



TRANSITION-TO-WORK

INVENTORY Third Edition

Administrator's Guide

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Introduction

Career and employment counselors are aware of the importance of skills that people can transfer from non-work activities to employment activities. Specialists in the field of career development frequently describe non-work interests as an excellent source of preparation for work (Bloland 1984; McDaniels 1984, 1989; Super 1984). Super (1984, p. 74) contends that "leisure can be thought of as preparation for work, and can be valuable exploratory experiences which help youths to try themselves out in occupationally related activities or adults to develop personal and work skills useful in a variety of occupations." He adds that the skills and talents fostered through leisure activities today "may prove to be crucial vocationally tomorrow" (1986, p. 113).

The *Transition-to-Work Inventory (TWI)* is designed to meet the need for a brief assessment instrument to measure a person's leisure interests in order to help him or her turn these interests into possible employment opportunities, a small-business enterprise, or a home-based business. An assumption underlying the development of the *TWI* is that many individuals discover new talents and skills from their participation in leisure activities and that these skills often lead to new jobs and self-employment opportunities.

Non-work activities can be helpful in enhancing one's career development. In fact, these non-work activities have been shown to provide a means for exploring and trying out a variety of vocations, developing new skills and abilities, working at home as an outgrowth of leisure interests and skills, enhancing one's overall life satisfaction, providing a possible source of income in full- or part-time employment, and often acting as a catalyst in the development of a small business.

The basic premise of the *TWI* is based on research concerning the work-leisure connection in one's career development. As changes have taken place in society and the world of work, career and employment counselors have come to recognize the inclusion of non-work activities as an integral component of one's career (Allen 1980; Blocher and Siegal 1981; Bloland and Edwards 1981; Edwards 1984; Lerner 1982; McDaniels 1984, 1989; Seligman 1980; Super 1980, 1984, 1986) and to help individuals identify leisure as well as work interests (Herr and Cramer 1988; McDaniels 1984, 1989; Super 1984, 1986). Blocher and Siegal (1981, p. 43) see leisure counseling as a parallel and companion activity to vocational counseling in which the two elements of work and leisure combine to generate the concept of career: "These two services,

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in our view, combine to assist clients in building lifestyles that support optimal levels of individual growth and development, personal health and satisfaction, and social contribution.”

Career counselors are increasingly seeing the benefit of helping people explore their leisure interests and transfer them to the world of work. Most recently, Liptak (2008, p. 145) suggested that a “career is a combination of work and other life roles that express your total pattern of self-development.” He argues that people who are successful and happy in their careers are able to find uses for their leisure-time activities. Similarly, Zunker (2006, p. 159) says that “the leisure role should be assessed as a prolific means of complementing other life roles.” He notes that leisure should be planned for success just like the work role. Liptak (2011) suggests that leisure is valuable in people’s careers because

- People have more leisure time than anything else.
- Leisure-time activities are more fun than work.
- The skills you gain from leisure-time activities can easily be transferred to occupations and self-employment ventures.

The development of the *TWI* is based on two theories of career development in which leisure plays an integral part. McDaniels (1965, 1977) contends that “Career equals Work plus Leisure” ($C = W + L$) and suggests a holistic approach to career counseling in which work and leisure combine over one’s life span to form the basis for a career. McDaniels (1984, p. 64) adds that “a skilled career counselor of the future should be able to provide assistance in both areas separately or in a combined holistic approach.” Similarly, Super’s (1980) “Life-Span, Life-Space” theory of career development is a comprehensive model that integrates aspects of work and leisure.

The *TWI* is an excellent assessment instrument for use with a variety of populations who are making the transition to employment, including unemployed adults searching for career options, individuals re-entering the workforce, individuals entering the workforce with little or no work experience, individuals interested in identifying options for self-employment, and individuals seeking to turn their leisure interests into full- or part-time employment.

Description

The *TWI* has been designed for ease of use. It is simple to take and can be easily scored and interpreted by the test taker. Each *TWI* inventory booklet contains 96 leisure activity items, scoring directions, an interpretation guide, an exploration guide, and a career-planning guide. Each of the items has been correlated with the 16 interest areas identified by the State’s Career Clusters Initiative. The *TWI* can be administered to individuals or to groups. It is written for individuals of any age at or above the junior high school level. Since none of the items are gender specific, the *TWI* is appropriate for a variety of audiences and populations.

Changes from the Second to the Third Edition of the *TWI*

The *Transition-to-Work Inventory* was further revised in 2011 to make the inventory easier to administer; complete; score; and explore specific jobs, self-employment options, and related education and training based on scores on the inventory. This revision incorporated a complete overhaul of the assessment to include

- Altered directions that provide more information about the potential types of transitions that the *TWI* can help with
- Items revised to make them more relevant in the workplace of today

Step 4 was amended to be more user friendly. The font size of the letters in the Career Exploration Chart was reduced so that additional jobs, self-employment options, and related education and training opportunities could be added.

Step 5 became the “Explore Additional Sources of Information” section that was Step 6 on the second edition of the *TWI*. By moving this section to Step 5, users of the *TWI* are able to immediately have resources to begin exploring occupations, self-employment options, and educational and training options of interest. In Step 5, information about SCORE was added for people interested in information about starting their own business. In addition, users of the *TWI* are offered an opportunity to identify and list their top five occupations of interest.

Step 6 became the Career Planning Guide that was at the bottom of the Career Exploration Chart in the previous edition of the *TWI*. Information about pros and cons, as well as a chart to develop a career plan, was included in this step.

The “Career Journaling” section of the second edition was removed because it failed to help users of the *TWI* to develop a specific plan. It was re-organized and re-titled as “My Career Plan.” In this section, users of the *TWI* are able to look at their preferred occupations and develop a plan and career goals for using self-employment and education and training options to achieve their goals.

Administration

The *TWI* is self-administered, and inventory forms are consumable. A pencil or pen is the only other item necessary for administering, scoring, and interpreting the inventory. Begin by distributing one *TWI* booklet to each person. The first page of the inventory contains spaces for normative data. Each respondent should fill in the necessary information on this page. Also included on the first page is an explanation of the purpose for taking the *TWI*. Read the directions on the first page while all respondents follow along. Test administrators should ensure that each respondent clearly understands all of the instructions and the response format. Respondents should be instructed to mark all of their responses directly on the inventory booklet. Respondents are asked to circle one response to each item using a five-point Likert Scale. Completing the *TWI* requires approximately 20–25 minutes.

The *TWI* is designed to be scored by the test taker. All scoring is completed on the consumable inventory form. No other materials are needed to score or interpret the instrument, thus providing immediate results for the test taker.

Understanding *TWI* Scores

The *TWI* yields content-referenced scores in the form of raw scores. A raw score, in this case, is the total number of responses to each of the leisure activities. The performance of individual respondents or groups of respondents can be evaluated only in terms of the mean scores on each of the scales. (See Table 8 for Means and Standard Deviations for men and women on the 16 interest clusters of the *TWI*).

For the *TWI*, scores between 6 and 13 indicate that the respondent has **low** interest in those types of leisure activities and the possible career options associated with them. Scores between 14 and 22 indicate that the respondent has **medium** interest. Scores between 23 and 30 indicate that the respondent has **high** interest.

Respondents generally have one or more areas in which they score in the high range. These are the areas in which respondents should begin their career exploration. The place to start this exploration is with a thorough review of the Career Exploration Chart (Step 4), which lists

occupations, self-employment options, and education and training options for each of the 16 interest areas. When respondents do not have any scores in the high range, they are encouraged to begin their exploration with the areas in which they have the highest interest.

Because the primary objective of this instrument is to help people turn their leisure interests into employment opportunities, the *TWI* is organized so that it contains 16 interest profiles that correlate to the Career Clusters identified by the U.S. Department of Education and used in the *New Guide for Occupational Exploration (GOE)*. The *GOE* is one of the most popular and effective sources when used as a career exploration tool and as an aid in helping people develop sound and realistic vocational goals. The items that comprise each of the basic scales measure the strength of the respondent's interest in these 16 distinct career areas that make up the world of work.

Because the *TWI* items correlate to the 16 career clusters, respondents are able to identify their dominant non-work interests. With this information, respondents can then identify occupations, educational options, small-business opportunities, and home-based business options related to their leisure interests. Please refer to the *TWI* test booklet for definitions of the 16 Career Clusters.

Research and Development

The *TWI* is an interest inventory designed to measure the level of leisure interests among adults. The inventory consists of a series of leisure activities that can be used to gather occupational information. The *TWI* was developed to fill the need for a quick, reliable instrument to determine which areas of leisure interest are most appropriate to transfer into employment and small-business opportunities. The instrument should

- Measure a wide range of leisure activities.
- Utilize a user-friendly format.
- Be easy to administer, score, and interpret.
- Correlate to a well-established occupational scale.
- Contain items that are applicable to people of all ages and races.

Item Construction

The author's primary goal was to develop an inventory that measures an individual's non-work interests. In order to ensure that the inventory content was valid, the author conducted a thorough review of the literature related to career and leisure counseling. The author also consulted with individuals providing counseling services in Jobs Training Partnership Act (JTPA) programs, rehabilitation counseling programs, and private outplacement and career counseling businesses.

A large pool of items that were representative of the occupational clusters in the *GOE* was developed. This enabled the elimination of items that did not correlate well. In developing items for the *TWI*, the author used language suitable for leisure activities that are relevant in everyday life. After the items were developed, they were reviewed and edited for clarity, style, and appropriateness for measuring the objectives of each career cluster. Items were additionally screened to eliminate any reference to gender, race, culture, or ethnic origin.

Item Standardization

The *TWI* is based on another assessment, the *Leisure Search Inventory (LSI)*. Although the basic premise of the *LSI* was retained, the assessment itself was revised to make it more user friendly, career based, and tied to occupational information systems. These changes made the assessment more valuable in helping clients with no or limited work experience find employment. Much of the original testing for the *TWI* was based on the *LSI*.

The *TWI* was designed to assess the non-work interests of adults in a career or employment transition. The author identified a diverse adult population, including adults in corrections and post-corrections programs, JTPA programs, and career counseling programs. This population completed drafts of the *LSI* to gather data concerning the statistical characteristics on each of the items. From this research, a final pool of items was chosen that best represented the interest areas defined in the *Guide for Occupational Exploration (GOE)*. This initial research yielded information about the appropriateness of items for each of the occupational clusters, reactions of respondents concerning the inventory format and content, and reactions of respondents concerning the utility of the *LSI*. The data collected included coefficient alpha correlations and interscale correlations. The items accepted for the final form of the *LSI* were again reviewed for content, clarity, and style. Careful examination was conducted to eliminate any possible gender or race bias.

In the revision of the *LSI*, items from the original pool that had been retained but not used were included in the *TWI* to make up the two new scales. The items chosen were those that showed the highest alpha coefficients (internal consistency) for scales similar to those that were added. Items that were dropped were those from the original pool of items that showed the lowest internal consistency or seemed redundant to test takers.

The biggest change between the first and second editions of the *TWI* was a move from 14 to 16 occupational interest clusters. In making this change, new items were constructed and other items from the first edition of the *TWI* were moved to more appropriate clusters. This change correlated the scales on the *TWI* with the occupational clusters used by the U.S. Department of Education. For the third edition of the *TWI*, the 16 occupational interest clusters were retained.

Reliability

Reliability is often defined as the consistency with which a test measures what it purports to measure. Evidence of the reliability of a test may be presented in terms of reliability coefficients and test-retest correlations. Tables 1 and 2 present both types of information for the *LSI*, upon which the *TWI* is based. The database consisted of more than 100 adults who were clients of both private and community agencies dedicated to assisting individuals having problems getting employment or in making career changes. As can be seen in Table 1, alpha coefficients for the *LSI* ranged from .81 to .92. Many of these individuals were retested again after one month. As can be seen in Table 2, test-retest reliability for the *LSI* ranged from .68 to .80. From these results, it was determined that the inventory consistently measures what it sets out to.

Validity

Validity is often defined as the extent to which a test measures what it purports to measure. Evidence of validity for the *LSI* and *TWI* is presented in terms of interscale correlations, examination of the means and standard deviations, and correlation against conceptually similar scales on the *Self-Directed Search (SDS)*. The *SDS* was chosen because no psychometric instruments could be identified that would assess an individual's leisure interests for the purpose of identifying possible occupational opportunities.

Concurrent validity of the *LSI/TWI* can be found in Table 3. This table shows the interscale correlations for an adult sample of more than 100 individuals. The highest correlation is between the Humanistic and Selling clusters (.71). Low intercorrelations of the other clusters provide evidence of the individuality of the *LSI* profiles.

Gender differences in leisure interests provide some support for the construct validity of the *LSI* (see Table 4). Females showed greater interest on the Accommodating ($M = 9.07$), Humanitarian ($M = 8.00$), and Artistic ($M = 7.30$) clusters and showed little interest on the Protective ($M = 3.82$), Scientific ($M = 4.78$), and Leading-Influencing ($M = 4.96$) clusters scales. Males showed greater interest on the Mechanical ($M = 7.86$), Protective ($M = 7.29$), and Industrial ($M = 7.14$) clusters and showed little interest on the Selling ($M = 4.29$), Accommodating ($M = 4.57$), and Plants and Animals ($M = 4.86$) scales.

Correlations with the *Self-Directed Search (SDS)* are presented in Table 5. The pattern of correlations of the *LSI* clusters against conceptually similar areas on the *SDS* provides evidence of the construct validity for the *LSI*. For example, the Mechanical cluster of the *LSI* correlated at .65 with the Realistic area of the *SDS*. Similarly, the Scientific cluster of the *LSI* correlated at .64 with the Investigative area of the *SDS*.

Correlations for the first edition of the *TWI* (with the changes made to the scoring instructions) are included in Table 6. Scores for the *LSI* and *TWI* are very similar, thus adding to its construct validity. For the first edition of the *TWI*, men scored highest on the Transportation ($M = 20.72$), Law, Law Enforcement, and Public Safety ($M = 20.08$), and Construction, Mining, and Drilling ($M = 20.03$) scales. Conversely, men scored lowest on the Business Detail ($M = 13.08$), Recreation, Travel, and Other Services ($M = 13.44$), and Medical and Health Services ($M = 14.47$) scales. As can be seen from Table 6, women scored highest on the Arts, Entertainment, and Media ($M = 20.49$), Education and Social Service ($M = 20.28$), and General Management and Support ($M = 19.19$) scales. On the other hand, women tended to score lowest on the Mechanics, Installers, and Repairers ($M = 10.16$), Construction, Mining, and Drilling ($M = 11.58$), and Industrial Production ($M = 12.19$) scales.

Liptak (2007) conducted a study of college men and women to see how they would score on the *TWI* (see Table 7). He found significant differences in the scores of college students compared to adults participating in employment programs. For example, college women scored highest on the General Management and Support ($M = 23.88$) scale and the Sales and Marketing ($M = 23.12$) scale. Conversely, women scored lowest on the Mechanics, Installers, and Repairers ($M = 11.29$) scale followed by the Law, Law Enforcement, and Public Safety ($M = 14.47$) scale. Men, on the other hand, scored highest on the Construction, Mining, and Drilling ($M = 20.85$) scale followed by the Transportation ($M = 20.31$) scale. This suggests that women attending college tend to be interested in less traditional occupations than women without a college degree or not currently pursuing a college degree. Men, however, tend to seek traditional occupations regardless of their educational background.

For the second edition of the *TWI*, construct validity was supported by means and standard deviations for men and women. Men scored highest on the Architecture and Construction scale ($M = 21.29$) and the Business and Administration scale ($M = 20.15$). Men scored lowest on the Government and Public Administration scale ($M = 15.22$) and the Education and Training scale ($M = 20.15$). Women scored highest on the Human Service scale ($M = 20.45$) and the Education and Training scale ($M = 20.18$). On the other hand, women scored lowest on the Manufacturing scale ($M = 15.07$) and the Government and Public Administration scale ($M = 15.33$).

For the third edition of the *TWI*, construct validity was supported by additional means and standard deviations gathered for men and women. The results of the second edition and the third edition were combined (See Table 8). Men again scored highest on the Architecture and Construction scale (M = 21.90) and the Manufacturing scale (M = 20.71). The third highest score for men was on both the Information Technology and Scientific Research, Engineering, and Mathematics scales (M = 20.28). Men again scored lowest on the Government and Public Administration scale (M = 15.42) and the Education and Training scale (M = 16.30). Women scored highest on the Human Service scale (M = 20.85) and Education and Training scale (M = 20.36). On the other hand, women scored lowest on the Manufacturing scale (M = 14.47) and the Transportation, Distribution, and Logistics scale (M = 15.39).

| Table 1: Internal Consistency for the <i>LSI</i> * | |
|---|--------------------------|
| Cluster | Alpha Coefficient |
| Artistic | .85 |
| Scientific | .90 |
| Plants and Animals | .85 |
| Protective | .92 |
| Mechanical | .87 |
| Industrial | .84 |
| Business Detail | .83 |
| Selling | .90 |
| Accommodating | .81 |
| Humanitarian | .88 |
| Leading-Influencing | .84 |
| Physical Performing | .91 |

* N = 105 Adults

| Table 2: <i>LSI</i> Stability (Test-Retest Correlation)* | |
|---|---------------------------------|
| Cluster | Test-Retest ⁺ |
| Artistic | .80 |
| Scientific | .78 |
| Plants and Animals | .68 |
| Protective | .74 |
| Mechanical | .69 |
| Industrial | .72 |
| Business Detail | .75 |
| Selling | .70 |
| Accommodating | .69 |
| Humanitarian | .76 |
| Leading-Influencing | .78 |
| Physical Performing | .73 |

* N = 75 Adults

⁺ 1 month after original testing

| Table 3: <i>LSI</i> Interscale Correlations* | | | | | | | | | | | | |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|
| Cluster | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 | 1.00 | | | | | | | | | | | |
| 2 | .58 | 1.00 | | | | | | | | | | |
| 3 | .17 | .45 | 1.00 | | | | | | | | | |
| 4 | .52 | .48 | .24 | 1.00 | | | | | | | | |
| 5 | .38 | .20 | .19 | .45 | 1.00 | | | | | | | |
| 6 | .42 | .47 | .41 | .67 | .64 | 1.00 | | | | | | |
| 7 | .46 | .44 | .08 | .55 | .33 | .51 | 1.00 | | | | | |
| 8 | .41 | .31 | .19 | .52 | .57 | .68 | .62 | 1.00 | | | | |
| 9 | .09 | .27 | .51 | .60 | .51 | .70 | .45 | .64 | 1.00 | | | |
| 10 | .41 | .51 | .29 | .70 | .36 | .56 | .52 | .71 | .64 | 1.00 | | |
| 11 | .60 | .46 | .21 | .65 | .26 | .41 | .56 | .59 | .44 | .70 | 1.00 | |
| 12 | .31 | .33 | .27 | .47 | .28 | .44 | .48 | .43 | .27 | .26 | .23 | 1.00 |

* N = 105 Adults

1.00 = Perfect Correlation for the Scale

| Cluster | Total (N = 120) | | Male (N = 55) | | Female (N = 65) | |
|---------------------|-----------------|------|---------------|------|-----------------|------|
| | Mean | SD | Mean | SD | Mean | SD |
| Artistic | 7.15 | 3.16 | 6.57 | 2.70 | 7.30 | 3.30 |
| Scientific | 5.06 | 2.77 | 6.14 | 2.27 | 4.78 | 2.86 |
| Plants and Animals | 6.09 | 3.70 | 4.86 | 3.29 | 6.41 | 3.79 |
| Protective | 4.53 | 3.43 | 7.29 | 2.81 | 3.82 | 3.24 |
| Mechanical | 5.73 | 4.25 | 7.86 | 3.53 | 5.19 | 4.30 |
| Industrial | 6.15 | 3.28 | 7.14 | 3.13 | 5.89 | 3.32 |
| Business Detail | 5.62 | 3.48 | 6.71 | 2.93 | 5.33 | 3.60 |
| Selling | 5.70 | 3.91 | 4.29 | 2.92 | 6.19 | 4.09 |
| Accommodating | 8.15 | 3.96 | 4.57 | 3.26 | 9.07 | 3.63 |
| Humanitarian | 7.41 | 4.11 | 5.14 | 3.08 | 8.00 | 4.19 |
| Leading-Influencing | 5.38 | 3.72 | 7.10 | 3.60 | 4.96 | 3.71 |
| Physical Performing | 5.79 | 3.23 | 6.86 | 3.02 | 5.52 | 3.27 |

| Career Cluster/ Interest Area | Realistic | Investigative | Artistic | Social | Enterprising | Conventional |
|----------------------------------|-----------|---------------|----------|--------|--------------|--------------|
| Artistic | .07 | .58 | .39 | .37 | .48 | .39 |
| Scientific | .31 | .64 | -.15 | .22 | .24 | -.03 |
| Plants and Animals | .43 | .03 | -.17 | .01 | .01 | -.20 |
| Protective | .15 | .09 | .23 | -.19 | .10 | -.23 |
| Mechanical | .65 | .25 | -.09 | .01 | .06 | -.15 |
| Industrial | .50 | .20 | -.02 | -.06 | .11 | -.25 |
| Business Detail | .09 | .25 | .21 | .20 | .47 | .38 |
| Selling | .41 | .20 | .18 | .08 | .13 | -.02 |
| Accommodating | .28 | -.07 | -.07 | -.08 | .24 | .23 |
| Humanitarian | .20 | .25 | -.13 | .47 | .09 | .10 |
| Leading-Influencing | .01 | .40 | .07 | .17 | .35 | .35 |
| Physical Performing | .27 | .23 | .27 | .19 | .22 | .05 |

* N = 75

| Table 6: <i>TWI</i> First Edition Means and Standard Deviations for Adults | | | | |
|---|----------------------|-----------|------------------------|-----------|
| Cluster | Male (N = 96) | | Female (N = 93) | |
| | Mean | SD | Mean | SD |
| Arts, Entertainment, and Media | 14.83 | 4.15 | 20.49 | 3.74 |
| Science, Math, and Engineering | 18.42 | 1.88 | 16.84 | 2.68 |
| Plants and Animals | 19.86 | 2.81 | 15.07 | 2.61 |
| Law, Law Enforcement, and Public Safety | 20.08 | 2.73 | 16.44 | 5.22 |
| Mechanics, Installers, and Repairers | 18.69 | 2.88 | 10.16 | 3.74 |
| Construction, Mining, and Drilling | 20.03 | 2.89 | 11.58 | 3.45 |
| Transportation | 20.72 | 3.21 | 12.24 | 3.25 |
| Industrial Production | 18.42 | 1.69 | 12.19 | 3.90 |
| Business Detail | 13.08 | 3.90 | 12.51 | 3.68 |
| Sales and Marketing | 17.64 | 2.90 | 17.35 | 3.26 |
| Recreation, Travel, and Other Services | 13.44 | 4.40 | 18.23 | 3.20 |
| Education and Social Service | 18.47 | 2.72 | 20.28 | 2.85 |
| General Management and Support | 18.83 | 2.39 | 19.19 | 2.60 |
| Medical and Health Services | 14.47 | 3.37 | 17.95 | 3.41 |

| Table 7: TWI First Edition Means and Standard Deviations for College Students | | | | |
|--|----------------------|-----------|------------------------|-----------|
| Cluster | Male (N = 50) | | Female (N = 50) | |
| | Mean | SD | Mean | SD |
| Arts, Entertainment, and Media | 15.69 | 3.93 | 21.00 | 5.06 |
| Science, Math, and Engineering | 19.23 | 4.29 | 16.24 | 3.81 |
| Plants and Animals | 20.08 | 4.56 | 17.64 | 5.58 |
| Law, Law Enforcement, and Public Safety | 19.19 | 4.89 | 14.47 | 4.72 |
| Mechanics, Installers, and Repairers | 18.27 | 5.19 | 11.29 | 4.86 |
| Construction, Mining, and Drilling | 20.85 | 4.18 | 15.88 | 4.74 |
| Transportation | 20.31 | 4.37 | 15.00 | 3.92 |
| Industrial Production | 16.77 | 3.64 | 15.58 | 4.60 |
| Business Detail | 17.00 | 3.93 | 17.29 | 4.60 |
| Sales and Marketing | 18.19 | 3.39 | 23.12 | 4.24 |
| Recreation, Travel, and Other Services | 18.62 | 3.52 | 21.58 | 3.52 |
| Education and Social Service | 17.73 | 4.85 | 20.76 | 3.78 |
| General Management and Support | 20.12 | 4.18 | 23.88 | 4.28 |
| Medical and Health Services | 17.50 | 4.69 | 19.06 | 4.80 |

| Table 8: <i>TWI</i> Second and Third Edition Means and Standard Deviations | | | | |
|---|-----------------------|-----------|-------------------------|-----------|
| Cluster | Male (N = 144) | | Female (N = 161) | |
| | Mean | SD | Mean | SD |
| Agriculture and Natural Resources | 19.82 | 4.30 | 17.63 | 3.45 |
| Architecture and Construction | 21.90 | 3.16 | 17.57 | 3.83 |
| Arts and Communication | 17.99 | 3.62 | 19.35 | 4.25 |
| Business and Administration | 20.03 | 3.52 | 17.33 | 3.70 |
| Education and Training | 16.30 | 2.95 | 20.36 | 3.01 |
| Finance and Insurance | 17.22 | 3.87 | 17.11 | 3.52 |
| Government and Public Administration | 15.42 | 3.39 | 18.22 | 4.36 |
| Health Science | 16.76 | 2.94 | 17.90 | 3.65 |
| Hospitality, Tourism, and Recreation | 16.48 | 3.46 | 17.50 | 4.20 |
| Human Service | 16.85 | 3.02 | 20.85 | 2.70 |
| Information Technology | 20.28 | 3.41 | 17.71 | 4.21 |
| Law and Public Safety | 20.10 | 3.70 | 18.95 | 3.58 |
| Manufacturing | 20.71 | 4.82 | 14.47 | 3.63 |
| Retail and Wholesale Sales and Service | 18.61 | 3.67 | 19.72 | 2.76 |
| Scientific Research, Engineering, and Mathematics | 20.28 | 4.47 | 19.30 | 4.58 |
| Transportation, Distribution, and Logistics | 19.81 | 4.45 | 15.39 | 3.76 |

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