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RASCH ANALYSIS OF THE EMPLOYABILITY SKILLS FOR ELECTRICAL TECHNOLOGY STUDENTS IN NIGERIA

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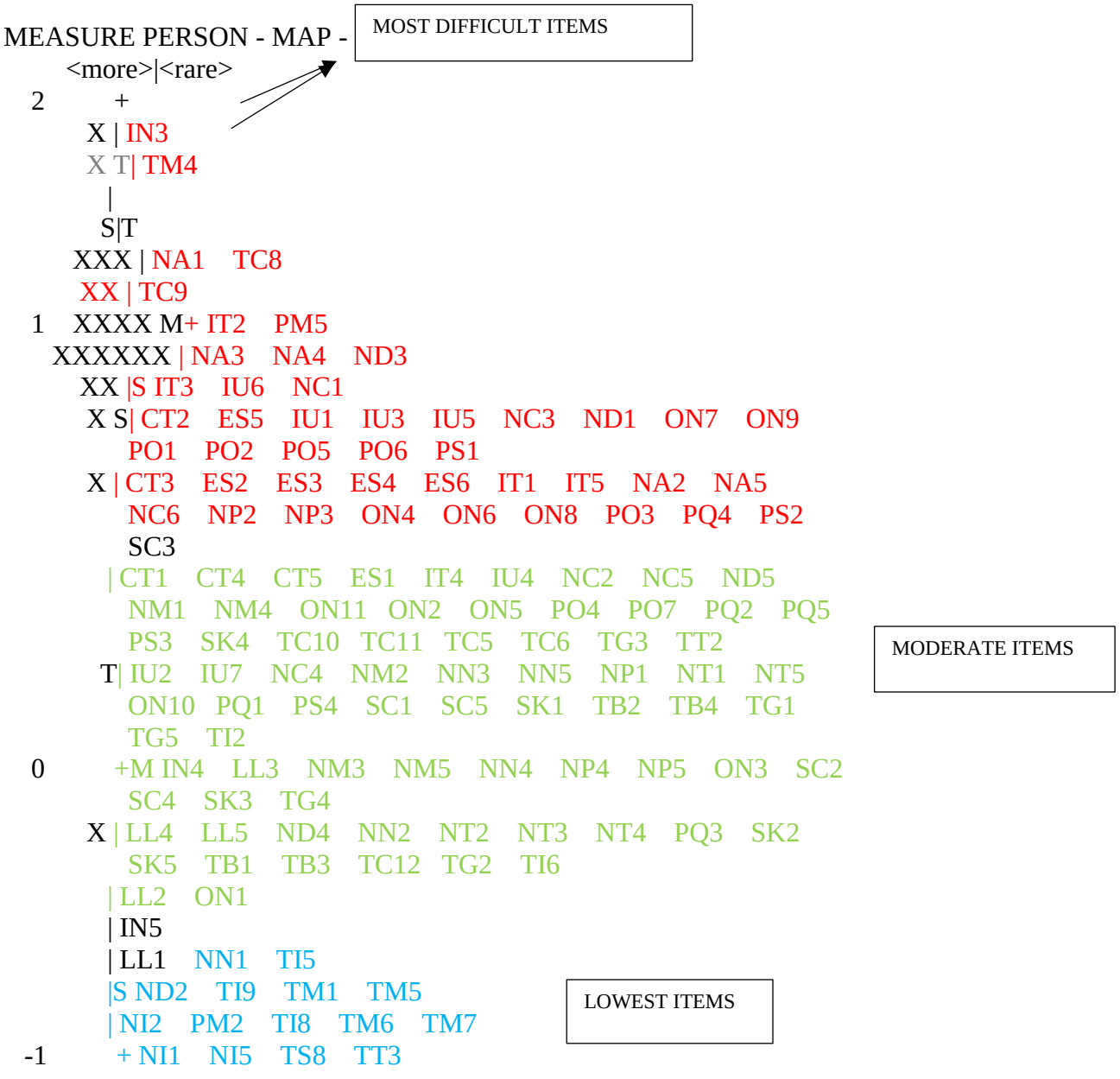
Research Highlights

The study was guided by three research questions. The two results from the document analysis and interview were triangulated to generate the Interim framework of employability skills. To narrow the framework to meet the specific needs of electrical technology students in Colleges of Education, an item pool was designed to be able to survey the agreement index level of Electrical Technology experts. The Fleiss Kappa agreement ratio conducted gave 89.63%, 86.01%, and 81.86% respectively with a mean agreement of 85.83%. The 85.83% represents an 'almost perfect agreement' which is very good for producing a functional and narrow framework of employability skills (Jollands, 2015). The Winstep analysis gave the following results: item separation = 2.18, reliability = .83. the person separation = 3.85, and the person reliability = .94. Cronbach Alpha = .95. The result indicates three levels of the item. The most difficult items moderate, and the less difficult items.



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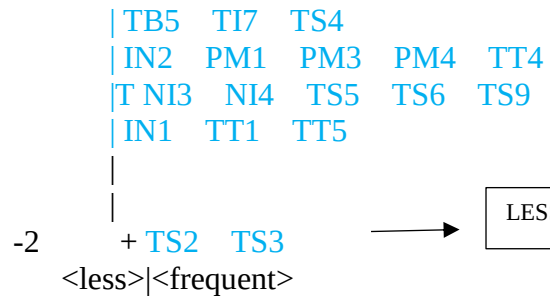

Research Objectives

The major objective of the study is to propose a 21st-Century employability skill suitable for matching Electrical Technology students in Colleges of Education with the needs of the Employers in Nigeria. This is aimed at reducing the unemployment rate among the graduates. The study serves both theoretical and practical purposes. The theoretical framework helps to extend the body of knowledge on employability skills. Practically, the study is sufficient to match the students with the need of the labour market. This is a way will help to reduce the growing rate of unemployment among the graduates. Thus, the proposed framework will be beneficial to the government in remodeling the College curriculum to be 21st-Century compliant. Overall, the study will be beneficial to the Colleges, and the society in the reduction of the crime rate being perpetrated by the jobless youths.

Methodology

The research design was a sequential mixed method. The qualitative method involving document analysis and interview protocol was used to determine the constructs and sub-constructs of employability skills required by Electrical Technology students. The analysis was done thematically. 10 participants were involved in the study. The educational research utilizes interview and inquiries about the respondent's feelings, attitudes, motivation, experiences of individuals and accomplishments (Anderson, 2010; Ivankova, 2014).

The open-ended interview was used to elicit self-report on employability skills from the participants. Personal contacts were used during data collection. The responses of the participants were audio- recorded with the aid of electronic media. The transcribed information was taken back to the participants for confirmation and authentication. This is to ensure the validity of the data.

The document analysis was done using a frequency matrix. For the Rasch Analysis, 157 items were measured with 18PDELETED and 12IDELETED. Table 1 Describes Fleiss Kappa Agreement levels.

Table 1: Kappa Interpretation

Kappa Value		
< 0.00	poor	Less than chance agreement
0.01 to 0.20	Slight	Slight agreement
0.21 to 0.40	Fair	Fair agreement
0.41 to 0.60	Moderate	Moderate agreement
0.61 to 0.80	Substantial	Substantial agreement
0.81 to 0.99	Almost perfect	Almost perfect agreement

Source: (Fleiss, 1973; Viera, & Garrett, 2005).

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Results

The result of the study indicates that both hard skills and soft skills are important for the employability of Electrical Technology students. 5 main constructs, 43 sub-constructs and 193 items of employability skills were generated from the item pool. The main constructs are classified into technical and non-technical skills which were referred to as visible competencies (Boyatzis, 1982; Spencer, & Spencer, 1993). The technical skills consist of Electrical-specific skills which include, construction, installation, troubleshooting safety, and direct current. The non-technical skills are generic or employability skills (Tymon, 2013). They include personality skills, People Oriented skills, Applied Knowledge skills, Workplace skills, and Entrepreneurial skills. The sub-constructs consist of skills such as integrity, initiative, dependability, adaptability, professionalism, communication, teamwork, organizational, sensitivity, flexibility negotiation, numeracy, technology, scientific skill, critical thinking, information technology, problem-solving, decision making, planning and organizing, resource management, information usage, service-oriented, innovativeness, ability skill, resourcefulness, motivation and commitment, strategic and visionary. The hidden competencies consist of self-concepts and motives. In all, there were 5 main constructs and 39 sub-constructs from document analysis.

Findings

Findings revealed that not all the sub-constructs of technical and non-technical skills are essential for the employability of Electrical Technology students. Some of the items were too difficult. (Most difficult items are IN3 & TM4), some were found around the item mean of the items (moderate items), while the others were below the item mean (lowest items). This implies that they did not match the students with the needs of the employers. Similarly, with the item separation of >2.00, and reliability of > .80, the instrument had been able to separate and verify the item hierarchy (Linacre, 2002).

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