



¹ sharplooks2@gmail.com

³Sophty2006@yahoo.com

Nkrumah, E¹., Gavor, M. E²., and Pardie, S. P³. (2015) Zipper Failure in The Clothing Industry in Ghana. In: Mojekwu, J.N., Ogunsumi, L.O., Ojigi, L.M., Atepor, L., Thwala, D.W., Sackey, S. Awere E., and Bamfo-Agyei, E. (Eds) African Journal of Applied Research (AJAR) Journal, Vol.1,No.1 ISSN 2408-7920 January 2015, Cape Coast, Ghana. 470-477

ZIPPER FAILURE IN THE CLOTHING INDUSTRY IN GHANA

Nkrumah, E¹., Gavor, M. E²., and Pardie, S. P³.

^{1&3}Department, of Fashion Design & Textile Studies, Cape Coast Polytechnic, Cape Coast, Ghana.

²Department of Vocational and Technical Education of the Faculty of Education, University of Cape Coast, Ghana.

ABSTRACT

The zipper is by far the most widespread fastener, and is found almost everywhere, installed on clothing, luggage, leather goods, and various other objects. However, a casual observation of zippers used in the clothing industry in Ghana shows that zippers on the market easily fail during use. The aim of the study was to examine zipper failure in the clothing industry in Ghana. The objectives are to assess the effect of zipper type on zipper failure; identify the nature of zipper failure in the clothing industry and to determine the usual cause of zipper failure in the clothing industry. The research design used was cross-sectional survey and the simple random sampling technique was used to sample 325 tailors, dressmakers and fashion students from the Cape Coast Metropolis for their views on zipper failure in the clothing industry in Ghanaian. The main findings of the study were: the type of zipper that usually failed was regular zippers. The nature of zipper failure in garments frequently occurred through teeth separation. Finally the study indicated that the commonest cause of zipper failure was garment fit. The study therefore recommends that dressmakers should upgrade their skills on appropriate garment fit and correct zipper selection to reduce zipper failure.

Keywords: Zipper; Fastener; Failure; Garment; Ghana

INTRODUCTION

Ancient clothing was often based on rectangular piece of fabric that were draped, pinned and tied over the body (White, 2009). By the 13th Century, garments became more form fitting. Several fasteners ranging from pins to buckles and straps, and ties began to be used to fasten clothes. Modern developments have improved on old concepts and added ease and efficiency in fastening garments. Fasteners provide function in garment and often provide the finishing fashion touch. Advances in seemingly simple clothing fasteners have revolutionized garment design and construction throughout human history. Each day most people use some sort of clothing fasteners as they go about their daily lives. Although these are usually taken for granted, they have greatly influenced the way clothing fits the human body (Diamond and Diamond, 2007).



¹ sharplooks2@gmail.com

³Sophty2006@yahoo.com

Nkrumah, E¹., Gavor, M. E²., and Pardie, S. P³. (2015) Zipper Failure in The Clothing Industry in Ghana. In: Mojekwu, J.N., Ogunsumi, L.O., Ojigi, L.M., Atepor, L., Thwala, D.W., Sackey, S. Awere E., and Bamfo-Agyei, E. (Eds) African Journal of Applied Research (AJAR) Journal, Vol.1,No.1 ISSN 2408-7920 January 2015, Cape Coast, Ghana. 470-477

Today the zipper is by far the most widespread fastener used, and is found almost everywhere, installed on clothing, luggage, leather goods, and various other objects (Jyler, 2008). Zippers are one of the first machines that people learnt to master in their childhood and have remained the most common mechanisms of daily lives. It may in fact be just a little startling to think of zippers as machines, but surely that is what they are; carefully fitted pieces of metal and plastic that must move in close coordination. When this coordination fails, the garment may be unusable until the zipper is repaired or replaced. This experience can be quite difficult and expensive leading most of the times to the discard of the clothing item.

Problem Statement

According to Secrest (2009), zippers were first conceived to replace the irritating 19th century practice of having to button up to 40 tiny buttons on each garment of the time. The first zippers were not much of an improvement over simple buttons, but innovations came slowly over the following decade. Zippers, despite their importance and practically worry-free use, are complicated devices that rely on a smooth, almost perfect linkage of tiny cupped teeth (Gaddis, 2011). In spite of the fact that there have been a lot of improvements in the mechanical problems with zippers over the years, some of the zippers used in the clothing industry in Ghana still exhibit lots of mechanical challenges. A casual observation and comments from both producers and consumers in the clothing industry indicate that zippers attached to clothes sometimes ply open in the middle; sliders are dysfunctional; stops removing and pull tabs braking off as early as the first time of wear. This unfortunate incident has caused embarrassment to people in public. Such failure is one of the major causes of consumer dissatisfaction with the locally produced garment after fitting problems and inability to meet delivery date (Garner and Keiser, 2012). This unfortunate situation seems to be gradually making people lose interest and confidence in the performance of zippers used in the clothing industry in the country. Hence, people often resort to other forms of fasteners which may not be appropriate for the style of the clothes on which they are used.

Despite the importance of zippers in the clothing industry, there is inadequate literature that looks at the causes of zippers failure in clothes. Existing literature only looks at types of zippers and their mode of application in garments, neglecting the factors that can lead to zippers failure in clothes. The performance of zippers in clothes is an important subject which is worth investigating into because zippers have become an invisible but inescapable part of daily life.



¹ sharplooks2@gmail.com

³Sophty2006@yahoo.com

Nkrumah, E¹., Gavor, M. E²., and Pardie, S. P³. (2015) Zipper Failure in The Clothing Industry in Ghana. In: Mojekwu, J.N., Ogunsumi, L.O., Ojigi, L.M., Atepor, L., Thwala, D.W., Sackey, S. Awere E., and Bamfo-Agyei, E. (Eds) African Journal of Applied Research .(AJAR) Journal, Vol.1,No.1 ISSN 2408-7920 January 2015, Cape Coast, Ghana. 470-477

Aim

The aim of the study was to examine zipper failure in the clothing industry in Ghana.

Objectives

The specific objectives are to:

1. Assess the effect of zipper type on zipper failure.
2. Identify the nature of zipper failure in the clothing industry.
3. Determine the usual cause of zipper failure in the clothing industry.

Research Questions

1. How does zipper type contribute to zipper failure as perceived by the users of zippers?
2. What are the views of the users of zippers on the nature of zipper failure in the clothing industry?
3. What are the views of the consumers of zippers on the usual cause of zipper failure in the clothing industry?

LITERATURE REVIEW

The zipper is a recent addition to the family of sewn in closures, but it has pretty much taken over as the universal closure since its introduction. Robinson (2010), defined closures as two-piece, mechanical devices used to close plackets. He further explained that there are two large groups of closures: Those that are sewn on and those that are pressure applied. Common sewn on closures are snaps, hooks and loops or eyes, buttons and buttonholes, and zippers. Less frequently used sewn on closures are hook and loop tape, Velcro, frogs, buckles and straps, and ties. Each style of closure has been designed to function in a specific way (Robinson, 2010).

Frings (2002) indicated that, zipper are fastening devices consisting of parallel rows of metal, plastic, or nylon teeth on adjacent edges of an opening that are interlocked by a sliding tab. Zippers provide two edges that will mesh together and resist pulling apart when stressed on a tape support that can be sewn into the garment (White, 2009). They provide a neat strong fastening in garments, and can be functional or decorative or both. Thomas (2009) also added that, the zipper can also be used in divers ways for decorating clothes.

The basic elements of a zipper are: the stringer (the tape and teeth assembly that makes up one side of a zipper); the slider (opens and closes the zipper); a tab (pulled to move the slider); and stops (prevent the slider from leaving the chain). A separating zipper, instead of a bottom stop



¹ sharplooks2@gmail.com

³Sophty2006@yahoo.com

Nkrumah, E¹., Gavor, M. E²., and Pardie, S. P³. (2015) Zipper Failure in The Clothing Industry in Ghana. In: Mojekwu, J.N., Ogunsumi, L.O., Ojigi, L.M., Atepor, L., Thwala, D.W., Sackey, S. Awere E., and Bamfo-Agyei, E. (Eds) African Journal of Applied Research .(AJAR) Journal, Vol.1,No.1 ISSN 2408-7920 January 2015, Cape Coast, Ghana. 470-477

that connects the stringers, has two devices which are a box and a pin that function as stops when put together (Ament, 2007).

According to Jyler (2008), zipper can vary in the materials of the tape, the form and materials of the meshing sections, and in the overall construction and function of the zipper. The latter affects predominantly their methods of attachment to garments. However, Stone (2004) added that all these zippers are produced to different specifications and their selection should be based on higher quality specification.

Different authors classify zipper differently, these classification vary according to zipper properties such as: form, material and purpose. Buchanan and Mayer (2002), and Jyler (2008) all classified zippers according to their form. Buchanan and Mayer classified zippers into two main groups which are: chain zipper (medium weight zippers with metal or plastic teeth) coil zipper (synthetic coils of polyester or nylon attached to a woven type) useful for fine fabrics. Jyler again indicated that the major types of zipper are: individual metal teeth, spiral coil, plastic molded teeth, and invisible zippers. These two classifications were based on the nature of meshing sections of the zippers.

According to the British Standards Institution (2006), zippers are produced for different end uses such as: dresses, knitwear, light leather goods, skirts, jeans, trousers, foundation garments, coats and jackets, overalls and leather garments. Hence, zippers produced for a particular end use must meet performance requirements for the intended end use. Within each end use are also performance codes such as: ultra-light, light, medium, medium-heavy and heavy.

Secrest (2009), indicated that improper application of zippers, poor zipper type and the use of less quality materials for zippers affect the performance of zippers negatively. The fit of a garment also affects the performance of a closure. While some closures such as hook and eye work perfectly under stress, others such as zippers and velcro may fail under intense stress (Stone, 2004).

RESEARCH METHODOLOGY

Cross-sectional survey was used to collect data to seek zipper consumers' perceptions on zipper failure in the clothing industry in Ghana from a population of 600 garment producers which comprised of 439 tailors and dressmakers in the Cape Coast Metropolis and 161 fashion students of Cape Coast Polytechnic and Cape Coast Technical Institute. Simple



¹ sharplooks2@gmail.com

³Sophty2006@yahoo.com

Nkrumah, E¹., Gavor, M. E²., and Pardie, S. P³. (2015) Zipper Failure in The Clothing Industry in Ghana. In: Mojekwu, J.N., Ogunsumi, L.O., Ojigi, L.M., Atepor, L., Thwala, D.W., Sackey, S. Awere E., and Bamfo-Agyei, E. (Eds) African Journal of Applied Research .(AJAR) Journal, Vol.1,No.1 ISSN 2408-7920 January 2015, Cape Coast, Ghana. 470-477

random sampling procedure was used to get the sample size of 325 respondents comprised of tailors, dressmakers and fashion students.

Based on the objectives of the study, questionnaires were employed for the data collection. The administered questionnaires were edited and grouped under emerging themes based on the objectives of the study for easy analysis. Each response was coded and entered into Statistical Product and Service Solutions (SPSS) version 17 for analysis. Descriptive statistics such as frequencies, percentages and tables were used to present the results.

FINDINGS

Type of Zipper that Usually Fail

There are different types of zipper used in the clothing industry in Ghana and so respondents were asked to state the zipper type that they found to be failing very often. This question was necessary in that if the zipper type used is not good (fails easily), even if it is applied properly there is the likelihood that the zipper may not perform as required and the blame may be given to the fit of the garment or zipper application. The responses can be seen in Table 1.

Table 1: Consumers' Perception of the Type of Zipper that Usually Fail

Types of zipper	Fashion Students		Dressmakers		Tailors		Total	
	No.	%	No.	%	No.	%	No.	%
Regular	49	57.0	119	65.0	41	73.2	209	64.3
Invisible	27	31.4	30	16.4	2	3.6	59	18.2
Plastic								
Moulded	7	8.1	20	10.9	4	7.1	31	9.5
American	1	1.2	13	7.1	8	14.3	22	6.8
Metallic	2	2.3	1	0.5	1	1.8	4	1.2
Total	86	100.0	183	100.0	56	100.0	325	100.0

Source: Field Work, 2012

A study of the data presented in Table 1 reveals that about a third of the 325 respondents, representing 64.3%, considered regular zippers to be the zippers that usually failed. This view held by the respondents could be the reason why the respondents rarely preferred regular zippers. About 18.2% of the respondents considered invisible zippers to be those that usually failed. This may be as a result of the fact that most people found it difficult to apply them to garment and any mistake in its application was likely to result in damaging the zipper



¹ sharplooks2@gmail.com

³Sophty2006@yahoo.com

Nkrumah, E¹., Gavor, M. E²., and Pardie, S. P³. (2015) Zipper Failure in The Clothing Industry in Ghana. In: Mojekwu, J.N., Ogunsumi, L.O., Ojigi, L.M., Atepor, L., Thwala, D.W., Sackey, S. Awere E., and Bamfo-Agyei, E. (Eds) African Journal of Applied Research .(AJAR) Journal, Vol.1,No.1 ISSN 2408-7920 January 2015, Cape Coast, Ghana. 470-477

(Buchaman and Mayer, 2002). American and metallic zippers were seen to be zippers that did not fail often since 6.8% and 1.2% of the respondents respectively considered them to be the types of zipper that usually did not fail.

Nature of Zipper Failure in Garments

From the responses of the consumers and the casual conversations with clients, it became evident that the nature of zipper failure in garments took different forms so a question was asked to find out the most common nature of zipper failure of zippers in the clothing industry in Ghana. The responses are presented in Table 2

Table 2: Consumers' Perception of the Nature of Zipper Failure in Garments

Nature of Failure	Fashion Students		Dressmakers		Tailors		Total	
	No.	%	No.	%	No.	%	No	%
Teeth separation	71	82.5	143	78.1	37	66.1	251	77.3
Broken Slider	6	7.0	16	8.7	7	12.5	29	8.9
Broken Stopper	4	4.7	14	7.7	8	14.3	26	8.0
Broken Tab	5	5.8	10	5.5	4	7.1	19	5.8
Total	86	100.0	183	100.0	56	100.0	325	100.0

Source: Field Work, 2012

It can be observed from Table 2 that, the majority of the respondents, forming 77.3%, claimed that the commonest zipper failure occurred through teeth separation. The rest (22.7%), made up of 8.9%, 8.0%, and 5.8% respectively said the failures of zippers occurred through broken slider, broken stopper and broken tab. This nature of failure could be due to the fit of the garment. The close fitted garment affect zipper performance due to the fact that the interlocked teeth may give way under high pressure exerted on by tight garment.

Usual Cause of Zipper Failure

After the findings on the views held by the respondents on the types of failure found in zippers, they were again asked to give their views on what they considered to be the usual causes of zipper failure. Table 3 shows their views.



¹ sharplooks2@gmail.com

³Sophty2006@yahoo.com

Nkrumah, E¹., Gavor, M. E²., and Pardie, S. P³. (2015) Zipper Failure in The Clothing Industry in Ghana. In: Mojekwu, J.N., Ogunsumi, L.O., Ojigi, L.M., Atepor, L., Thwala, D.W., Sackey, S. Awere E., and Bamfo-Agyei, E. (Eds) African Journal of Applied Research .(AJAR) Journal, Vol.1,No.1 ISSN 2408-7920 January 2015, Cape Coast, Ghana. 470-477

Table 3: Respondents View on Common Causes of Zipper Failure

Causes	Fashion Students		Dressmakers		Tailors		Total	
	No.	%	No.	%	No.	%	No.	%
Garment fit	45	52.3	75	41.0	20	35.7	140	43.1
Zipper strength	21	24.4	35	19.1	13	23.2	69	21.2
Poor handling	11	12.8	37	20.2	18	32.1	66	20.3
Zipper Application	4	4.7	34	18.6	3	5.4	41	12.6
Zipper location	5	5.8	2	1.1	2	3.6	9	2.8
Total	86	100.0	183	100.0	56	100.0	325	100.0

Source: Field Work, 2012

From Table 3 it can be observed that 141 out of the 325 respondents (42.5%) indicated that the commonest cause of zipper failure was garment fit. On the other hand, 21.2% and 20.3% of the respondents identified poor zipper strength and poor handling of zippers respectively as the commonest causes of zipper failure. Only nine out of the 325 respondents (2.8%) blamed zipper failure on its location. From the responses it can be suggested that zipper failure was rarely caused by zipper location. The indication that the commonest cause of zipper failure was garment fit supported Stone’s (2004) assertion that the fit of a garment affected the performance of closures applied on them.

CONCLUSION

Based on the results, the following conclusions were drawn:

1. The type of zipper that usually failed, more than half (64.3%) of the consumers considered regular zippers to be the zippers that usually fail. Also, 18.2% of the consumers considered invisible zippers to be the next zippers after regular zippers.
2. Consumers’ view on the nature of zipper failure in garments indicated that majority (77.3%) of zipper failure in garments occurred through teeth separation.
3. The study indicated that the commonest cause of zipper failure was garment fit, close fitted garments exert more pressure on garment; this pressure is felt more on the weakest areas of the garment which are the seams and the zipper, with the zipper being weaker generally than the seams.



¹ sharplooks2@gmail.com

³Sophty2006@yahoo.com

Nkrumah, E¹., Gavor, M. E²., and Pardie, S. P³. (2015) Zipper Failure in The Clothing Industry in Ghana. In: Mojekwu, J.N., Ogunsumi, L.O., Ojigi, L.M., Atepor, L., Thwala, D.W., Sackey, S. Awere E., and Bamfo-Agyei, E. (Eds) African Journal of Applied Research (AJAR) Journal, Vol.1,No.1 ISSN 2408-7920 January 2015, Cape Coast, Ghana. 470-477

RECOMMENDATIONS

To ensure reliable zippers for the clothing industry in Ghana the study recommends:

1. Dressmakers should consider the quality of zippers rather than just the colour of zippers when buying zippers for clothes so that the zippers will last.
2. Dressmakers should not make garments to fit snugly to the body as this puts extra strain on the zipper to forcefully ply open.
3. Dressmakers should occasionally upgrade their skills on the correct garment fit and correct zipper selection techniques through workshops and short courses in order to reduce the incidence of zippers failure due to improper zipper selection and garment fit.

REFERENCES

- Ament, P. (2007). *Fascinating facts about the invention of the zipper by Gideon Sundback in 1913*. Retrieved February 1, 2011, from <http://www.ideafinder.com>
- British Standards Institution (2006). *Slider fasteners-specification*. Retrieved June 16, 2013 <http://www.bsi-global.com>.
- Buchanan, J., and Mayer, K. (2002). *The complete book of sewing: A practical step – by step*
- Diamond, E., and Diamond, J. (2007) *Fashion Apparel, Accessories, Home Furnishings*. New Jersey: Pearson education, Inc
- Frings, G.S. (2002). *Fashion from concept to consumer* (6th ed.). United State of America, USA: Prentice Hall Incorporated.
- Gaddis, P. J. (2011). Sewing closures buttons, fasteners and zippers. Retrieved December 19th, 2011, from <http://www.thesewingparthner.com/sawingon>,
- Garner, M. B., & Keiser, S. J. (2012). *Beyond design: The synergy of apparel product development* (3th ed.). New York: Fairchild Books.
- Jyler, D. J. (2008). *Carr and Latham's Technology of Clothing Manufacture* (4th ed) United Kingdom, U K: Blackwell Publishing.
- Robinson, S. (2010) *Dress making accessories*. United Kingdom, UK: Bery Editorial offices.
- Secret, R. (2009). How is the zipper made? Retrieved April 28th, 2010, from <http://www.encyclopedia.com>
- Stone, E. (2004). *The Dynamics of Fashion* (2nd ed.). New York: Fairchild Publications.
- Thomas, P. W. (2009). *Zipper fashion and tape decoration fashion trends For Autumn and Winter 2009 – 2010*. Retrieved October 15, 2011, from <http://www.fashion-gra.com>
- White, D. E. (2009). *History of buttons*. Retrieved September 24, 2011, from <http://www.dewhite@best.com>