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# ITCC 2015

4-6 November 2015 / Istanbul / Turkey

*Between Worlds  
Innovation and Design  
in Textiles and Costume*

## **A Study of the Current Infant and Children's Clothing Size Charts in the UK**

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**Abstract:** The body size and shape of infants and children who have distinctive physical characteristics changes constantly up to adulthood. In this sense, it cannot be emphasised enough that the size charts which can be representative of infants and children's body size and shape precisely are required. The purpose of this study was to investigate the current size charts of the infant and children's clothing brands in the UK. A total of 52 of infants and children targeted brands in the UK were collected by random sampling online and the characteristics of selected size charts were examined, evaluated, and also compared with the Shape GB (National size survey). According to the results, the average size measurements from the selected size charts were smaller than the Shape GB but the fit form made by the Shape GB data had similar size with the average sizes. The considerable number of brands provided the body measurements of 'Height, Chest, waist, and Hip' with additional weight measurement at the infant targeted brands. The size charts were more classified by age, gender, clothing type, and fitting but those were different from all size charts and it can be suggested that united size charts should be suggested.

### **1. Introduction**

Apparel sizing system which is indicated by symbols, numbers, signs, or body measurement data provides the information whether the targeted size clothes will suit customers before trying on the clothes and can also be a means of communication between the manufacturing and distribution companies, customers, and the retail companies [1]. The body shapes of the infants and children are distinctive and different to the shapes of adults and are continually changing and growing up into adult shapes [2]. Therefore, the clothes and the sizing system which are focused on the body characteristics only for infants and children should be produced for the mass-production system. In this study, the research of the current size charts of infants and children targeted brands in the UK were conducted for determining the differences and characteristics of each brand also providing information for the customer to improve their purchasing experiences.

### **2. Materials and Methods**

A total 52 of infants and children clothing size charts among the UK brands were collected online using random sampling methods. Those brands were selected randomly at the web pages of major department stores, the online shopping websites in the UK, and the online searching website. All brands were listed to compare their size charts or age and the analysis using each clothing brands' name was conducted anonymously using a code with the initial letter of the brands. The body measurement data used for the average size comparison were from Shape GB which is the national size survey in 2013. The Shape GB study was conducted using body scanning of 2,885 children between the ages of 4 and 16 from 2008 to 2010. In addition, Shape GB line of fit forms (mannequins), representing the



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predominant body shape of each clothing size, were developed by 'Alvanon'[3]. In this study, the size data from the selected size charts were regarded as body measurements data not product measurements data because the size label represents the range of body measurements for which the product was designed.

### 3. Results

#### 3.1 Fundamental Characteristics of the Size Charts

The youngest age of the size charts was the premature baby and it progressed to the age of college (age of 16). Among the 52 brands, the age of 5 (sample of 43) was the highest covered and the age of 6 and 8 (sample of 42) were the second largest. It can be said, the selected brands in this study were mostly targeted at the age range of 5 to 8.

All size charts could be divided into 4 types; single age–single size, single age–double size, double age–single size, double age–double size. The example of each size can be seen on Table 1 and this division was based on whether the age and the size measurements had the range or not.

**Table 1.** Examples of Size Charts Division

	Age	Height	Chest	Waist	Hip
Single age–Single size	5 years	115	62	57	64
Single age–Double size	5 years	107-113	59-61	56-58	63-65
Double age–Single size	4-5 years	110	58	55	
Double age–Double size	4-5 years	104-110	57-59	55-57	62-65

(unit: cm)

In this study, the size charts of 5 years old were selected as the researcher's targeted size due to the high coverage rate as mentioned above (see Table 2.). It was founded that each body parts' sizes of ages of 4-5 years were much closer to the age of 5.

**Table 2.** Average Size Comparison

		Age	Height	Chest	Waist	Hip
Collected Size Charts	Single age of Single size	Age 5	110.81	58	54.32	62.5
	Double age of Single size	Age 4-5	110.55	59.46	54.5	61.95
	Double age of Single size	Age 5-6	116.56	61.29	56.14	64.37
Shape GB	Boys	Age 5	115.6	62.7	56.3	62.6
	Girls	Age 5	113	60.3	56.8	62.9
	Average	Age 5	<b>114.3</b>	<b>61.5</b>	<b>56.55</b>	<b>62.75</b>
	Fit Form	Age 5	110	58	55	62

(unit: cm)

In addition, the average size of boys and girls from Shape GB were bigger than the average of the size charts which had differences of 3.49cm, 3.5cm, 2.23cm, and 0.25cm at height, chest, waist and hip. It could be understood that the results of the Shape GB survey launched in 2008 had not been updated for the clothing industry because the average sizes



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from the selected size charts were much smaller than the mean of body measurements which grew bigger than before [4]. Furthermore, the sizes of fit form were also smaller than the mean sizes of Shape GB and it could be interpreted that 'Fit Forms' were developed for the customers' tastes or requirements which could be people working in the clothing industry but not normally adopting the size survey data.

### **3.2 Brand Size Measurement Information of the Size Charts**

#### **• Basic size requirement items**

The size measurement data of specific body parts as the indicators for designating the size of clothes varied considerably in the selected size charts. The brands which used 'Height, Chest, Waist, and Hip' were recorded as the highest and 'Height, Chest, and Waist' followed. To the exclusion of the main body parts, there were 12 brands which offered extra body measurements on their size charts as additional information for customers for example 'Inside leg', 'Out Leg-Waist to floor', 'Neck to Wrist', 'Sleeve' etc. Based on British Standards, height is the primary dimension for both boys and girls and the secondary dimensions are classified with the item whether it is a top or a bottom [5]. For example, the dimensions for jackets are height-chest (for boys) and height-bust (for girls) and then height-waist is the indicator for the trousers for both boys and girls. It can be interpreted that size charts which had the body measurements of 'Height, Chest, Waist, and Hip' would cover all clothing items both upper and lower clothes.

15 brands provided additional weight information having the size ranges from the premature baby up to 36 months and those brands were mainly targeted only the infants or broadly targeted from infants to teenagers. The interval of the age range was mainly 3 months between 0-3 months to 9-12 months but it was increased into 6 months from the age of 12 months to 24 months. It can be interpreted that the smaller size of infants' size charts were more itemised due to their growth speed. Each brand's weight per age were similar to each other having from 0.5kg to 1kg differences but there might be significant differences for the smaller sized infants.

### **3.3 Size Charts Classifications by Different Factors**

#### **• Size Charts Classification by Age**

The terms which designate the age range between infants and children were significantly different for the size charts and the each term of age range were also various. The terms of age classifications for the selected size charts mainly could be divided into four sections in order of age; 'Newborn'-'Infant/Baby'-'Boys and Girls'-'Teenagers'. In general, the mostly used terms for the age between 0-3 months and 2-3 years were 'Infant' and 'Baby'. Most of brands used the term of "Boy and Girl / Boys and Girls" to refer to children and age ranges were from 1 year old to 15-16 years old. The age range sometimes overlapped between each age with the example of where the 'Infant' size was 0-3 months to 18 months



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and 'Boys and Girls' was 1-2 years to 12-13 years old. Only two brands had 'Teenager' age size section with ranges of ages 9 or 10 to 10-16 years old. In addition, the term which was used for denoting 'Boy and Girl' also differed such as 'Kids', 'Older', 'Juniors', 'Toddler'. This illustrated that the divisions of the age range of each brand was uncertain and differed distinctively and that united terms and size range for all clothing manufacturing companies are required.

### • Size Charts Classification by Gender

There were 14 brands which had size charts by gender differences and it was found that only the infants' targeted brands did not have much difference of gender division. The age ranges which provided the size charts with different measurement data for boys and girls varied remarkably from tiny baby to 15-16 years old same as the starting period where gender differences were also noticeably different. However, it was shown that 4 brands divided their sizes by gender at the ages of 5-6 and also 4 brands used the age 8-10 as the age dividing point. In addition to this, two brands had their age boundary line starting with 1-2 years old and there were ages 11-12 and ages 13-14. In particular, two brands had gender divided size charts but their size measurements were exactly the same between boys and girls and it could be said that those separate size charts were meaningless.

### • Size Charts Division by Clothing Type

Most brands only provided size charts which were divided by age and gender but there was one which had separated size charts for 'Kids' T-shirts' and 'Girls dress' offering the size of 'Chest' and 'Length and Chest' respectively. The chest sizes of the 'Kids T Shirts' were bigger than 'Girl's Dress' from 2 cm to 8 cm and these amounts increased gradually followed the age increment. These size gaps come from both gender difference but it seemed that dress for girls might not require as much ease or the customers might prefer fitted clothes for girls' dresses. Furthermore, there was an additional size chart which had size differences of chest between 'Girl's jersey/ knitted dress' and 'Woven dress'. There were 3 cm differences on each age range and it could be said this size chart took fabric properties into account having clothing sizes for stretch fabrics smaller than for clothes using woven fabric.

### • Size Chart Classification by Fitting

There were three brands which provided additional size range measurements data at the same age sizes and had a unique name only for denoting smaller or bigger sizes. Firstly, there was the 'Girls Super Skinny' size chart which had smaller chest having 8 cm differences at the age of 1-2 years but the difference decreased gradually until the age of 5-6 years with 2 cm. This 'Girls Super Skinny' range might be provided for infants and children who were rather slower in physical development than the average children but the title of the size chart name might have ethical issues compared with the ASTM standard of boys' 'Slim/ Regular/Husky' and girls' 'Slim/ Regular/ Plus'[6][7][8]. Secondly, there



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were two brands had size ranges having the same height but wider waist for both boys and girls. The difference between original and wider waist range was 6 cm for the ages of 5-6 years to 9-10 years but it decreased to 5.5 cm from 10-11 to 14+ years old. The amounts of differences at the waist were calculated having only the maximum size from the double size (ex. collecting 58cm from 56-58cm). The interesting point was that 'Waist' was chosen as the grading parts for increasing the size range even though the primary body parts of children's wear are 'Height' and 'Chest'.

#### • Other Size Information of the Size Charts

5 brands used the letter code (ex. XS-S-M-L-XL) which is used for loose fitted clothes or flexible material's clothes such as knitwear or sport wear (BS EN 13402-3) [9]. The letter coding is based on only the chest or bust girth without height and it is not for infants, boys, and girls. However, the letter codes were shown at the selected size charts from XXS size to XXXL (3XL on the BS, which is not correct). Furthermore, there was a noticeable distinction of age range at each letter code between the brands. For example, the same letter code of 'M' was used at the age of 7 to 8 but another brand used size 'M' for the age of 12 to 14 years old. It could be said the additional letter coding information might give the customers more confusion due to the differences. Another additional size chart information was EUR size (4 brands) and those size range increases were same between brands.

#### 4. Conclusion

This study analysed current size charts of infants and children's clothing brands in the UK including the characteristics and present status of use of the size charts as well as indicating problems. The results are listed below.

- Based on age distribution between the size charts, the age ranges with high coverage rate were from 5 to 8. A total of 24 brands used a single range with single and double size s among 4 types; Single age-Single size, Single age-Double size, Double age-Single size, Double age-Single size.
- The average body measurement size of age 5 from the selected size charts were 110.63cm in height, 58.54cm in chest, 54.59cm in Waist, and 62.35cm in hip. Each size measurement was smaller than the Shape GB (Children size survey) having differences of 3.49cm, 3.5cm, 2.23cm, and 0.25cm at height, chest, waist and hip respectively. However, the sizes of fit forms developed by Shape GB data were similar to the average of the size charts. This infers that the Shape GB data is not represented in clothing companies and the fit forms were developed for matching current size measurements data.
- In short, the information of the size charts including size measurement data were remarkably different in every size chart. The size charts were also classified with diverse factors such as age, gender, clothing type, fitting, and etc. Firstly, it was founded that the age range and the terms of age range were distinctively different but the terms could be



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selected into 'Newborn'-'Infant/Baby'-'Boys and Girls'-'Teenagers'. Second, the ages where gender division was started were at the age of 5-6 and 8-10. Third, there were some additional information provided with the main size charts for different clothing type's size, different fitting's size, and different size code. However, the number of the brands which provided this subdivided information were few and this information could make the customers more confused.

This study was focused on understanding the size measurement data and characteristics of current infants and children clothing size charts in the UK. This was the initial study to set the context before the authors went on to study the defects of the current sizing system and developing suggestions and model(s) for improvement. In the future, the exact size differences and grading intervals between boys and girls are to be studied including interviews with customers to figure out their understanding degree of sizing systems and their difficulties in choosing sizes.

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