Development of Anthropometric Data for Omani Male Population of Age Group 18-60

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Abstract

The study is based on the collection of 24 independent measurement points from at least 250 people from all regions of the Sultanate. Given the wide spread of the different regions within the Sultanate, and the time availability, the data has been prepared with the active liaison and assistance of friends and family members. The literature reviews presented in chapter 2 was selected with the aim of collecting as much thesis related information as possible, on previously available anthropometric researches or data of various other nations. Majority of the literatures found was on researches and studies done for none Omani groups. Major findings from all researchers alike were that the accurate measurements of Stature, Sitting heights and Reach were, are the most easiest measurements to be taken with good accuracy and repeatability and will continue to be, the most important measurements at large due to their importance in the design requirements for all manufacturing products and the relative ease of obtaining these measurements with a limited degree of errors. For these reasons, this study and for this matter SQU Industrial Engineering Department undertook a particular interest on availing these measurements i.e Stature, Sitting heights and Reach to the public, industrial and academic domain. Anthropometric measurements noted by many researchers reported variances between countries without giving a clear and scientific answer to cause(s) of these variations, other than the obvious causes such as diet, habitat, nature of works and geographical locations. This study is considered to be first stone towards creation and maintenance of a dedicated anthropometric database for the Sultanate population. Data analysis is presented and discussed in chapter 5 & 6 of this report whilst future recommendations are detailed in chapter 7. The overall summary of this thesis on Omani Male-Anthropometric data is that, there is a some noticeable difference on some anthropometric attributes between the various regions within the Sultanate. However, these information are the very best information available to date that can be used to represent the Sultanate target population. One of the major difficulties faced in the collection of data was the low reception from the local population for this typ~ of ~u.n;ey, especially with respect ~o s~me ~f the specific data points such as waist SIze, and buttock to knee height . Th~s observation was
at it's highest during the collection of data from the general public participants and with very close friends or family relation participation alike during the taking of the survey. The cross correlation analysis was done on various anthropometry measurements and the best correlation was observed to be based on Stature (ref to Figure 25). The Study Details of the Measurement point number 6 in the appendix 3. 2 Details of the Measurement point number 18 in the appendix 3. could not justify or correlation with certainly presence of any credible association between any of the measurements with age. Hence, predicative modeling was created based on Stature heights was created to predict the remaining attributes based on pre- determined factors (ref to section 4.11). One of the Thesis findings is that the Omani male population in statistical terms are shorter by 8cm compared to many European Industrial or Manufacturing nations; the Omani male population is also 1 em shorter that their counterparts in far East Countries3. Hence, care must be taken when purchasing products or services designed for such countries. For repeatability and better accuracies, It is strongly recommended for SQU Mechanical and Industrial Engineering Department to continue this Thesis for each regions separately. With minimum sample size of 250 participants from each region with due accounts to the reported and expected variations when determine the sample size for each region. It is equally strongly recommended to establish official communication between SQU and relevant Government Authorities to foster and develop and create an Omani Anthropometric dictionary for both genders and all age range, which should be updated 10 yearly. The most suitable opportunity for such a study in Oman is to coincide with the nation census programs planned to take place in 2010.