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Citation: Montgomery, Bruce, Henry, Gael and Brotheridge, Anthony (2016) 'The White Shirt Project' (an exploration of the influence of geometrics and tactile knowledge in fashion pattern cutting). International Journal of Fashion Design, Technology and Education, 9. pp. 153-160. ISSN 1754-3266

Published by: Taylor & Francis

URL: <http://dx.doi.org/10.1080/17543266.2016.1165741>
<<http://dx.doi.org/10.1080/17543266.2016.1165741>>

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The White Shirt project' (An exploration into the influence of geometrics and tactile knowledge in fashion pattern cutting.)

Introduction

The ever-changing fashion design world will always require new ways to create products and desirable objects but, although the design industries are renowned for breaking down traditional routes and constantly questioning ideals, we have arrived at a point where technology is probably moving too fast for the complete design process to cope with. While visual computer programmes and design software can now assist the designer with virtually all aspects of design creation, the sensory aspect and tactile manipulation of materials is either being forgotten or left to such a late stage in the design process that it is affecting the quality of the end result e.g. In fast fashion, designers are often sending CAD designs to factories without having explored tactile properties of the materials. In order to create better products from a fashion design perspective, we need to explore the challenges opportunities and forward thinking that tacit and tactile knowledge and experience can offer, particularly in the learning process of garment construction. Within this a key part of the process is the ability to cut a pattern that can both help create the design and also assist with the manufacturing process. The paper is positioned as pedagogic research, which involved a project assigned to students, and evaluates the project's effectiveness in teaching and learning using the inspiration of geometric shapes to aid tactile knowledge in pattern making.

- It questions whether we have allowed designers to depend too much on technology to the degree that designers are missing out on developing garment construction and pattern cutting knowledge through a lack of tactile skills both in industry and in education. Are we allowing the next generation to move even further away from Sennett's vision of the novice to practitioner and eventually expert? In fact he goes further to say 'thinking and feeling are contained within the process of making'. Sennett (2008)

The paper concludes that there may be creative benefits if pattern cutting teaching methods are developed in a more tactile direction in fashion design education in the **future**.

The importance of pattern cutting and pedagogical research

'Looking around us, we can easily imagine how most objects can be unfolded if we picture a thin layer of skin covering them' this quote, from the 'Block Party' exhibition created by Lucy Orta,(2011) visual artist and Fashion Professor at London College of Fashion, describes the new attitude to pattern making is about thought processes.

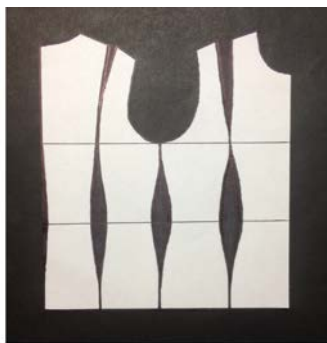


Fig 1.Henry G 2015

Pattern cutting is an integral part of the fashion design and garment make process but it is also an area that has been a stumbling block for many fashion students who see it as either boring, too technical or something that should be done by a pattern cutting technician. However, in order to develop design skills, a knowledge of pattern making cannot be ignored.

What is key is to adopt a method of teaching this subject that allows the students to experiment, and go straight into challenging shapes, volume and silhouettes and learn with a sense of enjoyment and satisfaction.

There is a gap in the reference material available to students between for instance the books by authors Campbell (1980) or Aldrich (1996) which are slightly mathematical in approach and the 'Pattern magic' series by Nakamichi (2010) which is overtly creative and not for the inexperienced. Chunman(2011) has to some extent bridged this gap. Chunman also suggests that the creative approach to the art of pattern

making can act as an inspiration for garment design rather than just a means of translating a 2D sketch to a 3D shape.

If we consider the work of fashion designers John Galliano, Alexander McQueen and Yohji Yamamoto, their creations carry a unique signature in terms of cut, silhouette and shape. While they were trained as pattern makers as well as designers it was the major impact of the work of Rei Kawakubo for Comme des Garçons in 1980 that gave garments and pattern cutting a sense of freedom with the deconstructed approach. This attitude was echoed in the Balenciaga A/W 2013 collection designed by Alexander Wang, which was inspired by geometric shapes such as the triangle, circle and square. The discussion in this paper is around how such an approach can be used as a teaching tool that challenges the students, allows them to experiment and provides both a functional and conceptual training.

The geometric inspiration method, where step one is creating pattern shapes rather than a design sketch is different from other methods used by some lecturers and institutions. Almost all introductory pattern cutting courses or books start from the basic bodice block, showing how to manipulate it to create changes in design and style. This classic approach tends to maintain the existence of side seams and darts. We wanted the students to challenge this design standard – it's like breaking the rules before they are learnt.

The project brief

The project is designed to act as an introduction to garment construction for 1st year fashion students.

Creative Shirt Design

A NEW ANGLE

This brief presents a creative cutting approach to your shirt design that encourages you to think 'out of the box', to develop your designs in a practical, 2D to 3D manner, while focusing on silhouette and control of volume around the body.

Japanese Designer, Yohji Yamamoto expresses a similar sentiment:

...Sketches do not determine the clothing. It is, rather, the fabric and the human form that guide one towards the discovery of a personal mode. I have repeatedly said, 'are you listening?' The fabric has much to teach us, how does the cloth want to drape, to sway, to fall? If one keeps these things in mind and looks very carefully, the fabric itself begins to speak, 'this is the type of clothing I wish to become.'

From this starting point and using inspiration from your summer research (if applicable), your shirt design (men's or womenswear) will exemplify, A NEW ANGLE, in its widest possible interpretation. The module briefing presentation will explain the experimental approach in more detail. The only constraints on your creativity are that the shirt must contain the standard neckline with a 2-piece collar, a straight shirt placket (long or short), and a cuff with opening on the sleeve(s). These are key elements of a classic shirt, which you have already studied.

CPI – Creative Process Journal. From day one record – your activities in an A3 journal that shows your creative journey in this project: your experiments, developments, tests, samples and conclusions. Presented through drawing, notes, digital work, photography, with some relevant technical information and design inspiration.

Work Requirements and Submission Dates

Submit: Creative Shirt; Final Pattern including flat drawing; A3 Creative Process Journal with summary page.

Creative Shirt Critique - to be held in CCE2 Foyer (tbc)

This critique will take the form of a walk-thro' fashion show of all the shirts, presented on models in groups (tbc). Staff will complete tick-box evaluation forms. Following this, students will put their shirts onto mannequins, alongside the Process Journal summary page, and complete the self-reflection form. Brief feedback tutorials with each student will be held, based on the self-reflection forms. It is the student's responsibility to find suitable models for the walk-thro show - you can use each other but it must be planned in advance.

Throughout the project the authors of the brief provided some guidance:

1. Lay out the shirt blocks, joined in the order that they sit on the body. This layout will help you to create 3D style lines that have continuity, that contrast or compliment the body on the front, the back, the sides, and hem. Style/seam lines here may come from your research.
2. Draw seam positions. Draw lines that will be seams - straight - Curved - Angled
3. Decisions on Volume: Consider where you want the shirt to have volume – where are you going to place the slash lines? Also, you can draw a new hemline.
4. To create volume Trace off, cut out and separate the pieces at the new seam lines & at the existing side seams. Cut up the slash lines, leaving them joined on the edge where you don't want to change the volume. Spread the sections.
5. This shows the new shapes - to be traced off as pattern pieces.
6. Make sure you understand where, on your draft, the seams are... a seam is where your pattern will be separated into two or more pieces. You can keep the side seams as on the block, or choose new positions. But always be aware of the width of your fabric – this could restrict large pattern pieces. (150cm wide for this project) Also be aware, as pattern shapes become changed, of how the grain line of your fabric sits on the pattern pieces.
7. Trace off your newly developed shapes.
8. Each pattern piece needs a grain line, balance notches and seam allowances.
9. The block already has sleeve/armhole notches to copy.
10. Write useful names on each pattern piece, notches and marks that help you understand it e.g.: Centre Front (CF), Centre Back (CB), Side Seam (SS), and if needed, neckline, armhole, underarm point, angle point, pleat, gather, fold, hemline etc.
11. You will work with mini blocks and half scale mannequins, so you can have several attempts and save on time and materials. Fit your created styles on the mini mannequins. You can experiment with mini shapes and trials at home – a plastic bottle could be your mannequin. Use Vilene (holds shape and doesn't fray). Vilene can be pinned or sewn together.
12. You will follow up the trial models into a full-scale pattern and toile, to fully test your shirt design. Use the same pattern cutting techniques on the full scale as you used in miniature.

The method

We conducted research to observe the creative process of a group of fashion students who were set a fairly open brief with a few precise restrictions in order to learn about basic garment construction. Through a method of pattern cutting teaching we were able to look at the pedagogic learning process. The study comprised of a group of 60 1st year BA (Hons) Fashion students. The research and observations had been conducted over a 3 year period. The paper however intends to focus on the most recent brief which involved the introduction of using geometric shapes as the inspiration and proved particularly successful.

Research methodology

The following methods were used to gather data

1. Shadowing /observation

The method used for the research is a series of projects using geometric shapes as a theme for a research project instigated by BA Honors Fashion students at the University of Northumbria. The students investigated new ways, concepts and technical research that would influence the way we design, make and retail fashion products. The research project was designed to re-engage the fashion industry to the intimacy of materials through touch and emotion. The project vision was to capture and communicate the tactile senses through visual concepts that mix sensory, tactile experiences and garments. The students were observed over several weeks. The aim being to show that understanding volume, and more specifically drape, 3D contours and tactile handling of material adds to a designer's knowledge while also aiding comparative thinking in teaching and learning.

2. Documenting peer critique comments were recorded.

- For the first student cohort, two circles of calico were given to each student.

Fig 2. Examples on mini mannequins.



- Working in full scale, they cut a hole or slit for the neck and began draping, pinning and seaming with the very large expanses of cloth. Eventually, refinement of the shapes evolved into shirt-like 'sculpted' garments (also with the rule of including collar, placket and cuff). These final designs tended to feature billowing silhouettes, curved drapes and hems.
- The second cohort were given ready cut square pieces of calico and again worked with slits, holes, draping, folding and seaming. The final designs tended to feature sharper corners and folds, and generally straighter lines.
- In the third cohort we aimed to address arising issues above, as well as introduce a different approach. We concluded (after discussions with tech staff and thro' our own reviews) that set necklines and set armholes were needed to control the 'technical' details of the shirts. Having set elements like this, and needing to be more economical on cloth meant we returned to the use of blocks. In order to maintain an experimental approach that did not fall into the 'front, back, side seams' formula, we introduced the slashing and flaring technique, and applied it to shirt blocks that were joined together in the first draft. The layout of the blocks and the way research imagery could be superimposed on the first draft was what, in theory, could provide surprising seam positions and exciting silhouette potential.
- This project was entitled 'A New Angle': The title reflected the research we had asked the students to do as preparation. It reflected aspirational silhouettes, and the seam structures that we encouraged the students to utilise (this was demonstrated in powerpoint slides). The student's development of these ideas was done on half scale mannequins, using Vilene material, which was easy to handle and quick to sew.

3. Exhibition

The final results were selected for a curated exhibition called 'The White Shirt Project'.



Fig 3. White shirt exhibition

Research findings

The observations and end garments produced for the exhibition showed that a greater understanding of pattern cutting techniques can be achieved and that the barriers of students feeling that pattern cutting is too mathematical and technical are easily overcome. The garments produced changed the concept of the classic white shirt as a male dominated item. The research helped to celebrate the shirt as an 'item' that could make a design statement, yet be functional while learning important stages of garment production. While shirt details were researched this was very much about learning through doing, creating a sense of space and volume in the designs, taking 3D design to another level. Understanding, for instance, that side seams are not essential in a garment and that without them an aesthetically pleasing and functional shirt can be produced, is technical knowledge that can benefit future designs. Working in calico to poplin, 3D to 2D pattern, reversing the process but touching the fabric early, allowed the students to feel they were making a jigsaw that must go back together as they intended. This way they felt in control of the process. The use of working on small scale saved time, financial resources on materials and allowed the students to continue to work off site. As the students continued to evaluate and refine the design they then saw the garment in 3D form before utilising sewing skills to turn their experiments into brilliant and desirable fashion garments!

How the student learning experience changes due to the geometric method

The results of this third approach were broadly: Exciting mini mannequin silhouettes, a relatively trouble free translation to full size patterns and excellent detail in collars cuffs and seam finishes on the final garments. However, the downsides were: Less exciting silhouettes in the full size - volume was lost or changed, and slightly more conventional looking garments were produced.

The students developed their 'fashion eye' to make design judgements and decisions.

On evaluating their Vilene mini silhouettes, they had to then work through the 2D to 3D process and evaluate whether the design in full scale would maintain the 3D shape or collapse? Questions arose such as how the silhouette would react in the shirt fabric? Would 'collapse' be a desired design outcome? Did the silhouette need refinement? How far had the design progressed from the original shape?

The difficulties with the two methods of the first two cohorts were to do with students handling large volumes of cloth on mannequins and not having the knowledge or confidence to cut it. On some occasions they would cut away too much and remove all the interesting volume. The teaching team endeavored to encourage bold silhouettes and wearable shapes. Many such successes were achieved. Throughout the research period the drawbacks were: The finish of the shirt details were sometimes clumsy (possibly due to time and deadline challenges); the pressure towards the end to finish garments being immense and requiring extra staff support; the draping of squares and circles of calico on full size mannequins became very costly, with a cohort of 60 students.

The students struggled (a positive part of their learning). They embarked on a journey that was unknown at the start, and ended up in a new place with new knowledge (to them). Students were 'drawing' with cloth, reacting to how it behaved. The end result was not anticipated and they did not utilise previously understood standards. The teaching was different because staff presented a starting point that was a jump into the middle of pattern cutting knowledge, not to start at 'A' and travel to 'Z'. The students gained knowledge through their diverse approaches, their challenges and through having no preconceptions. They did not draw a design first. That would be cutting patterns to the vision in their head and their vision on paper. To reiterate the words of Japanese Designer, Yohji Yamamoto; *...Sketches do not determine the clothing. It is, rather, the fabric and the human form...* Mitsuda A (2010)

The hands on, practical approach was more like sculpting with cloth and mannequin, an exercise from which an accurate pattern did have to be constructed eventually. The students were nervous and afraid to start with, certainly out of their comfort zone. Interestingly, those who had previous fashion and pattern cutting experience struggled more, as this was not what they knew or were familiar with. They did not like not knowing where it was leading. In the end however, the vast majority had overcome their fear and wrote in feedback questionnaires how much they had learnt. They had gained confidence in pattern cutting. 98% of the final shirts produced were designed without side seams. And the students did not actually think this was odd or different. Side seams just did not figure in the process because there were so many alternatives open to them through the approach we presented. While the students had not wholly anticipated the end result, the staff had some anticipation of end results, and indeed judged the success of the module on how closely these were achieved. Judgments included the evaluation of harmony between body and silhouette, silhouette and cloth and the tactile understanding demonstrated therein.

Wider discussion - Tacit and tactile knowledge

Tactile is the ability to touch and understand physical properties using our human senses and emotional experiences to build up a memory bank that is then used to make decisions from based on previous experience. Tacit knowledge is unspoken, the knowledge a craftsman possesses. Yet we need touch to make the tacit decision as to which we prefer.

The architect Ken-Ichi Sasaki (2008) said 'The most important factor in the aesthetics of the city is not visuality but tactility. I consider visuality as the viewpoint of the visitor to a city, and tactility as that of its inhabitants.' He then linked this to:

"Tactile knowledge" is what we feel in the presence of an object: the smells of a street, the texture of a building, and the grade of a hill. It is the knowledge gained through contact or direct experience with an event or environment. This puts into context tactile touch, as a sense that enables depth of sensory experience and emotion to be added to vision and sound to create new knowledge.

The process of touch during pattern cutting creation is under developed. Touch is a source of new knowledge; it identifies the pleasure system and can stimulate emotional well-being, through fibres that pick up on our pleasure and sensory feelings. So can we have clothes that enhance how we feel as well as being aesthetically pleasing? Our curiosity should enable us to develop memory databases from touch-absorbed information and use this to create new things. This would allow designers to think how to create or to solve their design problem rather than simply translate a 2D sketch into a 3D garment.

Craftsmanship

Within the repertoire of a skilled crafts person, an inbuilt knowledge and an appreciation of the five senses are apparent. Touch, smell, sight, taste and sound. Due to the continued overload of digital technology it is not surprising that in the fashion world there has begun a return to craftsmanship, skills and traditional methods of producing product. 'In a workshop where the master's individuality and distinctiveness dominates, tacit knowledge is likely to dominate'. Sennett.(2008)

It is possible to remember a piece of textiles after touching it far longer than verbal descriptions remain in our memory. The inability to define something we make can make use of our sensory skills. Its only when we are struggling to define something do we start to describe it in tactile terms. We need to engage with materials and processes, understand the materials and the methods we are working through the study of craft processes.

If one looks back through history it is evident that the British craftsmanship of Thomas Chippendale, Josiah Wedgwood, Roger Payne, William Morris and Henry Cole would not have been possible without a combination of tactile skill and 'trial and error'. It has been said that an expert is someone who has made every mistake possible – a heartening observation for struggling students. To quote the craft council executive summary 2010 edited by Mary Schwaz and Dr Karen Yair. Craft is a "Sense of achievement and ownership: from experiencing the immediacy and concreteness of materials and always being able to produce something that belongs to them, to be kept for themselves or shared with others'. [8]

Research impact

The White Shirt Project is part of an on-going collaboration between Tyne & Wear Archives & Museums and Northumbria University at the Shipley Art Gallery. Originally opened in 1917, the Shipley Art Gallery is the North East's leading gallery for contemporary craft and design including ceramics, wood, metal, glass, textiles and furniture. The Shipley stages a varied programme of temporary exhibitions as well as regular events and activities for all ages and so was the ideal venue to show the result of the research to a wider audience. The exhibition of the fashion student's work was viewed by fashion lecturers, members of the creative industry, students and the general public. A giant 'comments shirt' was part of the exhibition.

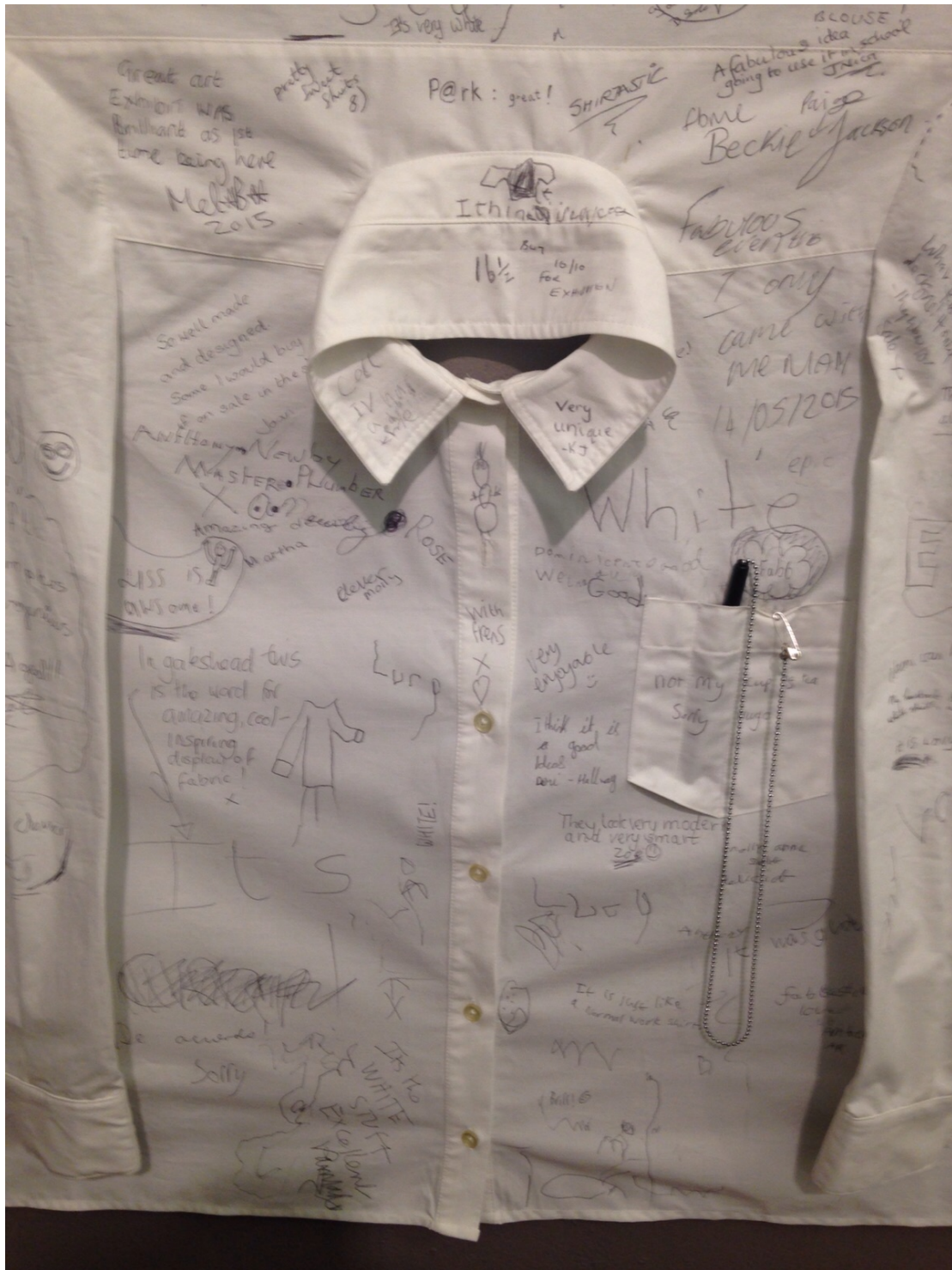


Fig 4. Comment shirt in the exhibition at the Shipley Gallery Gateshead. July 2015.

The exhibited shirts provided a visual narrative that questioned proportion, silhouette, volume and movement, and developed tactile knowledge that was easily understood by a variety of ages and backgrounds. Attendance by schools at the exhibition was particularly encouraging. The reaction was generally very positive. There was strong footfall and a follow up future exhibition at the Shipley or the Discovery museum is already in discussion. The project continues to develop and evolve at the Northumbria University School of Design.

The impact on the learning experience,

We are presenting an approach to design that will help to move away from the standard, to find something new and experimental. The project was a 'start and see what happens approach', to breakdown inhibitions and fear of a technical subject. We, the staff, had informed the students 'expect surprises!'

This approach to design and pattern cutting helped the students to experiment with ideas for shape, silhouette and volume, using angles and geometrics to designs new more directional creative shapes. It is useful to compare the process to like a musician, going from reading music, to improvisation, being led by the sound of the music rather than the score. The important point to be made was that the students were initially be led by the cutting, the behaviour of the fabric and the shape it forms on the body, rather than by a pre-conceived design idea.

Impact on industry

Northumbria University fashion graduates work with major brands. Their design education needs to be creative but commercial at the same time. The White Shirt Project challenges the relationship between dress, pattern making and the body in a contemporary form of self-expression that is especially relevant to today's fashion environment and therefore has been successful to this effect.

Conclusion

Universities, research centres and industry links have for years prepared the graduates for design leadership, in commerce and design in Industry. The Knowledge and skills they gain is intended to allow them to be at the top of their fields. The programmes must respond to the needs and changes in order to sustain the drive and future development. As Commerce and industry change it must review the academic programmes. Research compiled by fashion staff must be at the forefront using innovative processes. Therefore in order to avoid wasting resources, Design must explore new boundaries, challenge the way we think, and design, and be forward thinking. The on going work in progress research is aiming to show that it is therefore imperative that designers gain a sense of tactile experience in order to make an impact on future product, in this case through inspiration from geometric shapes. The problem of measuring and analysing tactile data and simulations is not at times particularly easy, due to our human observations. However, what has been proved on numerous occasions is that the lack of tactile experiences and sensations does limit our growth and knowledge.

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Image Fig Ref list

Fig 1 Pattern pieces illustrated by Henry G 2015

Fig 2 Students work on mini mannequins .

Fig 3 White Shirt Exhibition image Shipley gallery Gateshead Newcastle July 2015.

Fig 4 Comment shirt at the exhibition Shipley gallery Gateshead Newcastle July 2015.