures, or the objective tests of potentials to be successful in a field, can serve as an excellent complementation to interest measures. Different occupations require different skillsets, and individuals who show strengths in these skills are more likely to be successful and persist in the given field (Krane & Tirre, 2012). Also, the assessment results based on aptitude can help adolescents consider careers in which they had little previous interest or exposure to, broadening the range of possible options for their future.

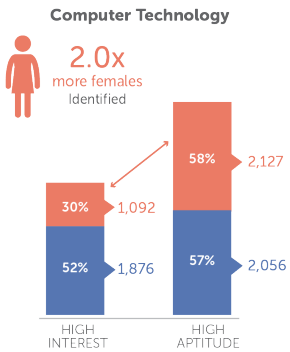
Research Objective and Methodology

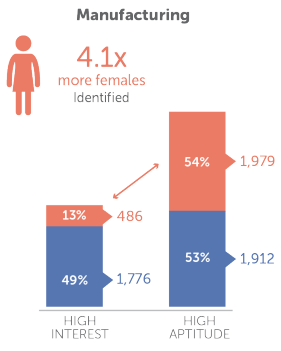
The primary objective of the current research was to investigate the incremental value of ability-based aptitude assessment in identifying greater numbers of adolescents in four industries of high demand: computer technology, manufacturing, construction, and healthcare. These four areas were selected due to their rapid growth and increasing importance in the present society.

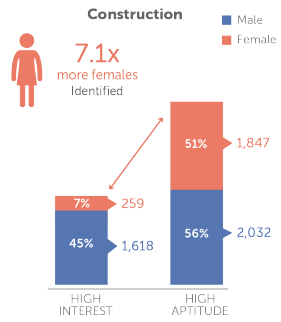
Data were collected from 7,222 adolescents attending 24 institutions across 14 states. The gender distribution was about equal, including 3,619 (50.1%) females and 3,603 (49.9%) males. The mean age was 16.23 (*SD* = 1.38), ranging from 14 to 19 years. Regarding race/ethnicity, 3,924 (54.3%) of the participants identified as White, followed by 1,272 Black (17.6%), 1,053 Hispanic (14.6%), 285 Asian (3.9%), 121 Native American (1.7%), and 567 who identified as other (7.9%).

Key Findings

- Substantial gender differences in interest fit scores were found across industries. More specifically, high school boys showed higher interest fit scores than high school girls for occupations in computer technology, manufacturing, construction, and healthcare–technical. In fact, for computer technology, there was a 3.5 times more boys in the High Interest group than girls.
- Unlike the substantial gender differences found in interest scores, girls' and boys' aptitudes were found to be at comparable levels both in terms of top quartile and numbers of students with at least one High Aptitude occupation-level fit.
- As shown in the charts below, aptitudes identified both a larger and a more diverse high fit population for each industry. Although aptitudes revealed a substantial increase for the less represented gender in a particular industry, it is important to note that the number of high aptitude fit students from the predominant gender in an industry increased as well.

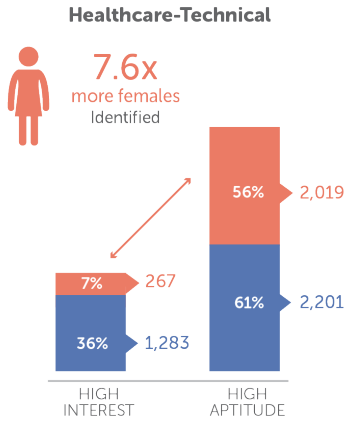


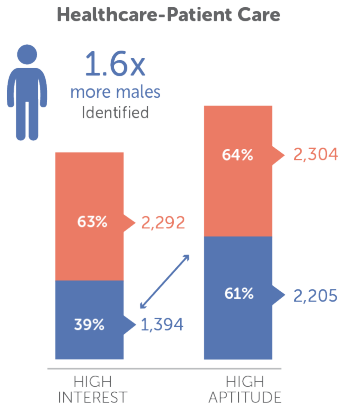




Industry Level Analysis of the Number of High Fit Students by Aptitude and Interest (cont.)

The healthcare industry was further divided into two sub-categories due to the heterogeneity of job characteristics within this industry: direct patient care and technical. The direct patient care group includes 12 occupations that involve more social interactions (e.g., physician assistants and nurse practitioners), while the technical group includes 7 occupations that involve using various medical technologies and data (e.g., clinical data managers and radiologic technologists).





Implications

Although interest is one of the main predictors of career choice and satisfaction, sole application of interest assessments may unwittingly contribute to perpetuating the gender gap in specific fields of work. Even measures of self-efficacy may not be enough given the subjective nature of this evaluation. Career recommendations based on aptitude scores can be helpful in that they can broaden girls' and boys' range of career considerations. When they are informed that they do have aptitudes for nontraditional careers for their gender, this newly gained awareness in turn can increase their interest and self-efficacy in these fields (Engelman, McKlin, & Howell, 2016). This could be especially significant for girls, who tend to lack faith in their ability to attain their desired careers (O'Brien, Friedman, Tipton, & Linn, 2000). Such increase in interest and self-efficacy in turn can lead to enhanced consideration of career choices, thereby increasing their selection and persistence in STEM and other traditionally male-dominated fields.