EDUCATION SOLUTIONS	
TRANSITI	ONING
TOWORK	
INVENTORY Fourth Edition John J. Liptak, Ed.D.	
Name:	Date:

Instructor Resources

Transitioning to Work Inventory



A DIVISION OF KENDALL HUNT

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Introduction

Transitions are a natural part of everyone's career. People make some transitions voluntarily, while other transitions result from external circumstances. The aspect that makes transitions complicated is the change that accompanies them. Change is an inherent part of any transition. Thus, when managing transitions, people must also learn how to manage change.

Liptak (2023) suggested that many people experience transitions or the process of moving (voluntarily or involuntarily) into a new employment situation. Because transitions involve significant change, people must be proficient in transition management. Although it sounds easy, the transition process can be complicated and difficult to manage. He said that career transitions are commonplace and take many forms. The following are some (but not all) of the types of transitions people encounter:

- People experience job loss when their companies reduce the size of the workforce.
- Some people return to the workplace after a significant absence.
- People who are in rehabilitation programs often transition to the workplace.
- Some people want to take a risk and move out of a job to entrepreneurship.
- People often have been out of the workforce because of their own choosing and wish to return.
- Some people want to move from welfare programs to the workplace.
- People who have been incarcerated seek employment upon release back into the community.

These are just a few of the many different types of transitions people face as they return to the workplace. Bridges and Bridges (2017) say that to manage transitions effectively, people need to first understand the difference between changes and transitions. They suggested that:

- Change is external and occurs to us and in our surroundings. You cannot always control change. For example, people have their jobs downsized and are unable to control this situation. Change can also occur psychologically when your life circumstances change. For example, people leave programs and seek employment again.
- Transitions, on the other hand, are internal, psychological processes where people learn to deal with change. For instance, people learn skills for managing change and making a successful transition.

As you can see, career transitions are complex and involve change in many aspects of life. People moving through career transitions need a process by which they can manage change, learn more about themselves, and implement strategies to move beyond their current circumstances. The following section describes several models that attempt to explain transitions and the basis for career interventions.

Models of Transition

Because transitions are all about adapting to changes people experience, models provide theories about how people can make the most of these changes. For whatever reason, you can expect significant changes in your career and life. If you are transitioning from unemployment to employment, the following prominent models of change and transition can provide a blueprint for moving forward.

Hopson and Adams Model

Hopson and Adams (1977) identified seven stages of transition that people go through in any type of transition. These stages included:

- **1. Immobilization:** People exhibit a feeling of being frozen and do not know how to begin the transition process.
- 2. Minimization: People often act as though nothing in their life or career has changed and live in denial.
- 3. Depression: People feel unable to cope and experience feelings of panic, anger, and blame.
- 4. Acceptance: People soon realize that they can make the most of their situation.
- 5. Testing: People begin to form a new perspective of their options and possibilities.
- **6. Seeking meaning:** People find the hope and energy to make meaning an integral aspect of their career and life.
- 7. Internalizing: People implement and internalize their new care.

Bridges Transition Model

The Bridges Model (2017) focuses on the impact that change has psychologically and emotionally, how people implement adjustments and changes when they experience significant change, and how they react when change is not voluntary.

The Bridges Transition Model involves a three-phase process of:

- **1.** Ending, Losing, Letting Go helping people explore their tangible and intangible changes and make mental preparations to move on. In this phase, people learn what they are losing and learn a process for managing these losses.
- 2. The Neutral Zone helping people realign their life and career to adapt to change.
- **3.** The New Beginning helping people create a new identity. People learn to do this by regenerating new energy and discovering a new sense of purpose and meaning.

The model of transitions used in this book, Hope-Based Resilience (Liptak, 2023; HBR), suggests that all people go through many transitions in their lives. HBR is an outgrowth of the Hierarchy of Hope (Liptak and Scallon, 2023) and provides a comprehensive method for managing change and creating a career plan. This model contains two main processes:

Dealing with Collisions with the Future

The HBR Model suggests that people experience change as 'collisions' with their future. HBR suggests that you encounter three critical collision points on your way to a successful transition to work:

- Collision Point #1 = You feel the need or desire to move to a new, imagined future for yourself.
- Collision Point #2 = You don't have a plan to reach your imagined career future.
- **Collision Point #3** = You face challenges in implementing your vision of the future.



Figure 1: Challenges People Experience in Their Transition to Work.

Making Appropriate Repairs

The HBR Model suggests that all people can make appropriate repairs for each collision point they are currently experiencing about your future:

- **Repair #1: Explore Your Best Possible Career** People explore their potential interests, imagine many new possibilities, brainstorm career options, look at your career with fresh eyes, establish a new sense of purpose, and start to design a new future.
- Repair #2: Create a Career Plan for New Possibilities
 People embark on the career planning process to create a roadmap to reach their desired future.
 Their roadmap will consist of using SMART goals to get where you want to go, setting long-term
 and short-term goals as motivators, and directing your attention and energy to your goals.

Repair #3: Successfully Implement Your Career Plan

People use specific implementation strategies for transitioning to work, paid gigs, and/or educational opportunities. They learn specific strategies to manage their time effectively during your transition to work.

The *TWI* is based on Liptak's Hope-Based Resilience Model. Each Step of the *TWI* is based on the collision and repair processes of the HBR.



Figure 2: Ways People Can Be Successful in Their Transition to Work.

The **Transitioning to Work Inventory** (*TWI*) is designed to meet the need for a brief assessment instrument to measure people's interests in order to help them transfer these interests into potential jobs, paid gigs, or educational opportunities. Assumptions underlying the development of the *TWI* include:

- People experiencing a career transition are in the process of moving (voluntarily or involuntarily) into a new employment situation. These people experience career transitions for a variety of reasons including returning to the workplace after a lengthy absence, being downsized, following incarceration, moving from a rehabilitation or welfare-to-work program, and many other reasons.
- Although transitions sound easy, the process can be complicated and difficult to manage. Therefore, this assessment will help people to understand more about career transitions and how to make the most of their career transition process.
- Although transitions are thought of negatively, career transitions can be a positive aspect of career and life. Career transitions force people to stop, reflect, evaluate, and sometimes redesign and restructure their careers.
- Many individuals discover new, untapped strengths, talents, and skills which can lead to new jobs, paid gigs, and educational opportunities. People gain these strengths, talents, and skills from many aspects of life, not just the work they do.
- People can develop a comprehensive career plan by turning their interests into short-term and long-term goals that provide better clarity about the types of jobs, paid gigs, and educational opportunities they would like to pursue in the future.
- Most people have skill gaps in reaching their career goals. They need to explore a variety of implementation strategies to close these skill gaps.

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 hidden, unused 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 interest 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 businesses. 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 the 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.

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

The **Transitioning to Work Inventory** was further revised in 2023 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 with which the *TWI* can help.
- Items revised to make them more relevant in the workplace of today.

Step 4 was amended to be more user-friendly. The "Headers" for the columns in the Career Exploration Chart were updated to reflect the addition of the Transition Triangle. The titles for some of the Jobs, Paid Gigs, and Educational Opportunities were revised to reflect changes in society and the work world.

Step 5 became the "Explore Additional Sources of Information" section now includes updated methods for exploring occupations and then begin to make preliminary career decisions about career options of interest. This section now includes online sources for research; in-person search techniques such as networking, job shadowing, and informational interviewing; and social media options such as watching YouTube videos about specific occupations.

Step 6 became Create a Career Plan and now includes a two-fold process for initiating a career plan:

- 1. Setting SMART goals that are Specific, Measurable, Attainable, Relevant, and Time-Oriented.
- 2. Identify any skill gaps you may have in reaching your SMART goals.

The "My Career Plan" section provides a list of basic transition strategies for transitioning to a job, paid gig, and/or educational opportunity. Additionally, a chart is now provided to allow participants to explore their SMART Goals, Skill Gaps, and Transition Strategies into one place. This page allows them to pull together all of the information they gathered from the assessment in one place and provides a plan for moving forward with their transition.

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.

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 (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).

For the fourth edition of the *TWI*, construct validity was supported by additional means and standard deviations on subsequent administrations of the assessment. The results of second, third, and fourth editions were combined (See Table 9). Males scored highest in three traditional fields attributed to men. Men had the most interests in career options related to the Manufacturing scale (M = 23.15), Business and Administration scale (M = 23.13), and Information Technology scale (M = 22.93). Men scored lowest on the Arts and Communication scale (M = 15.80), the Human Service scale (M = 16.80), and the Hospitality, Tourism, and Recreation scale (M = 17.17). Females scored highest on the Education and Training scale

(23.25), the Business and Administration scale (M = 21.80), and Law and Public Safety (M = 21.04). Females' interest in Business and Administration jumped significantly from means of 17.33 to means of 21.80, Similarly, females' interest in Law and Public Safety jumped from a mean of 18.95 to 21.04. Female interests on Transportation, Distribution, and Logistics scale rose from a mean of 15.39 to 18.47 and their scores on the Manufacturing scale from a mean of 14.47 to a mean of 19.25. This shows a significant increase for females in "nontraditional" interest areas.

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				

Table 2: LSI 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 = 105 Adults

* N = 75 Adults ⁺ 1 month after original testing

	Table 3: LS/ 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	.71	.70	1.00	
12	.31	.33	.27	.47	.28	.44	.48	.43	.59	.26	.23	1.00

* N = 105 Adults 1.00 = Perfect Correlation for the Scale

Table 4: LSI Means and Standard Deviations for Adults								
Cluster	Total (N	l = 120)	Male (I	N = 55)	Female (N = 65)			
Cluster	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		

Table 5: Correlations of the LSI with the Self-Directed Search (SDS)*								
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: TWI First Edition Means and Standard Deviations for Adults							
Cluster	Male (I	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								
Churchen	Male (N = 50)	Female (N = 50)					
Cluster	Mean	SD	Mean	SD				
Agriculture and Natural Resources	17.94	2.50	18.87	3.02				
Architecture and Construction	20.40	3.30	19.41	3.12				
Arts and Communication	15.80	4.12	17.53	4.17				
Business and Administration	23.13	4.18	21.80	4.15				
Education and Training	17.19	3.22	23.25	3.84				
Finance and Insurance	21.10	5.32	20.73	5.25				
Government and Public Administration	17.21	4.87	17.23	4.77				
Health Science	17.27	3.79	20.80	3.96				
Hospitality, Tourism, and Recreation	17.17	4.68	18.99	4.44				
Human Service	16.80	2.85	20.04	4.18				
Information Technology	22.93	4.37	19.73	4.09				
Law and Public Safety	21.24	4.73	21.04	4.68				
Manufacturing	23.15	4.17	19.25	4.83				
Retail and Wholesale Sales and Service	18.14	5.63	18.14	5.62				
Scientific Research, Engineering, and Mathematics	20.05	6.06	20.25	6.05				
Transportation, Distribution, and Logistics	19.41	6.20	18.46	5.87				

Table 8: TWI Second and Third Edition Means and Standard Deviations							
Cluster	Male (N	l = 144)	Female (N = 161)				
Cluster	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			

Table 9: TWI Second, Third, & Fourth Edition Means and Standard Deviations								
Olustan	Male (M	l = 405)	Female (N = 397)					
Cluster	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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