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Development and Validation of Work Readiness Assessment Scale for Home Economics Graduates

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Abstract:

This paper focused on the development and validation of a Work Readiness Assessment Scale (WRAS) for Home Economics graduates in Senior High School. It is aimed that the output be used by both the academe and industry in evaluating the work readiness of graduates. Furthermore, it identified the attributes and characteristics of work readiness as basis for scale development through a series of focus group discussions. Four dimensions were identified using NVivo software. The developed WRAS consisting of 15-items per dimension was validated in a sample of 311 Senior High School students using the Rasch Modelling. The results showed unidimensionality; a well-functioning response option; difficulty of items increases as response option increases; it indicates a productive measure; items are well-structured; and each item can highly discriminate well between test takers with high and low level of work readiness. A correlation study was conducted between the results of the WRAS and Work Immersion grades to validate its functionality.

Keywords: *Home economics, Rasch scale model work readiness, senior high school, unidimensionality, validation*

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1. Introduction

The major reform in Philippine education is the implementation of the Senior High School in the K to 12 Curriculum. There are four exits of this reform by which it hopes to achieve namely: college readiness, work readiness, middle-level skills, and entrepreneurship.

With the first graduates of our Senior High School students in 2018, there is a need to assess the curriculum regarding the four exits. Secretary Briones emphasized that as DepEd graduated its first batch of K-12 students in 2018, a review of the department's K-12 program is timely to improve and develop the program further (TomaCruz, 2018). More specifically, the expectation is that Senior High School graduates are ready for employment. Former Undersecretary for Curriculum and Instruction, Dina S. Ocampo reported during the Tanza, Cavite Planning Meeting on October 11, 2016, that enrollment in Senior High Schools reached more than a million at the national level. Furthermore, data revealed that 39.31% of enrolment in Senior High School is in the Technical-Vocational track while 60.08% preferred the Academic Track. The source of the data is the Enhanced Basic Education Information System or EBEIS, a web-based information system of the Department of Education aimed at gathering data efficiently. The EBEIS data at the regional level showed that there were 172,779 enrolled students in high school with almost nearly the same breakdown in terms of track preference.

The Technical-Vocational Livelihood track prepares the students not only regarding the competencies but also in skills development towards work readiness. In the TVL enrollment, the Home Economics strand has the number of enrollees particularly in Bread and Pastry (12.48%), Food and Beverage (11.35%) Cookery (7.72%) and Wellness Massage (4.05%) (DepEd Region III Report to RDC, June 2016). These specialized subjects are the most preferred by the students based on enrollment data and the number of schools offering them. These data reflect the expectations of the SHS graduates on possible employment after graduation. Hence, the school must provide the proper skills to make the graduates ready for work.

In an article in national daily newspapers, the biggest group of industry leaders, the Philippine Chamber of Commerce and Industry (PCCI) categorically stated that the first batch of Senior High School graduates are not yet ready for work and lack the skills for employment (Yee, 2018). Past President of the Pampanga Chamber of Commerce, Marco Antonio "Jim" Jimenez in an interview by the local ABS=CBN network last March 2018 gave his opinion that the SHS graduates are more prepared now in the field of work compared to the previous batches of students. In addition, Secretary Leonor M. Briones of the Department of Education said that the graduates are employable (Mocon-Ciriaco, 2018).

These claims are valid if based on proven evidence. The question is how to substantiate these claims. How are the graduates measured regarding their readiness

for work? What are the attributes or characteristics of work ready that make them employable? There is no available measure to assess the work readiness of our Senior High School graduates.

Work Readiness

Work readiness is relatively a new concept in the field of business and industry to measure or predict the potential of a graduate in his/her major field of study. Atlay and Harris (2000) said that for industry partners, job performance, success in work, and advancement in one's career indicates work readiness. However, Caballero and Walker (2010) defined work readiness as the ability of the graduates to be prepared for success in the work environment due to the attributes and attitudes they possess.

On the other hand, a review of the current literature suggests that work readiness is still new as a construct. Furthermore, Casner-Lotto & Barrington (2006) indicated the lack of consensus and clarity on a definition of work readiness. In a study conducted by ACNielsen Research Services (2000) on the status of work readiness of graduates from the perspective of employers showed that those entering the workforce lack the relational and personal competencies expected of them by employers. Caballero, Walker, and Tsyzkiewicz (2011) conducted a qualitative study to address the issue aimed at identifying attributes and characteristics of work readiness by generating a representative pool of items and developed a scale for quantitative measurement to assess graduates. It resulted in a 167 item validated Work Readiness Scale (WRS) with a sample of 251 graduates across different disciplines. It used item analysis to refine the scale. Using exploratory factor analysis, the final WRS consisted of 64 items with four factors namely, personal characteristics, organization acumen, work competence, and social intelligence.

On the other hand, Robert Brady (2010) developed the Work Readiness Inventory designed to survey six aspects of readiness: Responsibility, Flexibility, Skills, Communication, Self-View, and Health & Safety. It consists of 36 statements (items) related to readiness. There are six items for each of the six readiness factors. Content validity was conducted to evaluate the degree by which the test measures an intended content area.

Furthermore, research conducted by the International Labor Organization in 2015 on the Philippine Employment Trends concluded that structural or skills mismatch is a reason for graduate unemployment in the Philippines. Accordingly, employers perceive the jobseekers, in general, lacking the needed characteristics to be ready for work. (2015, April 22. Philippine Employment Trends 2015: Decent jobs crucial for inclusive growth, Retrieved from http://www.ilo.org). With the current trends in the workplace both in the Philippines and in the world, work readiness becomes a necessary criterion for employability. Hence, there is a need to develop a tool to measure the readiness for work of our graduates to meet the demands of the employers.

Assessment Tools

An inventory of current assessment methods used in the selection of possible employees by employers reveals that they lack rigor and construct validity in assessing work readiness effectively (Caballero & Walker, 2010). Most companies use the traditional methods of selection such as document evaluation for academic achievements, interviews and cognitive ability tests. However, these tools relates generally to mental ability rather than to work readiness (Hart, 2008). On the other hand, interviews are not reliable measures of work readiness (Caballero, Catherine. Walker & Fuller-Tyszkiewicz, 2011).

In the Philippines, the Senior High School aims to make graduates ready for work particularly in the Technical-Vocational Track, so, the development of a scale aimed at measuring work readiness in the context of the senior high school could be an objective method of assessment and further help employers in making selection decisions effectively.

For many years, the emphasis was on the assessment of knowledge rather than on the readiness for the job. Furthermore, the evaluation of students was for higher education rather than for work. As a result, students did not know how to use their knowledge to benefit their careers. Educational systems did not have the necessary methods and tools to translate students' academic achievement into assessing their work readiness and success in their professions.

According to Meyer, Allen and Topolnytsky (1998) and further corroborated by Trank, Rynes and Brets Jr. (2002) there is a need to review the recruitment and selection practices because of the economic, technological and demographic changes happening in our world that affected the work environment. Because of the rapid changes in the workplace and the labor market, studies showed that work readiness becomes more relevant for graduate recruitment and employers give more value to it. Furthermore, a review of the literature indicated that in the world today the recruitment and selection process for graduates by employers is not a successful assessment of work readiness. Also, employers and academicians have different articulation on what constitutes work readiness (Caballero, C., & Walker, A., 2010).
In the Philippines, unemployment and underemployment continue to be a pressing problem despite the availability of jobs. According to the 2011-2012 Bureau of Labor and Employment Statistics (BLES) Integrated Survey (BITS), a total of 15,667 or 59.7% of the 26,253 though available jobs are being filled up through recruitment of applicants between January 2011 and June 2012.

It also revealed that the total number of job openings are around 619,580. In addition, a total of 149,226 or 24.1 % are hard-to-fill; and more than one-third, or 35.8 %, is due to lack of applicants with the right competencies. The former Secretary of the Department of Labor and Employment (DOLE), Rosalinda Baldoz

said that the main reason for the difficulty in filling the vacancies is that applicants are not job or work ready.

The Enhanced Basic Education Act of 2013 identified the goals, intentions, outcomes, curriculum and learning areas of the K to 12 program. These features need to ensure that students improve better to achieve the 21st-century outcomes that include college and employment readiness. Assessment sees to it that students have developed the skills, which is an integral part of student learning. Akker (2003) described it as an essential component of curriculum practice. Furthermore, it helps students in their career path after senior high school because it ensures that students acquire the relevant learning to enter college through the college readiness test. Career assessment further clarifies the specific programs that they pursue after senior high school. However, the employment readiness of graduates is not yet measurable.

Senior High School

With the implementation of the Senior High School through the K to 12 in the Philippines, the need for preparing the learners to be work ready is necessary. One of the objectives of the K to 12 Basic Education program is developing competencies, work ethics and values relevant in pursuing higher education or joining the workforce. Work immersion has been included as a subject in Senior High School to provide opportunities to students to1) be familiar with the place of work; 2) for work simulation; and, 3) apply their competencies in areas of specialization/applied subjects in authentic work environments. Furthermore, work immersion will help our learners in developing life and career skills that will prepare them to make informed decisions on postsecondary education or employment (Department of Education, 2017)

In a survey conducted by the Department of Education, Region 3, revealed that 65% or 48,814 SHS graduates intend to go to college and pursue a bachelor's degree; 13,208 or 18% consider working; 7,564 or 10% would work and study at the same time; 3,572 or 5% might stop schooling while 1,182 or 2% would do business.

The above data show that the majority of the graduates still prefer to enroll in college. However, the survey also reveals that a significant portion of our graduates might stop their studies. However, a segment of our graduates sees the SHS as a venue for them to continue their studies by working at the same time.

With these realities, are the Senior High School graduates work ready? Apprehensions abound from employers and industry players about the first batch of graduates despite the assurance of the Department of Education about the employability of the graduates.

It is in this context that the current study is relevant and significant. The development of a valid assessment tool to measure the readiness of the senior high

school graduates for work will help both the employers and the Department of Education in preparing our young people to enter the field of work. The development of an assessment tool that would measure the readiness of the individual worker helps to recognize and address the expectations and demands of the new work realities. Also, readiness assessments contribute significantly to career-planning and decision-making process. Hence, there are more-informed choices provided for work opportunities (Sampson, Peterson, Reardon, & Lenz, 2000).

The introduction of reforms in our education aims to prepare our youth for life-long skills critical for the 21st century. The inability of our students to compete in the economic arena due to the failure of schools to provide the skills required of postsecondary education and the workforce necessitated the reform in the Philippines. Furthermore, secondary career and technical education are at the forefront of meeting the challenges. The role of education in economic development is to bridge the gap between the industry needs and the education supply.

Employers' Expectation

Assessment is crucial in the selection and recruitment of graduates in the workplace. Its aim to predict and forecast capability and potential of the applicant towards the performance of the job. However, there is a discrepancy between employer expectations and graduate performance. Therefore, work readiness in graduate recruitment and selection is relevant. To date, there is little evidence in the research of a specific measure of work readiness for graduates. But it is evident that current graduate recruitment and selection methods fall short concerning the assessment of work readiness. Hence, the development of a measure of work readiness is inevitable given the growing emphasis on this construct from employers.

In the United States, career and technical education played a vital in developing work readiness skills and for students to have the ability to exit high school with specific transferable skills. Traditional education programs may often address some of these same skills; however, few programs ever provide comprehensive training across an occupational (Hyslop, 2008). Nobel Laureate James Heckman said that work readiness skills are necessary to succeed in the workplace (Hyslop, 2008).

The ability defined by what is considered work readiness for students have been and continue to be guided by the influence of the landmark SCANS Report (Secretary's Commission on Achieving Necessary Skills (1991). This report called for a more rigorous high school curriculum so that students become more productive in the 21st century (Olson, 2006). Perhaps the first time in American history, the report identified that employers lack workers who are technical experts, critical thinkers and, problem-solvers. Moreover, more than half of high school students leave secondary education without the knowledge or foundation required to sustain meaningful employment (Secretary's Commission on Achieving Necessary Skills,

1991). The primary objective of the SCANS Report was to help educators understand how curriculum and instruction must change to enable students to develop high-performance skills to succeed in the workplace (Copple, Kane, Matheson, Packer, & White, 1993). It sought to assess not only where high school students currently were at the time, but also to define the skills needed by employers, propose acceptable levels and design ways to assess proficiency, and to develop a dissemination strategy for the country (O'Neil, Allred, & Baker, 1997).

Development of Assessment Scale

In the Philippines, the construct of work readiness is very new especially in the context of education. In the past, college graduates' preparedness for work is measured base on the degree or course they took in the postsecondary education. According to Nicholson and Arnold (1991), there is an adverse effect of wrong decisions in the selection of employees. A survey of assessment tools and literature in the Philippines reveal that there is not one standard construct to measure the work readiness of college and our high school graduates.

A standard measurement is necessary to come up with an objective evaluation of the preparedness of graduates in the Philippines to meet the requirements of the employers. The SHS program is the realization of Section 2, paragraph (a) of the RA 10533 that the state shall "broaden the goals of high school education for college preparation, vocational and technical career opportunities as well as creative arts, sports and entrepreneurial employment in a rapidly changing and increasingly globalized environment." Hence, the objective of Senior High School is to develop productive and responsible students to be life-long learners and ready for work.

Rasch Analysis

Tomak and Erhan Sari (2016) mentioned that choosing appropriate items is the way to structure the scale. Accordingly, there are two theories used in the assessment of a scale: Classical Test Theory and the Rasch Model. In the study conducted, they compared the two methods of analysis, and their findings show that the advantages of Rasch Method are fit statistics and graphics. Furthermore, they concluded that the scores are accurate estimates in Rasch analysis than in the Classical Test Theory.

Magno (2009) also demonstrated the difference between the two models in his study using actual test data for chemistry in junior high school. The results give some limitations of the classical test theory and the advantages of using the Rasch analysis. The following are in the study: (1) Rasch analysis estimates of item difficulty do not change across samples compared to CTT; (2) difficulty indices were more stable across forms of tests than the CTT approach; (3) Rasch analysis internal consistencies are more stable across samples than CTT; (4) Rasch model analysis had significantly fewer measurement errors than the CTT approach.

Ideally, CTT and Rasch Analysis results should both indicate that a measure is fit for purpose as we seek tools with the precision to indicate necessary treatment effects.

However, different researches conducted to determine the difference between the two models yielded varied results (Cappelleri & Wyrich: 2014).

2. Theoretical Background

The study was based on the Social cognitive career theory (SCCT), derived primarily from Bandura's (1986) general social cognitive theory, is based on a triadic reciprocal model of causality. This model holds that personal attributes such as internal cognitive and affective states, external environmental factors, and overt behavior each operate as interactive sets of variables that mutually influence one another. SCCT highlights three intricately linked variables by which individuals regulate their career behavior; self-efficacy beliefs, outcome expectations, and personal goals (Lent & Brown, 1996). Self-efficacy beliefs refer to peoples' judgments of their capabilities to organize and execute courses of action required to attain designated types of performance. Outcome expectations refer to beliefs about consequences or the outcome of performing particular behaviors. Personal goals play a central role in career choice and decision-making because they define an intention to engage in certain activities or produce particular outcomes (Bandura, 1986). Of all three SCCT components, self-efficacy is viewed as key to a career performance. This is representative of the level of attainment individuals achieve in their work tasks (e.g., measures of success or proficiency) and the degree to which they persist despite obstacles (Lent & Brown, 1996). Due to the central role self-efficacy plays in career and work performance, self-efficacy theory as it relates to job-readiness provided the theoretical framework for this study. This conceptual basis has helped self-efficacy theory emerge as a significant foundation for work motivation and employment performance research (Eden & Aviarm, 1993; Gist, Schwoerer, & Rosen, 1989; Stumpf, Brief, & Hartman, 1987; van Ryn & Vinokur, 1992).

The core source of recruitment of employees and the component of human resource strategy is the hiring of graduates. In many organizations, the vital consideration in the hiring process is looking at the skills and characteristics that are predictive of job success among the applicants. Traditionally, academic achievement played a vital role in selecting employees and becomes an indicator of intellectual capability and a motivation to pursue and achieve higher goals. But with the recent developments in the world market and advances in technology, academic achievement is not enough to determine the work readiness of graduates. There is a growing demand for workers to possess a diverse range of common attributes and skills to consider them work ready.

The focus of current research is the development and validation of an assessment tool for work readiness through a qualitative study to generate a representative pool of items for quantitative measurement in developing a Work Readiness Assessment Scale to measure the employability skills of our Senior High School graduates in the Technical-Vocational Livelihood track in the Home Economics strand. The

present study will go through four stages, namely: Development of the Scale; Validation; Implementation and Program Development.

2.1 Development of the Scale

According to DeVellis (2003), there is a need to determine what to measure in the development of the assessment tool. The construction of the instrument generates a large pool of items. A qualitative exploration of work readiness through focus group discussions as a technique to develop a quantitative scale was used. Focus groups can be used at the preliminary or exploratory phase of a study (Kreuger, 1988); during a study in order to evaluate or develop a particular program of activities (Race, 1944); or after a program has been completed, to assess the impact or generate further researches. Furthermore, Morgan (1988) pointed out that they can be used either as a method in itself or as a complement to other methods especially, for triangulation and validity checking.

The different attributes and characteristics of work readiness come from samples of participants who have a stake in work readiness by asking about their perceptions and the various elements it comprises. According to Morgan (1988), there are four aspects to observe in the interview. These are: 1) to cover the maximum number of important topics; 2) to provide as specific as possible data; 3) to promote interaction that explores the participants' feelings in some depth; and 4) to take into account the personal context in which the participants' generated their responses to the topic. Furthermore, Krueger (1998) stresses that the questions themselves in the focus group interview should appear spontaneous but must be carefully developed prior to the interview. Accordingly, the questions – called the questioning route or interview guide – are arranged in a natural, logical sequence.

Furthermore, previous researches and theories are used to determine the attributes and characteristics of work readiness.

From the data gathered from the sample participants about their perceptions of work readiness, the researcher conducts thematic analysis from the transcripts and develops a list of broad categories. Then he employs coding of transcripts into categories for analysis and identifies themes within categories.

A second researcher knowledgeable about the research will review the data, categories, themes, and establishes the reliability of the analysis. The researcher and the external researcher agree on the final categories and themes. From these, the researcher develops the items for the Work Readiness Assessment Scale with simple language, avoiding ambiguities and double-barreled items. They will then choose a rating scale.

2.2 Validation

External experts who have experience in the recruitment and assessment of graduate applicants reviews and validates the generated items. According to the research by Denise F. Polit and Cheryl Tatano Beck (2006) "for a scale to be judged as having excellent validity, it would be composed of items with Content Validity Index for Items (I-CVI) that would meet the criteria as proposed by Lynn (1986).

Accordingly, the recommended standards will need two rounds of expert review if the initial I-CVIs will indicate the need for substantial improvements, or if the reviewers identify some aspects of the construct that are not adequately covered by the initial pool of items. From the positive results of the content validity of the tool, the questionnaire is pilot tested.

2.3 Implementation

The researcher administers the questionnaire with the construct-related and validity items to a representative sample. According to Nunnally (1978) that the primary sampling issue in scale development will involve the sampling of items from a hypothetical universe. He further suggested that the sample must be sufficiently large to eliminate subject variance and 300 is an adequate number.

A. Analysis

From the results of the pilot testing, the Rasch analysis is employed on the pilot data to evaluate the functionality of the instrument concerning its validity and reliability.

B. Refinement of the Work Readiness Assessment Scale

The instrument will be refined by either adding or removing items and changing the rating scale using the results of the Rasch analysis.

2.4 Program Development

Correlating the results of the field test of the developed and validated work readiness assessment scale with the evaluation on work immersion, an educational management program was developed as an intervention strategy to be proposed to the Department of Education.

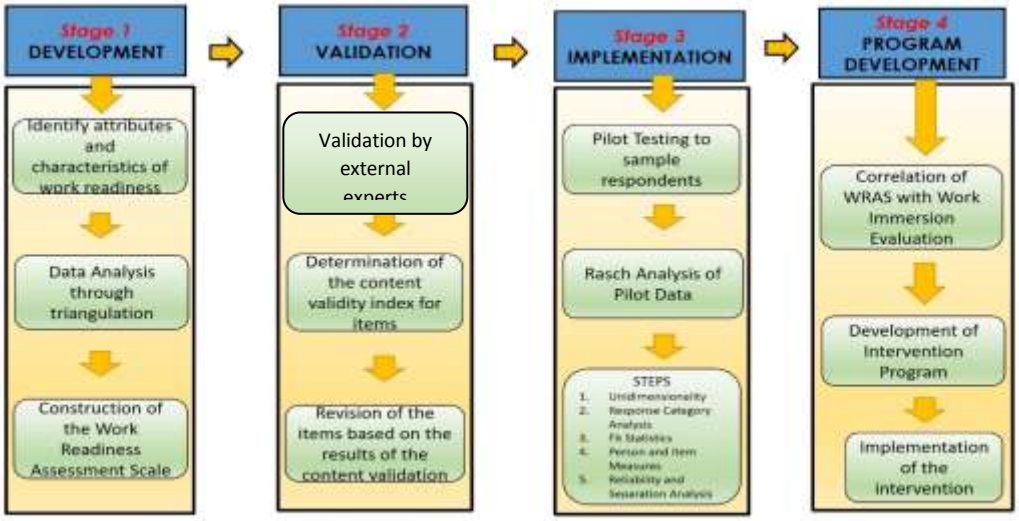

Figure 1. The Paradigm of the Study

3. Methodology

The present research explored work readiness through qualitative-descriptive study to generate a representative pool of items for quantitative measurement in developing a Work Readiness Assessment Scale to measure the employability skills of our Senior High School graduates in the TVL-Home Economics. A qualitative exploration of phenomena is becoming increasingly common and is seen as a powerful technique, particularly when integrated into the development of quantitative scales.

3.1 Respondents

In the Phase 1 of the study, three (3) Focus Group Discussions (FGD) were employed with the following respondents distributed respectively, 8 Industry and Business Leaders from the Pampanga Chamber of Commerce, 7 TESDA Assessors, and 15 Home Economics graduates in the TVL track who are already working, and asked about their ideas on work readiness and what are the various attributes and characteristics it comprises.

The respondents of the study for the pilot testing were 311 Grade 12 Senior High Students in the Home Economics strand of the TVL track in the Divisions of Pampanga,

Angeles City, Mabalacat City and City of San Fernando undergoing work immersion. The basis of the selection of respondents was the recommendation of Division Senior High School Focal Person.

3.2 Instruments

The construction of the Work Readiness Assessment Scale depended on the qualitative study by collecting data from participants in Phase 1 of the research using focus group discussion. The objective of the focus group discussions among the different groups of participants was to explore the different characteristics and attributes of work readiness based on their perceptions and actual experiences (see attached Forms).

3.3 Procedures

Specifically, the researcher used the following methodology in the construction and validation of the Work Readiness Assessment Scale:

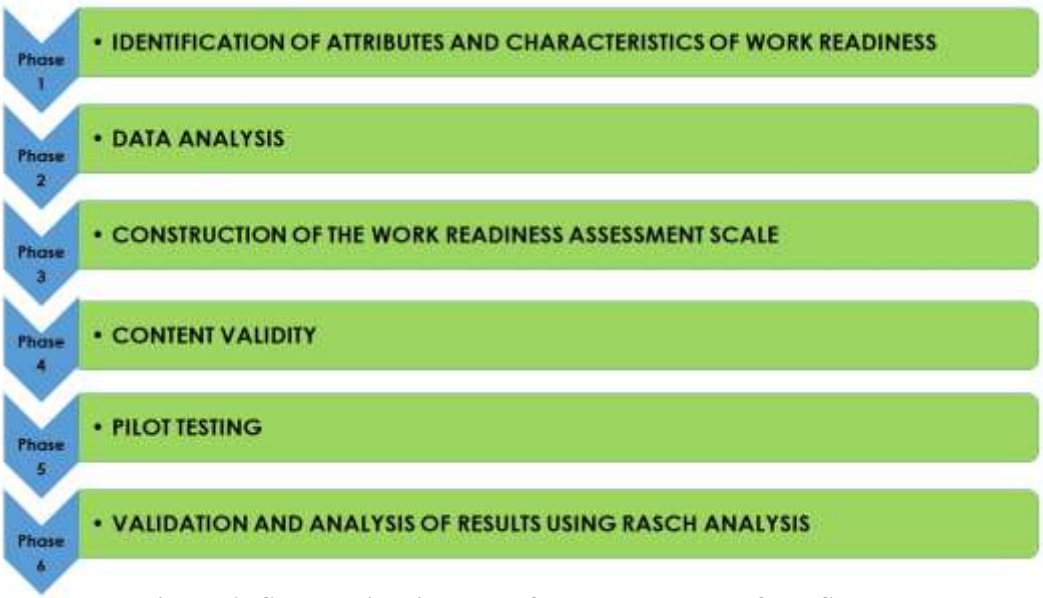

Figure 2. Schematic Diagram of the Procedures of the Study

Phase 1: Identification of attributes and characteristics of Work Readiness

The researcher employed a qualitative study to explore the various attributes and characteristics of Work Readiness. Three separate samples of participants, namely; 8 Industry and Business Leaders from the Pampanga Chamber of Commerce who are in the service industry, 7 TESDA Assessors of Home Economics, and 15 SHS graduates in Home Economics of the TVL track who are already working, were chosen and asked about their ideas of work readiness and what are the various qualities and characteristics it comprises. The researcher conducted interviews and focus group discussions to the different groups of participants to gather data.

Researchers consider group size a major factor in focus group research. Stewart and Shamdasani (1990) suggest that it is better to have more participants than risk of cancelling the session. The minimum size for a focus group is six to eight

participants (excluding researchers), but can have as many as 14 participants. Bloor and Robson (2001) took notice that in focus groups the participants should not be too small as limited discussions may result. Neither it should be too large that it is too hard to manage.

The researcher gave a request letter addressed to the different groups of participants for confirmation (pages 78-80). During the interview and focus group discussions, the participants signed a waiver.

Previous researches were also examined to validate the data gathered which are indicative of work readiness. Data triangulation through the use of different sources of information was used to increase the validity of the study. Participants were selected based on their stake to the work readiness of SHS graduates.

Phase 2: Data Analysis

The researcher conducted thematic analysis of the transcripts gathered from interviews and focus group discussions using a qualitative data analysis software, NVivo 12 Plus edition and coded the transcripts through broad categories identified in the data. Once the transcripts had been coded, text within each category was analyzed to identify themes. Then the researcher reviewed the data, categories, and themes to establish sufficient reliability using again the software.

Phase 3: Construction of the Work Readiness Assessment Scale

The guidelines recommended by DeVellis (2003) was used in developing the items for the Work Readiness Assessment Scale (WRAS). It includes the use of simple language, avoiding ambiguities and double-barreled items. It also includes a combination of positively and negatively worded items to have a balance perspective.

Phase 4: Content Validity

The generated items were evaluated and validated by external experts who have experience in the recruitment and assessment of graduate applicants. Items were reviewed on the basis if they indicate qualities or characteristics of work readiness. The evaluators rated each item using a checklist or a rubric (pages 81-83). The results of the evaluation became the basis in computing the content validity index of the WRAS.

Phase 5: Pilot Testing

The constructed questionnaire for the scale is administered to a representative sample of Grade 12 Senior High School students having work immersion. There were 311 SHS students who participated in the pilot testing.

The researcher asked the Division SHS Focal persons by writing a letter to the Schools Division Superintendents of Pampanga, Angeles City, Mabalacat City, and the City of San Fernando to identify the participants. There were 94 students from

Pampanga, 94 from Angeles City, 62 from Mabalacat City and 61 from the City of San Fernando.

Phase 6: Validation and Analysis of results using the Rasch Model

The Work Readiness Assessment Scale (WRAS) is a Likert type self-administered survey questionnaire with four response options for each item such as 1=Needs Improvement, 2= Developing, 3=Proficient, and 4 = Exemplary. To establish the validity and reliability of the WRAS, the Rasch modelling method was employed, specifically the Rating Scale Model which is appropriate for the Likert type questionnaire (Andrich, 1978; cited in Amora & Bernardo, 2009).

Both the person and item measures in Rasch modeling can be obtained through the use of a common measuring device called "Rasch yardstick". The values in the yardstick are logits, which may vary from negative infinity to positive infinity, or from -4 to +4 in most practical situations. These logits are used to represent the person and item measures. Non-technical persons have difficulty of understanding values between -4 to +4 (or negative infinity to positive infinity). Luckily, through a mathematical manipulation, the values (i.e., the item and person measures) can be transformed so that values would fall between 0 and 100 (Amora, 2015), analogous to the traditional test scores which range from 0 to 100 percent. In the case of the items, the closer the item measures to zero, the easier the item to endorse by the raters and the closer the item measures to 100 the more difficult the items to endorse. In the case of the persons, the closer the person measures to zero the more negative the attitude and the closer the person measures to 100 the more positive the attitude.

To carry out the Rasch analysis, the researcher performed the following steps using the Winsteps software: 1) Unidimensionality, 2) Response Category Analysis, 3) Fit Statistics Analysis, 4) Person and Item Measures, and 5) Reliability and Separation Analyses.

Step 1. Unidimensionality. One major concern of Rasch Modeling is its need for a unidimensionality, that is, the set of items to analyze should belong to only one dimension. Nunnally and Bernstein (1994) pointed out that psychometric measurement models require unidimensionality; i.e. valid and legitimate summing of rating scale items into an interpretable total score rest on the requirement that the items represent one common underlying (latent) variable. However, the idea of having one attribute in measurement is not only particular to rating scales but at least dates to the early 1930-ies when Thurstone stated that: "The measurement of any object or entity describes only one attribute of the object measured. This is a universal characteristic of all measurement"

According to Nunnaly and Bernstein (1994) and corroborated by Smith (2002) there are at least three related reasons why unidimensionality is important to consider. Firstly, unidimensionality is a basic assumption for valid calculation of total scores according to both classic and modern test theories. Secondly, unambiguous interpretation requires scores to represent a single defined attribute. That is, varying

levels of one or more other variables should not appreciably influence scores on a scale that is used to measure one variable. Thirdly, if scores do not represent a common line of inquiry it is unclear if two individuals with the same score are comparable.

One approach advocated in testing for unidimensionality within the Rasch Model framework is a Principal Component Analysis (PCA) based method first proposed by Smith (2002). Furthermore, he emphasized that this approach attempts to assess whether scales are sufficiently unidimensional to treat as such in practice. In the present study, after the conduct of the focus group discussion and review of the literature, a four dimension WRAS was formed, then the researcher conducted four independent Rasch analyses, one Rasch analysis for each dimension. For each dimension, the researcher conducted the Rasch Principal Component Analysis so that the proportion of variance explained by the Rasch measures can be determined.

Step 2. Response Category Analysis. The eight guidelines of Linacre (2002) was used to investigate the utility of the 4-point response categories of the WRAS. Linacre described his guidelines as aid in optimizing the manner in which rating scale categories combine to improve the use of the resultant measures. The eight guidelines are as follows: 1) At least 10 observations of each category; 2) Regular observation distribution; 3) Average measures advance monotonically with category; 4) Outfit mean-squares less than 2.0; 5) Step calibration advance; 6) Ratings imply measures (C→M) and measures imply ratings (M→C); 7) Step difficulties advanced by at least 1.4 logits; and 8) Step difficulties advance by less than 5.0 logits.

Step 3. Fit Statistics. Infit mean squares and outfit mean squares are two fit measures in Rasch modeling. Both infit and outfit statistics are evaluated to determine how the data-to-model fit occurs for each item and for each dimension. Linacre (2006) suggested that so that the items and scale as a whole is productive for measurement, the values of infit and outfit statistics should be between 0.5 and 1.50. In the present study, items with fit indices that fall outside the 0.50-1.50 will be excluded in the analysis. Rasch analysis is a repetitive process; hence, the Rasch analysis is conducted repeatedly until the fit statistics of all items are within the acceptable range (Amora & Lopez, 2017). Once the fit statistics of all items are within the range, the overall fit statistics per dimension was also computed.

Step 4. Person and Item Measures. In Rasch modeling, both the person and item measures can be computed. Theoretically, the measures are called logits which range from negative infinity to positive infinity. Practically, the measures range from, say, -4 to +4. The smaller the measures the easier the items to endorse by the teachers and the larger measures the more difficult the items to endorse. The measures are transformed into 0-100 scores so that non-technical persons can understand. Using such transformation, the closer the item measures to zero the easier the items to endorse by the teachers and the closer to 100 the more difficult the items to endorse.

On the other hand, the closer the person measures to zero the lower the person's perceived level of work readiness and the closer the person measures to 100 the higher the person's perceived level of work readiness. Linacre (2006) stressed that a scale has **c**onstruct validity if the hierarchy of the item measures makes sense; that is, the level of difficulty of the items should advance in accordance with the item measures so that items that are easy to endorse should have corresponding lower item measures and items that are difficult to endorse should have corresponding higher item measures. The logical order of the items in terms of item measures shall be examined. In case of disordered arrangements among the items, the items that cause the disordered arrangement shall be removed.

Another important characteristic of Rasch modeling is that the fit statistics (discussed above) can be used also as indicator of validity. Linacre (2006) emphasized that the data adequately fitting the model is a key indicator of validity. He further posited that removal of the misfitting items could improve the precision of the Rasch measures.

In Rasch modeling, both the person and item measures can be measured using the same yardstick, hence, both person and items can be placed in a Person-Item map. In the person-item map, the items are hierarchically arranged from very easy (bottom) to endorse up to very difficult (top) to endorse. On the same map, the persons with extremely low work readiness levels are placed at the bottom and the persons with extremely high work readiness levels at the top.

Step 5. **Reliability and Separation Analyses.** To determine the level of distinction possible among persons and items, the Rasch person and item separation (G) for each dimension was examined. Separation is the estimate of spread or separation of items (or persons) on the dimension. It is expressed in standard error units, that is, the adjusted item (or person) standard deviation divided by the average measurement Error (Bond & Fox, 2007). The Rasch separation statistics was transformed into strata index, which determines the number of statistically different levels of person ability that are distinguished by the items (strata = (4G + 1)/3; Wright and Masters, 1982). A separation of 2.0 (equivalent to 3 strata) is considered to be the minimum acceptable value (Wright & Masters, 1982).

Rasch reliability statistics was also examined to determine the reproducibility of relative item and person measure location. The person reliability is equivalent to the traditional "test" reliability, while item reliability has no traditional equivalent. Reliability in the context of Rasch modeling means reproducible of relative measure location. "High item reliability" means that there is a high probability that items estimated with high measures actually do have higher measures than items estimated with low measures. On the other hand, "High person reliability" means that there is a high probability that persons estimated with high measures actually do have higher measures than persons estimated with low measures. Moreover, low item reliability means that the sample size is too small for stable item estimates based on the current data. Each dimension will be considered reliable and can discriminate the sample

into enough levels if the person reliability is equal to .80 or higher; and the sample is big enough to precisely locate the items on the Rasch dimension if the item reliability is .80 or higher (Amora & Bernardo, 2009).

4. Empirical Findings/Result and Discussion

Table 1. Phases in the Development of the Work Readiness Assessment Scale

Phases	Processes
Phase 1 : Identification of Attributes and Characteristics of Work Readiness	Focus Group Discussion with 3 sets of groupings; 8 Industry and Business Leaders of Pampanga Chamber Of Commerce and Industry. 7 TESDA Assessors, and 15 SHS graduates
Phase II : Analysis of Data from the FGD	Transcribing of the FGD and Thematic analysis using the NVivo software
Phase III : Development of the Work Readiness Assessment Scale	Development of 15-item self-rating scale per dimension using the results of the thematic analysis and FGDs. Triangulation of items with the review of related literatures.
Phase IV : Content Validity	Evaluation of the draft items by 6 content experts using a rubrics
Phase V : Revision of the Draft WRAS	Revision of the assessment scale incorporating the suggestions/corrections of the content experts

Source: Author

Table 1 show the processes in the development of the Work Readiness Assessment Scale. There are five phases in the development of the scale namely: Identification of the attributes and characteristics of work readiness by conducting focus group discussions with three groups of participants; transcribing of the taped focus group discussion and thematic analysis of the transcribed FGD using the NVivo Plus software to determine the categories and themes; development of the 15-item assessment tool per dimension using simple words; evaluation of the draft WRAS by six content experts; and the revision of the tool using the suggestions of the content experts.

Table 2. Coding categories and themes

Category	Themes
Organizational Awareness	Knowing the standards, rules, duties and responsibilities; immersion in the environment of the organization; knowing the policies in the work place; exposure to the work environment.
Attitude towards Work	good view of self; good characteristics; positive outlook in life; willingness to work beyond' good motivation; punctuality; focus; respect and love for work; willingness to learn; can work as a team; maturity.
Technical Skills	Hands-on experience; competency; proper application of skills; flexibility; can deal with changing situations; problem-solving skills; extensive exposure to the kind of work; initiative.
Social Skills	Oral communication; how to deal with customers; can respond to communication with confidence; being patient in dealing with customers; collaboration; can express confidently one's self.

Source: Author

Table 2 presents the coding categories and themes generated from the use of the NVivo software based on the transcribed taped focus group discussions of the three groups of participants. The interview were transcribed verbatim (pages 84-89) and encoded to the NVivo software. The 'Query' command (in NVivo) is a great tool to use so as to know the kind of words participants use and how often they are used. The 'Word Frequency' result could be displayed as a 'Word Cloud' with varied word fonts depicting the number of times the words are utilized based on the interview transcripts (page 90). The 'Word Cloud' was used to identify the different themes through the most used words or phrases in relation to the topic or issue.

Then the transcripts were auto-coded to identify broad categories (pages 91-93). Once the transcripts had been coded, texts within each category were analyzed to identify themes using the transcripts of the interview. Then the researcher reviewed the data, categories, and themes to establish sufficient reliability using again the software (pages 94-101).

The following categories were identified namely: Organizational Awareness; Attitude towards Work; Technical Skills; and Social Skills. The results of the thematic analysis support the research conducted by Caballero, et. al. in identifying the characteristics of work readiness wherein it also identified a four-factor structure namely; personal characteristics, organizational acumen, work competence and social intelligence. The results also show that the concept of work readiness is characterized in different ways hence the notion of work readiness is a multidimensional construct (Atlay & Harris, 2000; Hart, 2000; Stewart & Knowles, 2000).

Table 3. Content Validity Index based on the Ratings of Six Content Experts on a 60-item Scale of the Draft Work Readiness Assessment Scale for Attitude towards Work

Item Personal Attitude	Experts						Mean	Descriptive Equivalent	CVI	Interpretation
	1	2	3	4	5	6				
1	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
2	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
3	2	3	3	3	4	2	3.17	Quite Relevant	0.83	Excellent
4	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
5	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
6	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
7	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
8	4	4	4	2	4	4	3.67	Highly Relevant	0.83	Excellent
9	4	3	4	4	4	3	3.67	Highly Relevant	1.00	Excellent
10	4	4	4	3	4	3	3.50	Highly Relevant	0.83	Excellent
11	4	4	4	3	4	3	3.67	Highly Relevant	1.00	Excellent
12	4	2	1	3	4	4	3.00	Quite Relevant	0.67	Good
13	4	3	4	4	4	4	3.83	Highly Relevant	1.00	Excellent
14	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
15	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
CVI for Attitude Towards Work									**0.94**	**Excellent**

Source: Author

Legend: Range for Descriptive Equivalent (Denise F. Polit.2006)
1.00 -1.49 – Not Relevant
1.50 -2.49 – Somewhat Relevant
2.50 -3.49 – Quite Relevant
3.50 -4.00 – Highly Relevant

Table 3 presents the results of the ratings of the content experts per item under personal attitude. The content experts who rated the instrument are the following: 2 Registered Guidance Counselors; 2 TESDA Assessors of Home Economics; and 2 Industry Leaders in the service industry (pages 102-105). It shows that 14 out of 15 items have content validity not lower than 0.78 and 13 out of 15 items are highly relevant and 2 are quite relevant. Furthermore, the content validity index of the draft scale on personal attitude is 0.94 which is interpreted as excellent. This implies that the items under the dimension are indicative of attitude towards work as one component for work readiness.

Table 4. Content Validity Index based on the Ratings of Six Content Experts on a 60-item Scale of the Draft Work Readiness Assessment Scale for Technical Skills

Technical Skills	Experts						Mean	Descriptive Equivalent	CVI	Interpretation
	1	2	3	4	5	6				
1	4	4	3	3	4	4	3.67	Highly Relevant	1.00	Excellent
2	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
3	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
4	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
5	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
6	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
7	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
8	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
9	4	3	4	4	4	4	3.83	Highly Relevant	1.00	Excellent
10	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
11	4	3	4	2	4	4	3.50	Highly Relevant	0.83	Excellent
12	4	3	4	2	4	4	3.50	Highly Relevant	0.83	Excellent
13	4	4	4	3	4	3	3.67	Highly Relevant	1.00	Excellent
14	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
15	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
CVI for Technical Skills									**0.96**	**Excellent**

Source: Author

Legend: Range for Descriptive Equivalent (Denise F. Polit.2006)

1.00 -1.49 – Not Relevant
1.50 -2.49 – Somewhat Relevant
2.50 -3.49 – Quite Relevant
3.50 -4.00 – Highly Relevant

Table 4 present the results of the ratings of the content experts on the technical skills dimension and reveals that the aggregate ratings of all content experts as highly relevant with a 0.96 content validity index for the dimension. The items under this dimension are therefore appropriate and applicable for technical skills.

Table 5. Content Validity Index based on the Ratings of Six Content Experts on a 60-item Scale of the Draft Work Readiness Assessment Scale for Social Skills

Social Skills	Experts						Mean	Descriptive Equivalent	CVI	Interpretation
	1	2	3	4	5	6				
1	4	4	4	3	3	4	3.67	Highly Relevant	1.00	Excellent
2	4	4	4	3	3	4	3.67	Highly Relevant	1.00	Excellent

3	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
4	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
5	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
6	4	4	4	2	4	4	3.67	Highly Relevant	1.00	Excellent
7	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
8	4	4	4	3	4	3	3.67	Highly Relevant	1.00	Excellent
9	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
10	4	4	4	3	4	2	3.50	Highly Relevant	0.83	Excellent
11	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
12	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
13	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
14	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
15	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
CVI for Social Skills									**1.00**	**Excellent**

Source: Author

Legend: Range for Descriptive Equivalent (Denise F. Polit.2006)

1.00 -1.49 – Not Relevant
1.50 -2.49 – Somewhat Relevant
2.50 -3.49 – Quite Relevant
3.50 -4.00 – Highly Relevant

Table 5 presents the results of the ratings of the 6 content experts on the draft WRAS under the dimension of social skills. In this table, the averaged ratings of each items are considered highly relevant as shown in the content validity of 1.00 which is interpreted as excellent. The CVI of 1.00 is indicative of the applicability or relevance of the items that aims to measure social skills as one dimension of work readiness.

Table 6. Content Validity Index based on the Ratings of Six Content Experts on a 60-item Scale of the Draft Work Readiness Assessment Scale for Organizational Awareness

Organizational Awareness	Experts						Mean	Descriptive Equivalent	CVI	Interpretation
	1	2	3	4	5	6				
1	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
2	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
3	4	4	4	4	3	4	3.83	Highly Relevant	1.00	Excellent
4	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
5	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent

6	4	4	4	3	3	4	3.67	Highly Relevant	1.00	Excellent
7	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
8	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
9	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
10	4	3	4	4	4	4	3.83	Highly Relevant	1.00	Excellent
11	4	3	4	2	3	4	3.33	Highly Relevant	0.83	Excellent
12	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
13	4	4	4	4	4	4	4.00	Highly Relevant	1.00	Excellent
14	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
15	4	4	4	3	4	4	3.83	Highly Relevant	1.00	Excellent
CVI for Organizational Awareness									**0.98**	**Excellent**

Source: Author

Legend: Range for Descriptive Equivalent (Denise F. Polit.2006)

1.00 -1.49 – Not Relevant
1.50 -2.49 – Somewhat Relevant
2.50 -3.49 – Quite Relevant
3.50 -4.00 – Highly Relevant

Table 6 shows the results of the evaluation of the content experts on the validity of the 15 items under organizational awareness. The average rating of the experts reveal that the items are regarded as highly relevant and with an over-all CVI of 0.98 or excellent. Hence, the different items under this dimension are considered pertinent to organizational awareness.

In the research conducted by Denise F. Polit and Cheryl Tetamo Beck (2014) entitled "The Content Validity Index: Are You Sure You Know What's Being Reported? Critique and Recommendations" pointed out researchers compute a content validity index (CVI) in order to prove validity of the content. Accordingly, Lynn (1986) that in the selection of content experts she advised a minimum of three but indicated that not more than ten. Furthermore, literatures on the subject of content validity indicated that a 4-point ordinal scale is preferably used to indicate relevance of the items as advocated by Davis (1992). Then, the CVI for each item is computed as the number of experts giving a rating of 3 or 4 divided by the total number of experts. Lynn recommended CVI for each item not lower than .78.

The CVI is to guide the researcher in reviewing, deleting or substituting items that got a value lower than .78. Hence, the draft scale has 0.94 CVI for Attitude towards Work; 0.96 for Technical Skills; 1.00 for Social Skills; and 0.98 for Organizational Awareness implies that the WRAS is valid in terms of its content and thus are applicable to identify work readiness in terms of the four dimensions. After getting the results of the content validity of the items in each dimension the draft instrument was refined using the suggestions of the content experts (page 111).

Data Analysis using Rasch Model

After getting an excellent rating in the CVI, the WRAS was field tested to 311 Grade 12 students with home economics as their specializations. 64.1% are females and 35.9% are males. Of the 311 respondents, 94 came from Pampanga Division, 94 from Angeles City Division, 62 from Mabalacat City Division and 61 from City of San Fernando Division. The respondents' age ranges from 17 years old to over 19 years old with the following distribution: 45.4% are 17 years old; 26. 8% are 18 years old; 15. 1% are 19 years old; and 9.5% are over 19 years old.

The aim of the field-testing is to establish the validity and reliability of the instrument and the method used is Rasch modelling, specifically the Rating Scale Model as proposed by Andrich (1978). The data gathered was evaluated using Rasch analysis following the steps mentioned in the Methodology using the Winsteps software and the results are the following:

A. Unidimensionality

Table 7. Amount of Variance per dimension of the Work Readiness Assessment Scale using Rasch Principal Component Analysis

Dimension	Amount of Variance		
	Raw variance explained by measures	Unexplained Variance in 1st Contrast	Unexplained Variance in 2nd Contrast
Attitude towards Work	48.9%	6.4%	5.8%
Technical Skills	52.4%	5.3%	4.8%
Social Skills	54.8%	5.8%	4.3%
Organizational Awareness	53.9%	5.4%	5.0%

Source: Author

Table 7 shows the amount of variance per dimension of the Work Readiness Assessment Scale using the Rasch Principal Component Analysis. The raw variance explained is 48.9% for the attitude dimension; 52.4% for technical skills; 54.8% for social skills; and 53.9% for organizational awareness. On the other hand, the unexplained variance for the first and second contrast are 6.4% and 5.8% respectively for attitude; 5.3% and 4.8% for technical skills; 5.8% and 4.3% for social skills; and 5.4% and 5.0% for organizational awareness. According to Linacre (2008) that when the variance explained exceeds 45% and the unexplained variances by the first and second contrasts are below 7%, then unidimensionality can be considered enough. Hence, based on the above data, the set of items under each dimension of the WRAs belong to only one dimension. In the first step of Rasch analysis of unidimensionality, the WRAS passed the criteria. It implies that all the

items belong to the four dimensions and that these items can measure what they intend to measure.

B. Response Category Analysis

Table 8. Response category analysis based on Linacre's (2002) guidelines for each Dimension

Guideline	Dimension	Response Category				Remark
		1	2	3	4	
1. At least 10 observations for each category	Attitude towards Work	105	426	2283	1446	Acceptable
	Technical Skills	80	498	2447	1235	Acceptable
	Social Skills	99	322	2319	1430	Acceptable
	Organizational Awareness	87	337	2394	1262	Acceptable
2. Regular observation distribution	Attitude towards Work	105	426	2283	1446	Acceptable
	Technical Skills	80	498	2447	1235	Acceptable
	Social Skills	99	322	2319	1430	Acceptable
	Organizational Awareness	87	337	2394	1430	Acceptable
3. Average measures advance monotonically with category	Attitude towards Work	-2.01	-.32	2.18	3.44	Acceptable
	Technical Skills	-2.53	-.57	2.46	4.26	Acceptable
	Social Skills	-3.49	-.65	2.72	4.45	Acceptable
	Organizational Awareness	-3.76	-.76	2.90	4.55	Acceptable
4. Outfit mean-squares less than 2.0	Attitude towards Work	1.53	.87	.94	1.03	Acceptable
	Technical Skills	1.44	.89	.96	1.00	Acceptable
	Social Skills	1.75	.95	.92	1.02	Acceptable
	Organizational Awareness	1.93	.81	.95	1.02	Acceptable
5. Step calibrations advance	Attitude towards Work	None	-2.76	-.46	3.26	Acceptable
	Technical Skills	None	-3.56	-.50	4.06	Acceptable
	Social Skills	None	-3.46	-.62	4.08	Acceptable
	Organizational Awareness	None	-3.83	-.53	4.36	Acceptable
6. Ratings imply measures and measures imply ratings,	Attitude towards Work	50% 29%	61% 42%	67% 84%	70% 50%	Acceptable
	Technical Skills	60% 30%	63% 54%	72% 85%	70% 52%	Acceptable
	Social Skills	69% 58%	65% 44%	72% 85%	73% 59%	Acceptable
	Organizational Awareness	72% 68%	70% 50%	73% 87%	72% 51%	Acceptable
7. Step difficulties advanced by at least 1.4 logits	Attitude towards Work	None	-2.76	-.46	3.26	Acceptable
	Technical Skills	None	-3.56	-.50	4.06	Acceptable
	Social Skills	None	-3.46	-.62	4.08	Acceptable
	Organizational Awareness	None	-3.83	-.53	4.36	Acceptable
8. Step	Attitude towards Work	None	-2.76	-.46	3.26	Acceptable

difficulties advanced by less than 5.0 logits.	Technical Skills	None	-3.56	-.50	4.06	Acceptable
	Social Skills	None	-3.46	-.62	4.08	Acceptable
	Organizational Awareness	None	-3.83	**-.53**	4.36	Acceptable

Source: Author

Tables 8 presents the results of the analysis of the rating scale based on the guidelines suggested by Linacre (2002) for each dimensions.

For Guide #1: The lowest number of observations in the gathered data in all dimensions is more than 10 observations. . Linacre's (2002) minimum requirement is 10 observations for each category. Hence, guideline #1 is acceptable for all dimension.

For Guideline #2: The number of observations increases for response category 1 to response category 4 in all dimensions. This implies that the number of observations increase as the response category increases. Moreover, the distribution of the observations is unimodal, which means that there is normal distribution among the observations or responses. Linacre (2002) describes these two findings, as the distribution of the observation is regular.

For Guideline #3: The values indicated in the guideline #3 are the average measures. The four response options of the survey questionnaire are functioning well because the average measures advance monotonically with the response categories; that is, the average measures increase as the response option increases from 1 to 4.
For Guideline #4: As shown, the outfit mean squares of the four response options are below 2.0. Having the values of less than 2.0 indicate that the survey questionnaire is functioning well.

For guideline #5. The values are increasing as the response option increases. According to Linacre (2002), such values are called step calibrations (also called step difficulties or Andrich Thresholds). Having increasing values indicate that the four response options of the survey questionnaire are functioning well.

For guideline #6. For each response option, there are two values. For example, there are 2 values for response category 4: 70% and 50% for the personal attitude dimension. 70% for measures imply ratings and 50% for ratings imply measures. The two values represent accuracy of measures. The response options are functioning well if the measures imply ratings exceeds 50%. All dimensions have more than 50% measures imply ratings, thus, the response options in the WRAS are functioning as it is intended.

Guideline #7. As discussed earlier (i.e., in Guideline #5), the step calibrations or step difficulties increase as the response option increases. The increase of the adjacent values is not less than 1.4 logits. Having this finding, according to Linacre (2002), indicates that the respondents used well the response options of the questionnaire.

Guideline #8. As discussed earlier (i.e., in Guidelines #5 and #7), the step calibrations or step difficulties increase as the response option increases. However, the largest increase does not exceed 5.0 logits. Having this finding, according to Linacre (2002), implies that the respondents used well the response options of the questionnaire.

Since the gathered data are consistent with the eight guidelines of Linacre (2002), then it can be inferred that all the four response options (labeled 1 to 4) of the questionnaire are working or functioning well. Meaning, the respondents used all the four options in rating the 60 items of the four dimensions. Hence, accurate measures of work readiness can be expected.

C. Fit Statistics

Table 9. Infit and outfit statistics for items of Attitude towards Work Dimension

Items	Item Measure	Infit mean square	Outfit mean square
1. Arriving on time for work.	0.17	1.03	1.02
2. Working well with superiors and co-workers	0.09	0.87	0.89
3. Viewing self positively	0.22	1.12	1.11
4. Understanding own strengths and weaknesses	0.34	1.24	1.24
5. Performing task with high motivation	0.46	0.92	0.95
6. Accepting criticisms and suggestions	0.01	1.08	1.06
7. Working in different tasks when asked	0.25	1.01	1.00
8. Working beyond schedule when needed	0.42	0.87	0.92
9. Focusing on the work assigned	-0.28	0.90	0.95
10. Giving service-oriented performance	0.06	0.82	0.80
11. Showing self confidence	0.52	1.21	1.22
12. Dressing appropriately based on the work	-0.39	1.01	1.00
13. Dealing with customers with respect	-1.12	1.04	0.92
14. Liking to learn new things	-0.73	0.94	0.86
15. Adapting and flexible to new situations	-0.02	0.90	0.90
Mean	0.00	1.00	0.99
SD	0.44	0.12	0.12

Source: Author

Table 9 presents the result of the fit statistics of the items in attitude towards word dimension. The outfit and infit statistics of the 15 items and the entire dimension are within the .50 – 1.50 range indicative of a productive measurement according to Linacre (2006).

Table 10. Infit and outfit statistics for items of Technical Skills Dimension

Items	Item Measure	Infit mean square	Output mean square
16. Possessing hands-on experience on the work	0.29	0.83	0.79
17. Exposing one's self to different kinds of job	0.48	1.12	1.11

18. Solving and addresses routine problems in the work place	0.37	1.05	1.03
19. Following occupational safety and health procedures	-0.58	0.96	0.89
20. Applying skills in different situations	0.05	0.80	0.78
21. Exhibiting basic skills in the specialization like table setting, cooking, washing the dishes, identifying appropriate utensils to use, tour guiding, massage therapy, dressmaking, etc.	-0.31	1.36	1.35
22. Using appropriate equipment, utensils, dress code and tools for the specific task.	-0.45	0.96	1.03
23. Using knowledge and information to solve workplace problems	-0.18	0.84	0.85
24. Applying knowledge in the workplace	-0.40	0.80	0.76
25. Acquiring technical skills in the work immersion	-0.28	1.00	1.03
26. Understanding easily abstract ideas.	0.54	0.91	0.90
27. Writing an application letter and resume properly	0.07	1.26	1.25
28. Understanding the kind of work easily	0.07	0.94	0.90
29.Starting a work when ask to do with ease	-0.06	0.90	0.93
30. Coping with multiple tasks	0.37	1.18	1.14
Mean	0.00	0.99	0.98
SD	0.35	0.16	0.17

Source: Author

Table 10 presents the result of the fit statistics of the items in technical skills dimension. The outfit and infit statistics of the 15 items and the entire dimension are within the .50 – 1.50 range indicative of a productive measurement according to Linacre (2006).

Table 11. Infit and outfit statistics for items of Social Skills Dimension

Items	Item Measure	Infit mean square	Output mean square
31. Expressing ideas and answers questions during interview with confidence	1.12	1.26	1.39
32. Dealing with customers patiently	-0.14	0.93	0.92
33. Adapting to the culture of the customers	0.43	1.23	1.37
34. Listening and responds to customers with respect	-0.76	0.84	0.77
35. Relating positively with co-workers	-0.12	0.91	0.86
36. Managing new social situations in the work place	0.85	0.91	0.95

37. Learning from older employees	-0.36	0.94	0.92
38. Taking responsibility for decisions and actions	0.16	0.99	0.99
39. Respecting authorities	-0.83	1.00	0.96
40. Welcoming new opportunities	-0.52	0.87	0.82
41. Sharing ideas to others	-0.01	0.91	0.87
42. Working in groups	-0.66	1.05	1.17
43. Approaching people openly	0.03	1.09	1.06
44. Communicating ideas without being aggressive	0.28	1.03	0.95
45. Applying service-oriented approach	0.53	0.92	0.91
Mean	0.00	0.99	0.99
SD	0.56	0.12	0.18

Source: Author

Table 11 presents the result of the fit statistics of the items in social skills dimension. The outfit and infit statistics of the 15 items and the entire dimension are within the .50 – 1.50 range indicative of a productive measurement according to Linacre (2006).

Table 12. Infit and Outfit statistics for Items of Organizational Awareness Dimension

Items	Item Measure	Infit mean square	Output mean square
46. Knowing and understanding the policies, standards and procedures in the work place	0.02	0.99	1.01
47. Understanding the different processes in the service industry	0.20	0.89	0.88
48. Integrating beliefs and values of the service industry into the personal culture	0.23	1.14	1.20
49. Accepting feedbacks from the authorities	-0.44	0.94	0.89
50. Following SOPs of the company	-0.16	0.93	0.90
51. Integrating personal objectives with organizational goals	0.07	0.93	0.86
52. Maintaining professional growth and development	0.07	0.87	0.82
53. Exposing one's self to the goals of the company or industry	0.29	0.80	0.74
54. Knowing and following the dress code	-0.56	1.09	1.14
55. Aiming for Quality service in working	-0.18	0.98	0.95
56. Experiencing exposure to different industries	0.70	1.21	1.26
57. Understanding work expectations and duties	-0.02	0.97	0.91
58. Complying with set standards and policies	-0.07	1.01	0.97

59. Demonstrating understanding of workplace culture	0.12	1.09	1.17
60. Helping in the improvement of the company.	-0.27	1.03	1.11
Mean	0.00	0.99	0.98
SD	0.30	0.10	0.15

Source: Author

Table 12 presents the result of the fit statistics of the items in organizational awareness dimension. The outfit and infit statistics of the 15 items and the entire dimension are within the .50 – 1.50 range indicative of a productive measurement according to Linacre (2006).

Overall, all 60 items are within the range of the values of infit and outfit statistics of 0.5 – 1.50. No items are excluded from the WRAS and therefore the items and the scale as a whole is productive for measurement of work readiness (Linacre, 2006).

D. Person and Item Measures

Figure 3 shows the person-item map of the 15-item attitude towards work dimension of the Work Readiness Assessment Scale along with the 311 Grade 12 SHS students who took the assessment. The Rasch Person-Item map was used to analyze the internal structure validity of the test wherein through the Rasch model a "yardstick" is created to measure both the person ability and item difficulty in this dimension.

A Person-Item map makes use of the fact that the difficulty of test items can be computed, and those test-item difficulties are expressed using the same linear scale that is used to express a respondent's performance—the person measure. In the case of a test, a person-item map allows researchers to evaluate how well the test items are defining a variable. The map also allows researchers to compare the predicted order of item difficulty with the actual order of item difficulty in a data set. Such comparisons facilitate an assessment of construct validity by providing evidence that the instrument is measuring in a way that matches what a theory would predict. The map open multiple avenues for researchers to evaluate the inferences that can be confidently made through use of an instrument.

In the table above, the map plots the items of the WRAS in the specific dimension according to their order of difficulty. On the right side of the Wright map, the 15 items of the test are presented from easiest (item 13, bottom) to most difficult (item 11, top). The items are plotted in terms of item difficulty computed using Winsteps. A "logit" scale is used to express item difficulty on a linear scale that extends from negative infinity to positive infinity. For practicality, item difficulties will range from −4 logits to +4 logits. The map also shows a good distribution of items from easiest to most difficult.

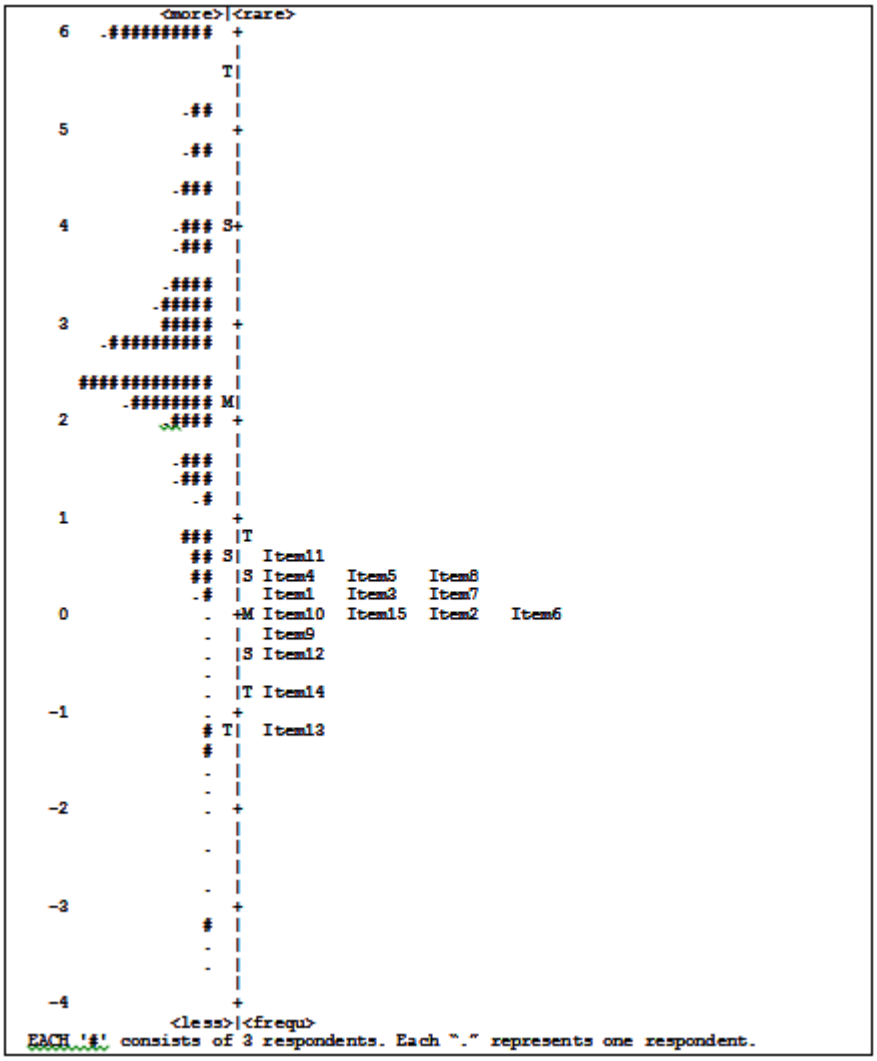

Figure 3. Person -Item Maps for the Attitude towards Work Dimension

The map are also plot not only of the items but also of the respondents. On the left or "person" side of the map, a "#" is used to plot each of the 311 test takers. The higher the person measure, the higher work readiness level. The lower the person measure, the lower work readiness level. According to Boone (2016) such arrangement as presented by the map suggests good test-item targeting. Also, this means that the range of test items presented to the students is appropriate for this group of respondents. In other words, the test items for personal attitude are not too difficult or too easy for the students.

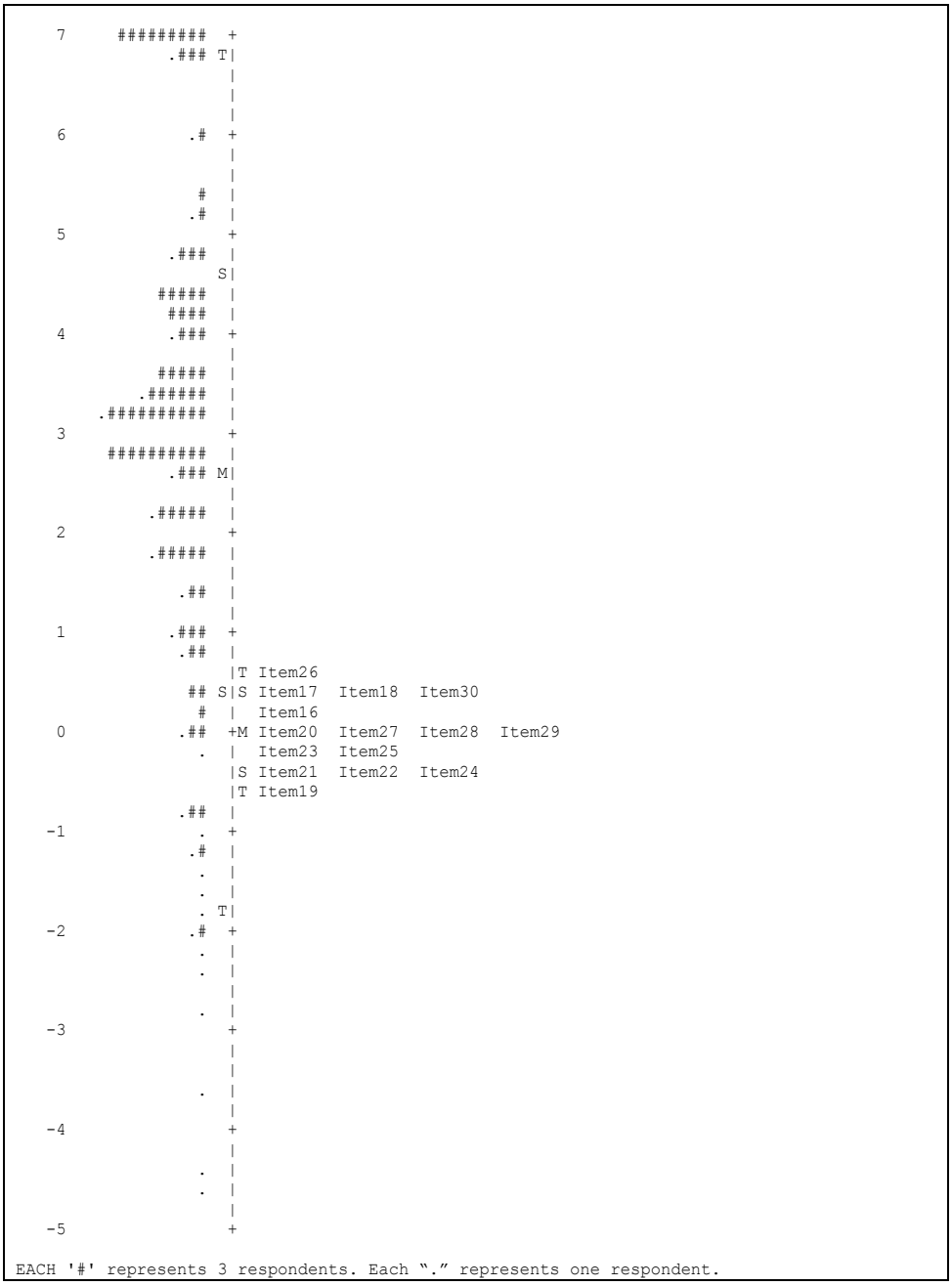

Figure 4. Person Item Map for Technical Skills Dimension

Figure 4 shows the Person-Item map for the 15-item assessment under the technical skills dimension. It presents that item 26 is the most difficult while item 19 is the easiest among the 15 items in this dimension. Furthermore, at the left side of the map, the person measure is also plotted and shows that there are 27 respondents that have higher level of technical skills for work readiness and at least three respondents have lower level of technical skills. This implies that the instrument is measuring the technical skills necessary for work readiness of respondents under this dimension. Also, the constructed items are within the abilities of the respondents and are within the normal range of difficulty.

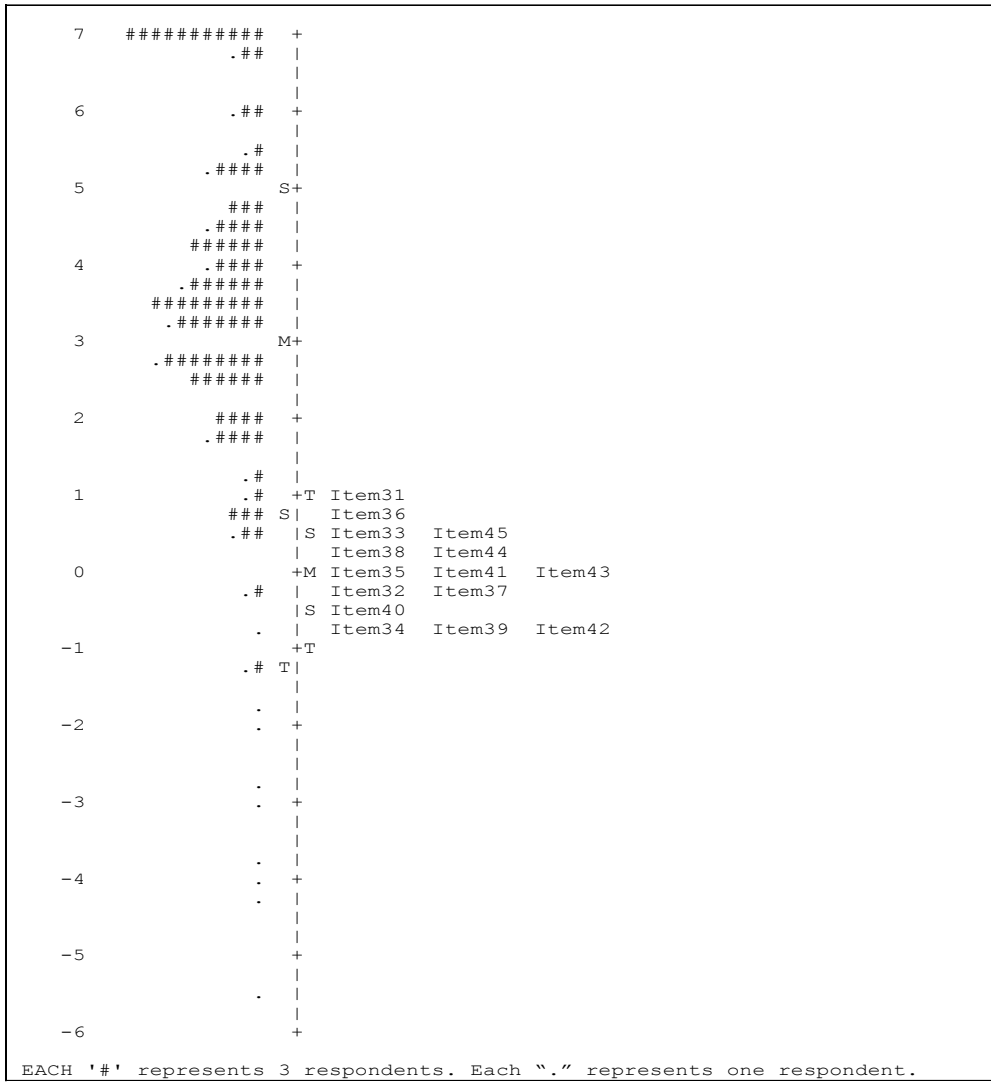

Figure 5. Person Item Map for Social Skills Dimension

Figure 5 presents the Person-Item map for the social skills dimension. It shows that item 31 is the most difficult among the 15 items and items 34, 39 and 42 are considered the easiest among the items under this dimension. Also, there are at least 33 respondents among the 311 who are considered to have higher level of social skills while 3 of the respondents are considered to have low level social skills for work readiness.

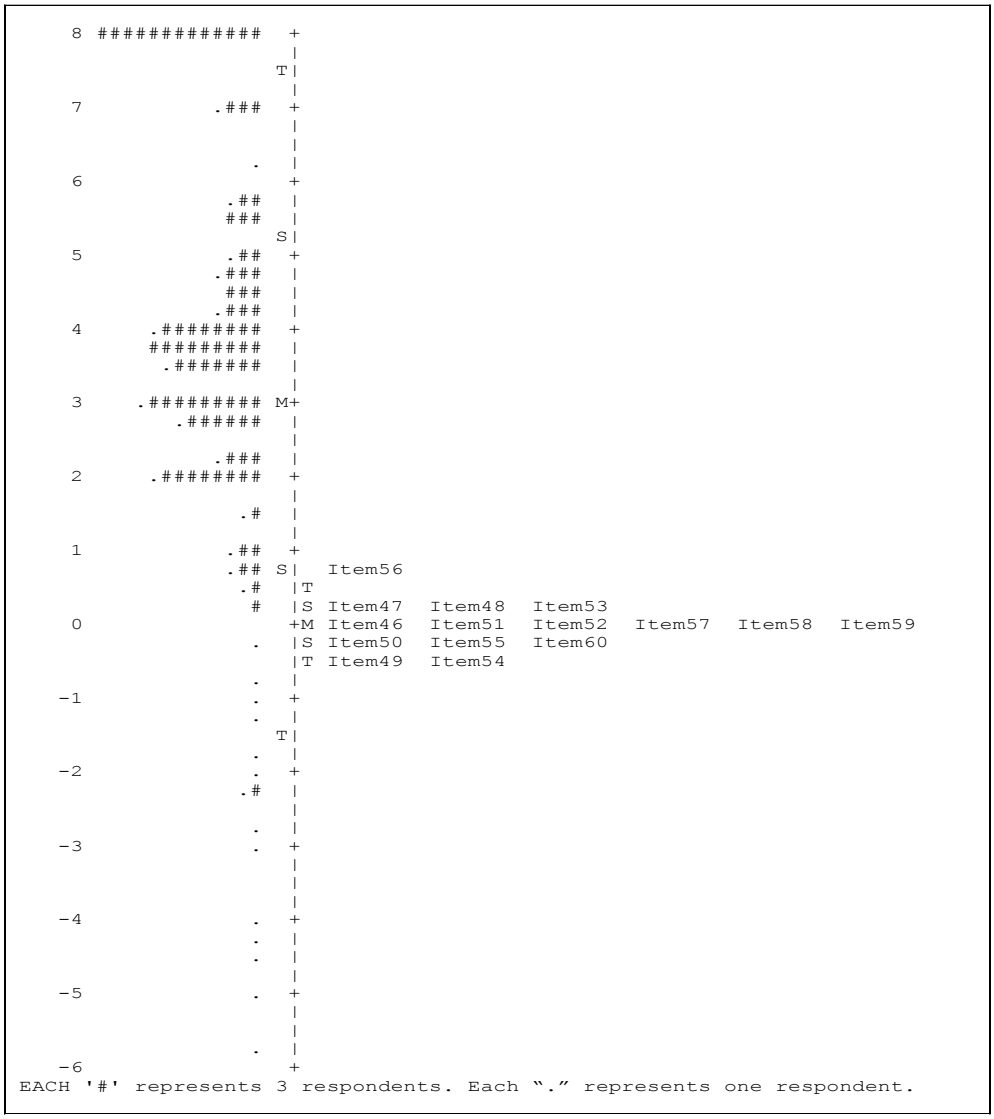

Figure 6. Person Item Map for Organizational Awareness Dimension

Figure 6 shows the Person-Item map of the 15 items under the dimension of organizational awareness. In the table, it reveals that item 56 is the most difficult and items 42 and 54 are considered the easiest for the 311 respondents of the field testing of the WRAS. On the person measure on the left of the map, it shows that there are at least 39 out of the 311 respondents who have high level of organizational awareness for work readiness and three respondents with low level of organizational awareness. This implies that the items for organizational awareness are neither too hard nor easy for the takers and that the intended factor to assess will be correctly measured.

Over-all, the WRAS items are well structured in terms of difficulty and that they are within the ability of the persons who will take this assessment since the mean of the person measures are higher than the mean of the item measures.

E. Reliability and Separation Index Analyses

Table 13. Reliability coefficients and Strata index per Dimension of the Work Readiness Assessment Scale

Factors	Attitude towards Work	Technical Skills	Social Skills	Organizational Awareness
Item Reliability	0.93	0.86	0.94	0.79
Person Reliability	0.89	0.92	0.91	0.91
Strata Index	5.08	3.64	5.8	2.95

Source: Author

Table 13 presents the reliability coefficients and strata index per dimension of the Work Readiness Assessment Scale (WRAS) to show the reliability of the instrument. The reliability of the instrument was examined to determine the reproducibility of relative item and person measure location. Amora and Bernardo (2009) pointed out that the person reliability is equivalent to the traditional "test" reliability while item reliability has no traditional equivalent. In Rasch modelling, "high item reliability" means that there is a high probability that items estimated with high measures actually do have higher measures than items estimated with low measures. Accordingly, each dimension is reliable if the person reliability is equal to .80 or higher (Amora & Bernardo, 2009).

In the Table, both person and item Rasch reliability coefficients are more than .80, indicating that the questionnaire is reliable. That is, the measures that can be produced by the different dimensions are reliable. Having a strata index of 5.08 indicates that there are at least five different levels of persons' attitude to be distinguished/measured by the attitude subscale; 3.64 strata index under technical skills is indicative of at least three different levels of persons' technical skills to be measured; strata index of 5.8 in social skills indicates that at least 5 levels of persons' social skills can be distinguished; and 2.95 strata index under the dimension

of organizational awareness points to at least two different levels of persons' organizational awareness can be measured.

From the results of the analysis and validation of the WRAS using the different steps of the Rasch analysis, it implies that the tool is valid and reliable in assessing the different dimensions of work readiness of the SHS graduates in Home Economics. Furthermore, the results indicate that no items removed or deleted from the construct.

Table 14. Pearson-r result on the WRAS Scores and Work Immersion Grades of SHS Home Economics Graduates

variable	r-value	Coefficient of Determination r^2	degree of correlation	p-value Sig. (2-tailed)	Interpretation
WRAS vs Work Immersion grades	0.64	0.41	positive moderate	0.00	significantly related at 1%

Source: Author

The researcher administered the validated WRAS to 50 Senior High School graduates of Sapang Bato National High School, Schools Division of Angeles City. The aim is to correlate the results of the WRAS with their grades or evaluation given for work immersion. Work immersion is one of the requirements for graduating in Senior High School especially for those taking the Technical-Vocational Track. The objectives of work immersion as stipulated in DepEd Order No. 30, s. 2017 are the following: 1. Appreciate the importance and application of the principles and theories learned at school; 2. Enhance the technical knowledge and skills; 3. Enrich skills in communication and human relations; and 4. Develop good work habits, attitudes and appreciation and respect for work. Given the objectives, it is clear overall; the aim of work immersion is to help prepare the students for work. Hence, the study would see the relationship of the results of the administered WRAS and the evaluation of the students in work immersion.

Table 14 shows that there is a positive moderate degree of relationship between the two variables of work immersion grades and the WRAS results. Furthermore, there is a relationship of 1% level of significance. Accordingly, 41% of work immersion grades is determined by WRAS while 59% is due to other factors or by chance. This implies that there is a relationship between work immersion and readiness for work as confirmed in a study conducted by Robert R. Brenner (2000) that showed involvement in work-based learning such as work immersion or work simulation, students generally found their work-based experiences to not only be rich in opportunities to practice, but were providers of increased skills in problem-solving, critical thinking, and teamwork skills. Furthermore, the Philippine Chamber of Industry and Commerce raised concern on the minimal hours for work immersion.

5. Discussion

Based on the gathered findings, the study showed the following: 1) The development of the Work Readiness Assessment Scale through a qualitative study using Focus Group Discussions identified four general categories namely: attitude towards work, technical skills, social skills and organizational awareness and used as basis for constructing the items; 2) The WRAS passed the reliability tests using the steps in the Winsteps that makes it a productive measure for the level of work readiness. The results yielded the following characteristics of the final form of the WRAS: unidimensionality of the tool which means that 60 items belong to the four dimensions and these items contribute in measuring the work readiness of the test takers; a well-functioning response options to indicate the levels of work readiness with an outfit mean measure of lower than 2.0; difficulty of items increases as the response options increases; outfit and infit statistics of the 60 items and the four dimensions are within the .50 – 1.50 range indicative of a productive measurement (Linacre:2006); well-structured items in terms of difficulty and that they are within the ability of the persons who will take this assessment; and that each of the items can highly discriminate well between test takers with high and low level of work readiness.; 3) Results of the correlation between the WRAS and the Work Immersion grades of SHS students reveal a positive moderate correlation with r-value of 0.64 which means that the two variables are significantly related at 1%.

With the development and validation of the assessment tool, both the academe and industry can have an objective instrument in determining the work readiness of Senior High School graduates. Furthermore, the tool can be an effective means of developing interventions where gaps are identified in the process of delivering the Technical-vocational track of the Senior High School curriculum.

6. Conclusions

The developed WRAS haved passed the validity test using the Rasch Model and results showed that the assessment tool is reliable and functional. Furthermore, the structure of the instrument can generate responses that would show the level of work readiness of the respondents.

However,based on the results and conclusion derived from the current study, the researcher recommends the following: 1) To further investigate through another research the broader construct of work readiness rather than looking into individual behavior and characteristics to have a clearer perspective on the different dimensions of work readiness and eventually would be a more effective and valid measure of assessment; 2) To present the findings of the study to the industry and business sector to further encompass the needs of the industry in term of the work force.; 3) Forge stronger collaboration between the SHS schools and the employers by engaging them in the design of the curriculum particularly in work immersion in order to meet the demands and expectations of the industry. ; and finally 4) The issuance of policy guidelines by the Department of Education- Region III in the use of the WRAS as one of the tools for evaluation of the performance of the students in

work immersion and come up with the manual of operations to ensure that minimum work skills and values are acquired. Thus, making the SHS graduates ready for work.

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References:

ACNielsen Research Services. (2000). Employer satisfaction with graduate skills: Research report. *Evaluations and Investigations Programme Higher Education Division.* Canberra, ACT: Department of Education, Training and Youth Affairs.

Amora, J.T. & Lopez, M. (2017). Validation of the CEU-Lopez Critical Thinking Test Using Multidimensional IRT Model. Educational Measurement and Evaluation Review, 8(1), 49-68

Amora, J.T. (2015). Dichotomous Rasch Modeling with Ministep/Winsteps. Proceedings during the PEMEA Continuing Professional Development Workshop held in Manila. Retrieved on October 11, 2018 at

https://docs.wixstatic.com/ugd/0adbde_28d0e34550eb4298b498022aadc74d5a.pdf

Amora, J. T., & Bernardo, A. S. (2009). Testing and reducing L2 vocabulary learning strategies inventory using Rasch model. *Philippine ESL Journal*, 3, 38-73

Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), *Annals of child development*. Vol. 6. Six theories of child development (pp. 1-60). Greenwich, CT: JAI Press.

Bloor M, Frankland J, Thomas M, Robson K. *Focus groups in social research*. London: Sage Publications, 2001.

Bond, T. G., & Fox, C. M. (2007). *Applying the Rasch Model: Fundamental measurement in the human sciences* (2nd ed.). NJ: Lawrence Erlbaum

Boone, W. (2016, September 19). *Life Sciences Education.* Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5132390/

Brady, R.P. & Brewster, L.M. (1976). *Work Readiness Inventory: Administrators' Guide*. JIST Publishing.

Brenner, Robert. (2000). *A Study Contrasting Employers and Students Expectations of a Work Experience Program*. Retrieved from www2.uwstout.edu

Caballero, C., Walker, A. & Fuller-Tyszkiewicz, M. (2011). The Work Readiness Scale (WRS): Developing a measure to assess work readiness in college graduates. *Journal of Teaching and Learning for Graduate Employability*, 41-54.

Caballero, C., & Walker A. (2010). Work Readiness in graduate recruitment and selection: A review of different current assessment methods. *Journal of Teaching and Learning for Graduate Employability, 1(1)*, 13-25.

Cabrera, W. C. (2018). *A Survey of Senior High School Graduates Intention After Graduation in Region 3.* UnPublished Study.

Cappelleri, J. C. & Wyrwich, K. W. (2014). *Rasch Item Response Theory vs Classical Test Theory.* Retrieved October 9, 2018, from https://pdfs.semanticscholar.org/presentation/f2b7/da11401d0b70ec841e64e011e9a8b82f41df.pdf

Casner-Lotto, J. &. (2006). Are they really ready to work? Employers' perspective on the basic knowledge and applied skills of new entrants to the 21st century US workforce. USA: The Conference Board, Inc., the Partnership for 21st Century Skills, Corporate Voices for Working Families, and the Society for Human Resources.

Copple, C. K. (1993). SCANS in the schools: Teaching the SCANS competencies. Washington, DC: U.S. Department of Labor.

DeVellis, R. F. (2003). Scale Development; Theory and Applications. California: SAGE Publications.

Gabb, A. (1997, December 1). University Challenge. Management Today, pp. 62-64.

Gardner, P. D. (1997). Prepared to perform? Employers rate work force readiness of new grads. Journale of Career Planning & Employment, 57 (3), 32-56.

Hackett, Gail. (1996). A Social Cognitive Framework for Studying Career Choice and Transition to Work. Retrieved from https//www.researchgate.net

Hambur, S. R. (2002). Graduate skills assessment: Stage one validity study. Report by Australian Council for Educational Research (ACER) for Evaluations and Investigation Programme. Canberra: Commonwealth Department of Education, Science & Training.

Harris, M. A. (2000). An Institutional Approach to Developing Students' 'transferable' skills. Innovations in Education and Training International, 76-84.

Hart, P. D. (2008). Hpw should colleges assess and improve student learning? Employers' views on the accountability challenge. A survey of employers conducted on behalf of The Association of American Colleges and Universities. Washington, DC: Peter Hart Research Associates, Inc.

Hyslop, A. (2008, September 8). Retrieved from http://www .acteonline.org/uploadedFiles/Publications_and_Online _Media/files/files-techniques2008/sept08_workforce_readiness.pdf

Linacre, J.M. (2008). Winsteps (Version 3.65.0) [Computer Software]. Chicago: Winsteps.com.

Magno, C. (2009, April). Demonstrating the Difference between Classical Test Theory and Item Response Theory Using Derived Test Data. The International Journal of Educational and Psychological Assessment, 1(1), 1-11.

Mocon-Ciriaco, C. (2018, January 22). DepEd defends SHS graduates' competence for employment. Business Mirror.

Mostoles, T. (2018). TV Patrol Pampanga (March, 2018) Miyayaliwang Balita.

Nicholson, N., & Arnold, J. (1991). From expectation to experience: Graduates entering a large corporation. Journal of Organizational Behaviour, 12(5),, 413-429.

Nunnally, J.C. and Bernstein, I.H. (1994). *Psychometric Theory* (3rd ed.). New York: McGraw-Hill, Inc.

NVivo 12 Plus Software (2018). OSR International. Melbourne, Australia

Ocampo, D. (2016). *Senior High School Updates*. Presentation, Tanza, Cavite

O'Neil, H. F. (1997). Review of workforce readiness theoretical frameworks. In H. F. O'Neil (Ed.). In *Workforce readiness: competencies and assessments* (pp. pp. 3–25). Mahwah, NJ: Lawrence Erblaum.

Olson, L. (2006). Skills for work, college readiness are found comparable. *Education Week 25(36)*, 1-2.

Sampson, J.P., Peterson, G.W., Reardon, R.P., & Lenz, J.G. (2000). Using readiness assessment to improve careeer services: A cognitve information processing approach. *The Career Development Quaarterly, 49*, 146-174.

Secretary's Commission on Achieving Necessary Skills. (1991). *What work requires of schools: A SCANS report for America.* Washington, DC: U.S. Department of Labor.

Stewart D W, and Shamdasani P M. *Focus groups. Theory and practice*. London: Sage Publications, 1990.

Tomak, L. & Erhan Sari, M. (2016, October). *Classical Theory versus Rasch Analysis in developing and adapting a scale.* Retrieved October 8, 2018, from https://www.researchgate.net/publication/309013183_Classical_Test Theory_versus_Rasch_Analysis_in_developing_and_adapting_a_scale

Trakman , G. L. et. al. (2017). The nutrition for sport knowledge questionnaire (NSKQ): development and validation using classical test theory and Rasch analysis. *Journal of the International Society of Sports Nutrition*, 14-26.

Wright, B. D., & Masters, G. N. (1982). *Rating scale analysis: Rasch measurement*. Chicago: Mesa Press.

Yee, J. (2018, April 7). SPECIAL REPORT: Jobs a hit or miss for senior high school graduates. *Philippine Daily Inquirer*.

(2014, May 7). Retrieved from https://www.dole.gov.ph

(2015, April 22). Retrieved from http://www.ilo.org

(2017, June 5). Retrieved from Department of Education: www.deped.gov.ph

(2018, August 8), Retrieved from http://www.rappler.com