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Quality Approaches for Mass-Produced Fashion: A Study in Malaysian Garment Manufacturing

N. J. M. Yusof, T. Sabir, J. McLoughlin

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***Abstract*—**The garment manufacturing industry involves sequential processes that are subjected to uncontrollable variations. The industry depends on the skill of labour in handling the varieties of fabrics and accessories, machines, as well as complicated sewing operation. Due to these reasons, garment manufacturers have created systems to monitor and to control the quality of the products on a regular basis by conducting quality approaches to minimize variation. With that, the aim of this research has been to ascertain the quality approaches deployed by Malaysian garment manufacturers in three key areas - quality systems and tools; quality control and types of inspection; as well as sampling procedures chosen for garment inspection. Besides, the focus of this research was to distinguish the quality approaches adopted by companies that supplied finished garments to both domestic and international markets. Feedback from each company representative has been obtained via online survey, which comprised of five sections and 44 questions on the organizational profile and the quality approaches employed in the garment industry. As a result, the response rate was 31%. The results revealed that almost all companies have established their own mechanism of process control by conducting a series of quality inspections for daily production, either it was formally set up or otherwise. In addition, quality inspection has been the predominant quality control activity in the garment manufacturing, while the level of complexity of these activities was substantially dictated by the customers. Moreover, AQL-based sampling was utilized by companies dealing with exports, whilst almost all the companies that only concentrated on the domestic market were comfortable using their own sampling procedures for garment inspection. Hence, this research has provided insights into the implementation of a number of quality approaches that were perceived as important and useful in the garment manufacturing sector, which is truly labour-intensive.

***Keywords*—**Garment manufacturing, quality approaches, quality control, inspection, acceptance quality limit (AQL), and sampling.

I. Introduction

THE nature of the garment manufacturing sector has always been described as a truly globalized operation with complex processes and it has remained highly labour-intensive [1]. Besides, garment manufacturers have faced a number of challenges to maintain consistent quality in the production process, although the 21st century has witnessed numerous success stories for many industries and organizations, which have systematically adhered to the requirement for a total quality concept in their production. Furthermore, manufacturers believe that the desired output largely depends on the core elements in manufacturing, such as skill of labour, machines, materials, methods, and environment [2]. Realizing the importance of quality in meeting and exceeding customer expectation, many companies have installed their own process control approaches as a mechanism to monitor and to control the quality of manufactured garments [3], [4]. In other words, process control in mass-produced garments seems to be a compulsory activity that has to be planned and conducted to ensure the garment with a variety of designs, styles, materials, and quantities can be produced based on buyer requirements with acceptable variations. Quality approaches have been utilized in the product-based industry worldwide since the birth of the industrial revolution [5]. Manufacturers have sought and strived for consistency, which is essential in large-scale production, as a result of the better control of internal processes and all elements in the manufacturing system [5]. Nevertheless, in the apparel-making sector, consistency can be achieved when the garments are produced based on the written specification related to the materials and findings, sizes, quantities, measurement, seam, and stitching [6]. Achieving consistency in each piece of garment while production takes place is extremely challenging, as the problems identified are not only limited to one particular reason [7]. The defects found are classified either as critical or major and might be due to poor handling by sewing operators, malfunction or wrong setting of sewing machine, low quality of fabrics, sewing thread, and accessories, as well as inappropriate techniques or methods used for sewing operation [3], [7], [8]. Considering the possibilities of all these potential problems and root causes, manufacturers have assigned quality control team, which most probably works in the quality department to help in controlling, minimizing, and preventing any non-conformity in the production stage to reach to the next process [9]. The team is also responsible for detecting the problem at the early stage of production and work with production to identify the possible solution by implementing the appropriate, corrective, and preventive action [3], [10]. In short, every effort must be planned and implemented accordingly to ensure that the garments are sewn correctly, as well as to meet buyer requirement.

Based on the fact that the clothing industry can be found in countries that are able to provide sufficient labour and lower labour cost [11], the scope of this study has been focused on the garment manufacturers in Malaysia. Besides, Malaysia has been ranked as the world's top manufacturing location in 2014 Manufacturing Index by the global property agents, [12]. Moreover, as reported by the Malaysian Investment

N. J. M. Yusof, PhD Candidate, is with the Department of Apparel, Hollings Faculty, Manchester Metropolitan University, Manchester M15 6BG, United Kingdom (phone: +447474077799; e-mail: 13160441@stu.mmu.ac.uk).

T. Sabir and J. McLoughlin are with the Department of Apparel, Hollings Faculty, Manchester Metropolitan University, Manchester M15 6BG, United Kingdom (e-mail: tasneem.sabir@mmu.ac.uk, j.mcloughlin@mmu.ac.uk).

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Development Authority (MIDA), the textile and apparel industry was the ninth largest export earner with RM10.3 billion, contributing approximately 1.4 percent of Malaysia's total exports of manufactured goods in 2013 [13]. Furthermore, garments have been included for promotion under the Third Industrial Master Plan (IMP3), thus the activities for promoting garments for export, as well as enhancing the domestic capabilities, are two of the listed strategic thrust for further development of the Malaysian garment industry [13]. In addition, [14] reported that Malaysian garment manufacturers have a good reputation in supplying and producing high-quality products and most of them complied with the environmental and human rights requirements of international buyers. Furthermore, [15] pointed out that proven records, efficient communication and infrastructure, government support for business investors, as well as stable workforce, have made Malaysia to remain as a popular sourcing destination and a viable site for apparel business among Southeast Asian countries. Moreover, the attraction of the manufacturing activities is complemented by a quite large number of local manufacturers who have embarked on their own brand manufacturing and retail business as well to cater to the demands of the domestic market [14]. Therefore, this study has looked into how the Malaysian garment industry has responded to the needs of the international and local customers by implementing the appropriate process control activities for sewn garments. Moreover, it is important to understand how the quality approaches have been used and managed in the labour-intensive industry, as well as to determine the most important quality approaches prioritised by the manufacturers. Hence, the study sought to answer the following objectives;

1. To ascertain the quality approaches employed in the Malaysian garment manufacturing for quality monitoring of mass-produced garments for both domestic and export markets.
2. To distinguish the quality management practices between companies that supplied finished garments to domestic and international customers.

II. Theoretical Framework

A. The Role of Quality in the Garment Industry

Garments are soft goods, and each style produced is unique [7]. Daily activities in the garment industry, such as cutting, manual bundling, sewing, and trimming operations, add difficulties in the manufacturing process [16], [17], and hence, leads to product variation. Variation in the sewn garments is inevitable, but it can be controlled [6]. Gunesoglu and Meric [18] list factors, such as properties of fabrics and human emotion, can affect work performance, and thereby, cause variance in the process. Besides, the defects still can be detected during production, even if the inspection is thoroughly conducted; as well as instruction and specification are already understood by the sewing operator [7], [8], [19]. Next, in the stage of product development, each style is designed with specification – that is criteria or dimension that must be met during production [19]. Each specification is developed with a certain target and tolerance, which allow variation to occur within an acceptable limit [8]. Furthermore, without consistent quality control and monitoring, the risk of producing garments that does not meet the specification will easily occur, and the next operation may be interrupted. Hence, quality is presumably to be an important performance indicator for companies to survive in the market for a long time [17], [19]-[21].

B. Quality Management for Garment Manufacturers

The initiative of manufacturers to implement quality management and to display commitment for continuous improvement is ultimately to achieve customer satisfaction [22]. A quality management system (QMS) is defined in BS EN ISO 9000 [23] as a management system to direct and control the company with regard to quality. Manufacturing companies with good understanding of QMS believe that they must utilize the right raw materials, processes, machines, methods, and adequate human resources to perform the job [8], [22]. Meanwhile, in the context of garment industry, a number of quality approaches have been adopted as a common practice among manufacturers based on the findings reported in different manufacturing countries [11], [17], [20], [24]-[28]. The findings revealed that the awareness of quality existed, and some of the quality improvement activities have been conducted to support quality management. However, the level of implementation differed from one company to another due to many factors [4], as the concept of quality itself is perceived in different ways by manufacturers and individuals.

C. Quality Control and Quality Assurance in Garment Manufacturing

The terms 'quality assurance' (QA) and 'quality control' (QC) are sometimes used interchangeably even though they have different meanings [29]. In general, quality assurance (QA) is defined as a part of quality management focused on providing confidence that quality requirement will be fulfilled. Meanwhile, quality control (QC) is defined as part of quality management focused on fulfilling quality requirement [23]. The experts [6], [8], [9], [19] have used the acronym QA to reflect all the planning and the necessary actions made by the apparel companies to ensure that customer requirement can be met by conforming to the specified standard and specification. On the other hand, the term QC refers to the process of quality checking and monitoring during the production of garments, typically in the garment assembly process that takes place in the company [29]. Therefore, both terms are important components that may strengthen the internal quality management systems and contribute to the quality of finished textile product [6]. Moreover, it is also comprehensible that QA has a broader concept [29], and has been widely used to indicate the whole quality management activities utilized by garment companies. In fact, based on the definition of both QA and QC, it may suggest that the easiest way to distinguish the applicability of both terms is by understanding the main process that occurs in both QA and QC, but they remain part

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of the QMS. According to [25], [30], [27], and [17], garment manufacturers in Pakistan, Bangladesh, and South Africa rely on quality control and inspection systems to manage quality, whilst [26] reported that some garments companies in China have developed a quality assurance system for quality purposes.

D. Quality Approaches Used in the Garment Industry

As reported in many publications [7], [17], [20], [25]-[28], [30] garment companies have taken numerous initiatives to develop the culture of quality by implementing quality approaches that have been practiced in other industries as well. The QMS ISO 9000, Total Quality Management (TQM), quality circle, 5S, statistical process control (SPC), quality inspection, and 7 QC tools are some of the approaches that have been employed in ready-made garment manufacturing based on previous literature [7], [20], [24], [25], [27], [28], [30]. Nevertheless, the status of implementation of the approaches chosen depends on many factors, yet not all companies are willing to adopt the advanced concept in quality improvement [20], [25]-[27], [30]. In addition, among the above-mentioned quality approaches, quality inspection has remained as 'a must' process in garment companies. Generally, both inspection and quality control are inseparable quality terms in manufacturing. In spite of its disadvantages – the rise in cost of quality, manufacturers tend to put too much effort in conducting inspection and rely on this activity to eliminate waste and to minimize a high percentage of rejection rate [3], [7], [8], [21]. Besides, garment inspection appears to be the last effort at the level of a manufacturer to prevent defective garments from reaching customers since the company that manufactures the products must be responsible for all the quality aspects in production [31].

E. Sampling Procedures for Garment Inspection

During assembly, the QC inspector will evaluate each sewing operator's work by inspecting the garment parts sewn according to the particular bundle [19]. Usually, the inspector works in the sewing line, but in some cases, the inspection is established at various inspection points [10], [9] that are known as centralized or stationary inspection [19].

Besides, the number of garments inspected might depend on the inspection standard outlined by the company, but commonly, random or statistical sampling plan is used to indicate the number of garments to be inspected [10], [8], [6], [19]. The acceptance quality limit (AQL) often used by the manufacturer [8], [6] for the sampling procedures in the garment inspection process is either for in-line or final inspection. In section 3 "Terminology and definitions" of BS 6001-1ISO 2859-1 (2011), AQL is referred as the quality level that has the worst tolerable process average when a continuous series of lots is submitted for acceptance sampling [32]. When AQL is used, the inspector will be able to figure out the quantity of the representative samples that needs to be pulled out from the lot. In fact, Tables I and II illustrate the sample size code letters and the sampling procedures that conform to the international standard ANSI/ASQ Z1.4-2008, which is usually referred for inspection. Nonetheless, the standard that had been developed for the sampling procedures and tables for inspection by attributes was identical with the 2003 version and was exactly the same with the procedures and tables contained in the Military Standard 105E, which was announced obsolete in 1995 [32], [33].

TABLE I
SAMPLE SIZE CODE LETTERS

Lot or Batch Size			General Inspection Level		
			I	II	III
2	to	8	A	A	B
9	to	15	A	B	C
16	to	25	B	C	D
26	to	50	C	D	E
51	to	90	C	E	F
91	to	150	D	F	G
151	to	280	E	G	H
281	to	500	F	H	J
501	to	1,200	G	J	K
1,201	to	3200	H	K	L
3,201	to	10,000	J	L	M
10,001	to	35,000	K	M	N
35,001	to	150,000	L	N	P
150,001	to	500000	M	P	Q
500,001	to	over	N	Q	R

TABLE II
AQL TABLE AND SAMPLING PLANS

Sample Size Code Letter	Sample Size	Acceptable Quality Level (AQL) for normal inspection									
		1.0		**1.5**		**2.5**		**4.0**		**6.5**	
		Ac	**Re**	**Ac**	**Re**	**Ac**	**Re**	**Ac**	**Re**	**Ac**	**Re**
A	2	0	1	0	1	0	1	0	1	0	1
B	3	0	1	0	1	0	1	0	1	0	1
C	5	0	1	0	1	0	1	0	1	0	1
D	8	0	1	0	1	0	1	1	2	1	2
E	13	0	1	0	1	1	2	1	2	2	3
F	20	0	1	0	1	1	2	2	3	3	4
G	32	0	1	1	2	2	3	3	4	5	6
H	50	1	2	2	3	3	4	5	6	7	8
J	80	2	3	3	4	5	6	7	8	10	11
K	125	3	4	5	6	7	8	10	11	14	15
L	200	5	6	7	8	10	11	14	15	21	22
M	315	7	8	10	11	14	15	21	22	21	22
N	500	10	11	14	15	21	22	21	22	21	22
P	800	14	15	21	22	21	22	21	22	21	22
Q	1,250	21	22	21	22	21	22	21	22	21	22

The sample size for inspection can be determined, if the lot size of garments and general inspection level are known [8]. In common practice, the retailer will designate the specific value of AQL, which indicates the acceptance of per cent defective from the lots or batches produced by the appointed supplier [34]. As shown in Table II, the higher the value of AQL, the lower the acceptable quality level.

The lot is accepted if the number of defective garments are less than allowed, otherwise the lot is rejected if the defective garments are greater than allowed. According to [10] and [35],

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AQL 2.5 and 4.0 have been widely used for soft line merchandise typically used in the retail industry.

III. Research Methodology

A. Research Design and Sampling

In this study, the quantitative approach was chosen as the survey design to obtain feedback from the companies. The population in this study was targeted to the middle and top management personnel who possessed quality management background in the Malaysian garment industry. The directory of garment companies was obtained from the Malaysian Knitting Manufacturers Association (MKMA) and the Malaysian Textile Manufacturers Association (MTMA). Based on the above sources, the sampling frame of this study had been identified. The selection of samples was made based on simple random sampling by applying sampling with replacement [36]. When this sampling technique has been chosen, the survey was sent to the group of companies in stages. The representatives of companies who refused to participate were replaced by other companies that were not selected in the sampling population by sending them an invitation to participate in the study via email.

B. Research Instrument

Online survey was used after developing a valid and reliable survey question. The main idea and the constructs were based on the extensive literature review conducted in the research area. After that, several aspects of the survey were revised by some experts in the garment industry after a pre-pilot study was conducted. Their feedback was extremely helpful in improving the survey questions before the data collection process was carried out. The survey was organized into five sections and consisted of 44 questions – most of them were closed-ended questions.

C. Data Collection

The online survey was sent to a small number of garment companies - about 10% of the population members involved in the pilot study. This was purposely done to check for patterns of email invitations that had bounced back and any item that did not serve its purpose properly [37]. The full launch of the survey began after minor changes were made concerning the setting of the survey. Follow-up email as a soft reminder was sent to the respondents, and telephone interview was conducted if the respondents needed assistance to complete the survey. This method was used to increase the response rate. 100 companies were invited to participate in this study by completing the online survey. A total of 31 companies successfully submitted their responses. It represented a response rate of 31% as a number of companies refused to participate, or delayed and quit responding.

IV. Results

A. Descriptive Statistics

Table III provides a summary of the company's background for the involvement of Malaysian manufacture in the mass production of garments, as well as individual profiles of respondents. More than half of the companies (71%) that participated in this study operated their business less than 20 years and supplied different categories of finished garments to the market. Meanwhile, 22 of the 31 companies supplied their end products to the domestic market, and most of the companies (91%) were small and medium-sized companies. The remaining nine companies were involved in the export market and comprised of large and medium-sized companies. Almost all companies (93.5%) had been operating in a full manufacturing mode and utilized the progressive bundle system (87.1%) in the production. Out of the 31 respondents, 26 represented high level management, whilst another 5 respondents were involved in middle-level management.

TABLE III
Organizational Profile of Malaysian Garment Manufacturers

Items	Frequency	Percentage
Organizational Profile		
Number of years in Operation		
Less than 10 years	11	35.5
10 but less than 20 years	11	35.5
20 but less than 30 years	4	12.9
30 but less than 40 years	4	12.9
Over 40 years	1	3.2
Company's main product		
Work clothes and uniform	9	29.0
Women's wear	7	22.6
Casual clothing and sports wear	6	19.4
Knitwear	3	9.7
Men's wear	3	9.7
Undergarment	2	6.5
Swimwear	1	3.2
Market		
Domestic	22	71.0
International	9	29.0
Category of company		
Small-sized enterprise	12	38.7
Medium-sized enterprise	10	32.3
Large	7	22.6
Micro enterprise	2	6.5
Full manufacturing process		
Yes	29	93.5
No	2	6.5
Types of sewing production system		
Progressive bundle system	27	87.1
Modular production	1	3.2
Flexible manufacturing	1	3.2
Not Applicable	2	6.5
Individual Profile		
High level management	26	83.9
Middle level management	5	16.1
Total companies $n = 31$		

B. Quality System and Tools

The respondents were asked about the quality system adopted in their companies and the quality approaches that were most likely used by them for continual improvement activities. All in all, only 13 companies obtained accreditation from the international quality system and almost half of them have implemented the system for less than five years. On top of that, 9 out of 13 were ISO 9001 certified companies, while 6 of them obtained Worldwide Responsible Apparel Production (WRAP) compliance, and 3 companies were certified by OEKO-TEX® Standard 100. The main reasons of these accreditations to the quality system were due to

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customer requirement (38.7%) and improvement in the management process (32.3%). Moreover, 22 respondents claimed that quality department was established; whilst the remaining 9 respondents asserted that no such department has been responsible for quality. In realizing the importance of quality management to sustain the desired quality standard for manufactured garments, the respondents were asked to rate the frequency they have used the quality approaches that had been identified from the literature.

Fig. 1 shows the quality approaches that had been employed in the garment industry, which included responses from uncertified companies to quality systems. Furthermore, all the respondents agreed that inspection was the most frequently used approach to control quality during production. Staff training, supplier evaluation, and problem solving technique were among the preferred approaches to quality chosen by the respondents. Meanwhile, the advanced quality approaches, such as 7 new QC tools and six sigma, were almost not used at all, especially statistical process control (SPC). Moreover, for respondents from different backgrounds of quality and years of operation, 26 out of 31 claimed that the implementation of quality in their companies had been rather challenging to be carried out.

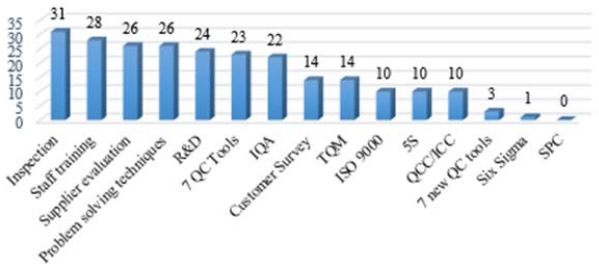


Fig. 1 Quality approaches used in the Malaysian garment industry

C. Quality Control and Types of Inspection

As the results obtained from the previous section provided evidence that the industry comprised of inspection-oriented companies, the respondents were further asked on how quality control (QC) has been managed by the companies. More than 80% of the respondents claimed that they conducted inspection from the stage of receiving the fabrics until the garment parts were sewn in the assembly line. The final inspection was the most important quality process; before the finished garments reached customers. Nevertheless, only 9 respondents used independent agent services that were appointed by the retailer for the final inspection of the garments due to their involvement in the export market. In this situation, the buyer QC would be assigned to examine the quality of the garments, and the shipment approval would be granted depending on the result of the inspection. Based on the experiences of the respondents, 18 of them selected sewing and seaming defects, as well as operator faults, as problems that were commonly found in the sewing assembly line. In addition, the respondents were asked to indicate the extent of their agreement level on a 5-point Likert scale based on the statements developed for the inspection process. All respondents agreed that inspection is an extremely important process in the garment industry and it is the most suitable mechanism to prevent defective garments from reaching customers. They also agreed that both skills and experiences of quality inspectors are the main factors of an effective inspection. In fact, 28 respondents claimed that the appropriate sampling technique could also contribute to an effective inspection. Moreover, almost all respondents did the inspection as according to the production and measurement specification, besides conducting random inspections for each sewing operation. In addition, 16 respondents agreed to conduct 100% inspection during production and finishing, while the remaining 15 asserted that it was an ineffective method unless the quality level is unmet. Overall, 23 respondents perceived quality control implementation as challenging, 3 had experienced it as a difficult process, and 5 respondents thought that it was easy to manage QC.

D. Sampling Chosen for Inspection

Sampling was used for random checking when there was no requirement to conduct 100% inspection. In order to understand, in general, the selection of samples for inspection, the respondents were asked about the sampling techniques used by them to inspect garments. Ten respondents who mostly involved in the export market said that they conducted daily inspection based on the acceptable quality limit (AQL). With that, several statements pertaining to AQL-based sampling were developed and the respondents were required to rate each statement based on their level of agreement on a 5-point Likert scale given. All 10 respondents agreed that the process of inspection by using AQL was easy to understand and the AQL limit should be agreed by both buyer and manufacturer. Apart from that, 9 respondents agreed that the AQL was the most effective method for sampling, and 8 of them agreed that the inspection results obtained from application of AQL had been accurate and reliable. AQL 2.5 was used in both in-line and final inspections. Nonetheless, another 21 respondents did not use AQL and claimed that the inspection was based on their own procedures of sampling. Out of the 21 respondents, 11 gave reasons that AQL-based sampling was not adopted because there was no specific requirement from the customers. Meanwhile, 9 of them never heard of AQL and only one respondent claimed that his company conducted 100% inspection during production and finishing.

E. Comparison of Quality Approaches Adopted

Table IV summarizes the quality approaches adopted by companies that supplied garments to both international and domestic markets.

TABLE IV
SUMMARY OF QUALITY APPROACHES

Garment Manufacturing Companies		
International Market	Criteria	Domestic Market
ISO 9001:2008	**QUALITY SYSTEMS**	ISO 9001:2008
OEKO-TEX Standard 100		
Worldwide Responsible Accredited Production (WRAP)		
Occupational Safety and Health Administration (OSHA)		
Inspection	**QUALITY PROGRAMMES AND TOOLS**	Inspection
Staff Training		
Supplier/Vendor Evaluation		
Problem Solving Techniques		
7 QC Tools		
R&D		
Internal Quality Audit (IQA)		
Fabric Inspection	**QUALITY INSPECTION**	Fabric Inspection
In-line Inspection (Sewing)		In-line Inspection (Sewing)
Final Inspection (Internal QC)		Final Inspection (Internal QC)
Final Audit (Buyer QC)		
AQL-Based Sampling	**SAMPLING PROCEDURE**	Company's Own Procedure

V. DISCUSSION AND CONCLUSION

The study highlighted the evidence gathered on the implementation of quality management in the Malaysian garment industry. Manufacturers monitored and controlled their internal production process by using their own system and selected quality approaches. Nevertheless, the companies that have been certified with quality management systems, such as ISO 9001:2008, WRAP, and OEKO-TEX® Standard 100, exhibited better implementation of quality programmes compared to those that were uncertified. For instance, the ISO 9001 certified companies deployed problem-solving techniques, supplier evaluation, staff training, 7 QC tools, internal quality audit (IQA), as well as research and development (R&D) more frequently compared to those without ISO certification. In addition, the important findings revealed that Malaysian garment manufacturers rely on the traditional quality control (QC) and inspection. This is consistent with previous studies conducted in other countries [7], [17], [20], [24]-[27], [30]. Although some of the garment companies conducted various methods of inspection, both in-line and final inspections cannot be exempted in the production. As all the companies adopted a reactive approach instead of a proactive approach [38], the uses of advanced quality improvement tools have been very minimal. Out of 31 respondents, only 3 were exposed to 7 new QC tools, 1 claimed as a six sigma company, and none of them had ever used a statistical process control (SPC). Hence, it seems reasonable to assume that Malaysian garment manufacturers did not fully operate in TQM mode, since the application of advanced concept was still limited and selective [30]. Moreover, it is apparent from Table IV that companies involved in export markets that adopted certain quality systems, such as WRAP, OEKO-TEX® Standard 100, and ISO 9001:2008, did not only fulfil the quality standard stipulated by international buyers, but also to remain competitive in the global market [20]. This finding tallied with the input reported by [14]. Besides, the comparison depicted in Table IV indicates that the garment companies were customer-driven in implementing the suitable quality approaches in their manufacturing process. Moreover, the companies that supplied to international market adopted at least one quality system compared to local companies that only catered to the domestic market. Interestingly, compliance with WRAP and OEKO-TEX® Standard 100 has been preferable compared to QMS ISO 9001:2008. This probably indicates that the compliance with WRAP and OEKO-TEX® is becoming a main concern among international buyers because the garment industry is extremely labour-intensive and the major awareness of health and safety aspects in manufacturing. Moreover, garment manufacturers who received orders from customers abroad used AQL-based sampling to conduct random or in-line inspection in the sewing assembly lines. Besides, AQL 2.5 has been commonly used, which shares similar input given in the previous literature [26], [27]. Furthermore, in common practice, even though the finished garments were inspected by the internal QC, the buyer's QC would conduct a final audit before the decision to approve or reject the lot for shipment is made. Conversely, most of the domestic market companies were not certified to any quality systems and comfortable to use their own sampling procedure for garment inspection. Therefore, the greater emphasis was given only to the inspection process because local customers did not impose a stringent requirement as the international buyers [39]. Hence, it seems reasonable to assume that local customers did not impose a specific quality requirement for their bulk orders and totally rely on the manufacturer's internal process control capabilities to receive the desired end products. Therefore, based on this research, it may be concluded that Malaysian garment manufacturers utilized quality approaches based on the quality system that they had adopted. In fact, some aspects have been identified, which could distinguish quality approaches practiced in companies liaised with different customers and destination of the end products. On top of that, accreditation and compliance to the quality system might be the reasons of a systematic workflow, and works are better planned towards continuous improvement. As for the aspect of quality management implementation, garment inspection has been central and the most important process control among manufacturers. It was obvious that the series of inspections conducted have been to detect any defect found in the garment production that would not be missed, and later sent to the next operation, although it probably might happen [7], [8], [17]. The method of each inspection varied, and it highly depended on the customers. Thus, this research offers insightful and useful findings for the management of quality in the labour-intensive industry. Nevertheless, the findings have led to questions of the readiness of this industry to adapt with the latest quality management concept for manufacturing. The study can be extended to qualitative data collection and

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analysis to explore in-depth the real situations and reasons that hinder the implementation of total quality in the garment manufacturing industry, specifically in Malaysia.

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