

# *Surpassing Tradition: 'Four-Shaft' and 'Eight-Shaft' Harris Tweed Textile Collections*

This document provides an overview of the research project 'Surpassing Tradition: The Harris Tweed Textile Design Innovation Project' and describes the creation of the output *Surpassing Tradition: 'Four-Shaft' and 'Eight-Shaft' Harris Tweed Textile Collections*.

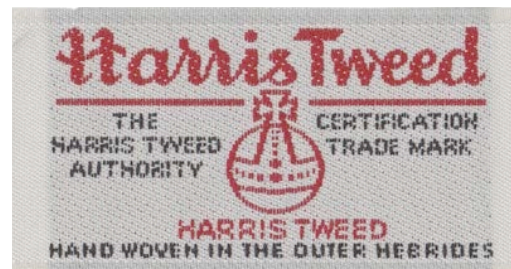
The intention of the project is described, historical and contemporary Harris Tweed context visually represented, methods explained and practical investigations represented. Textile examples from the 'Four-Shaft' and 'Eight-Shaft' Collections are presented. The document concludes with a series of proposals to enhance Harris Tweed design innovation and reflection on the methods adopted.

Elaine Bremner

## Intention of Project

To investigate design innovation possibilities in the creation of Harris Tweed fabric.

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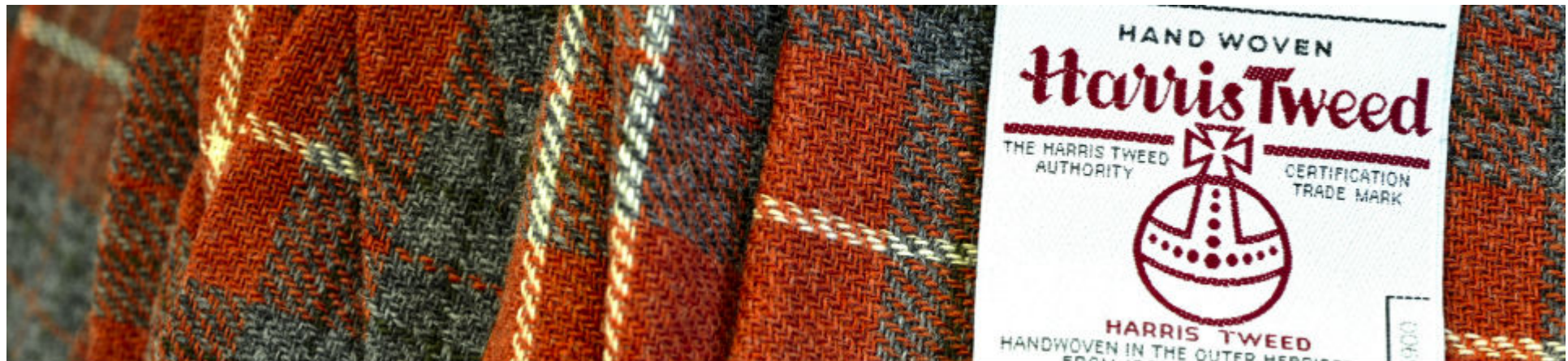


## Historical Context

### Definition of Harris Tweed Fabric

‘...handwoven by the islanders at their homes in the Outer Hebrides, finished in the Outer Hebrides and made from pure virgin wool dyed and spun in the Outer Hebrides...’

(HMSO 1993: 7)



<http://www.harristweedhebrides.com>

## Historical Context

### Traditional and Practical Application of Harris Tweed Fabric Examples



<http://www.harristweed.org/archive/index.php>



## Historical Context

### Traditional and Practical Application of Harris Tweed Fabric Examples



Author, 2011

## Contemporary Context

### Contemporary Fashion Applications of Harris Tweed Fabric Examples



Paul Smith Autumn/Winter 09-10, [www.vogue.co.uk](http://www.vogue.co.uk)



Paul Smith, [www.paulsmith.com](http://www.paulsmith.com)



Harris Tweed Hebrides / Topman, [www.harristweed.org](http://www.harristweed.org)



## Contemporary Context

### Contemporary Fashion Accessory Applications of Harris Tweed Fabric Examples



<http://www.highsnobiety.com/2010/10/05/nike-air-royalty-harris-tweed-vach-pack/>



[www.asos.com](http://www.asos.com)



[www.clarks.co.uk](http://www.clarks.co.uk)



<http://www.selectism.com/2010/12/06/fred-perry-harris-tweed-bags/>

## Contemporary Context

### Contemporary Interior Applications of Harris Tweed Fabric Examples



<http://www.townhousecompany.com/blythwoodsquare/>





## Research Methods

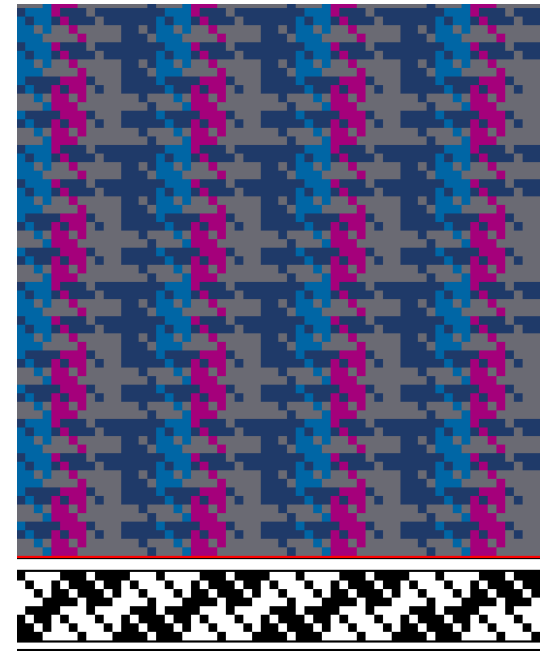
- Interviews with Harris Tweed Industry Representatives, Designers and Weavers
- Site and Archive Visits
- Practitioner-Researcher Investigations



Harris Tweed Weaver



Harris Tweed Archive Pattern Book



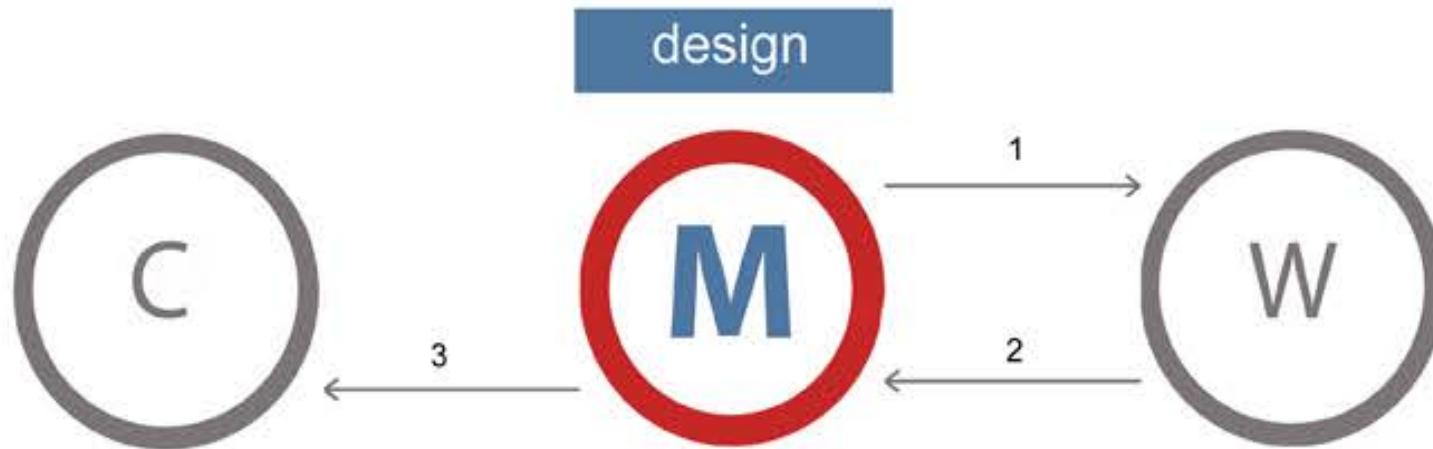
Warp 5 - Harris Tweed CAD Design

## Harris Tweed Design and Production Models

A series of four diagrams showing models of existing Harris Tweed design and production processes, depicting relationships between customer, mill and weaver, resulted from analysis of data collected during interviews, site and archive visits.

## Harris Tweed Design and Production Models

### Mill Driven Model

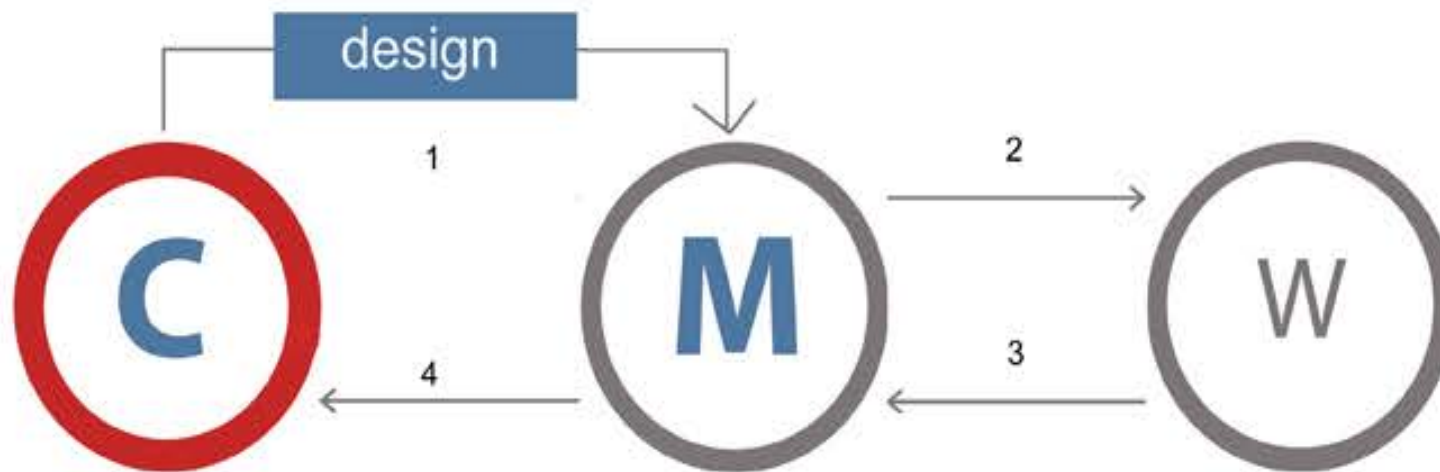


- 1 – mill prepares yarn and delivers to weaver
- 2 – fabric woven by weaver and collected by mill
- 3 – sold to customer



## Harris Tweed Design and Production Models

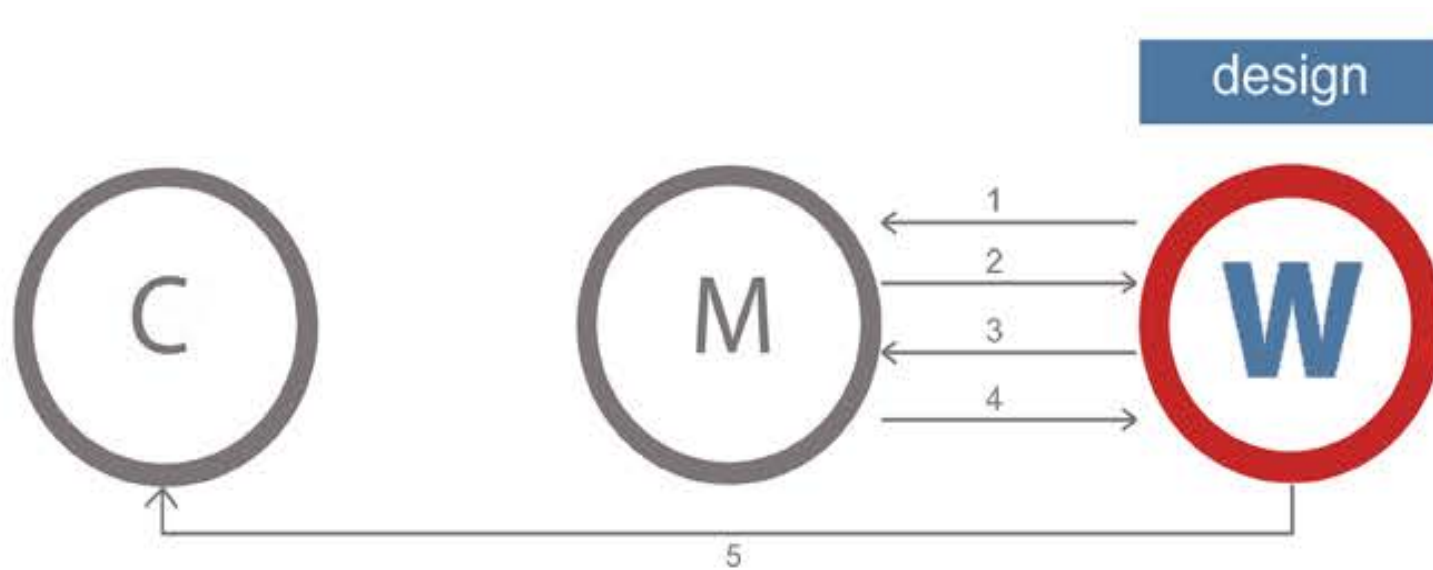
### Customer Initiated Mill Model



- 1 – design process between customer and mill
- 2 – mill prepares yarn and delivers to the weaver
- 3 – fabric woven and collected by mill
- 4 – sold to customer

## Harris Tweed Design and Production Models

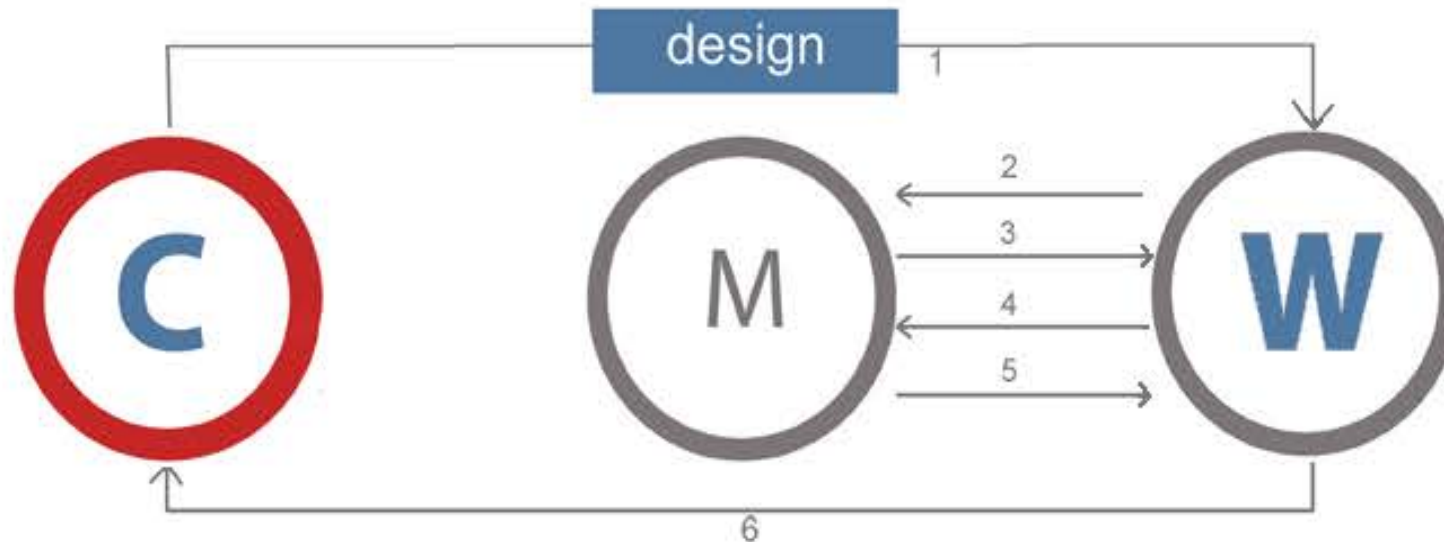
### Weaver Driven Model



- 1 – weaver selects and purchases yarn from mill
- 2 – mill prepares yarn and delivers to weaver
- 3 – fabric is woven and collected by the mill
- 4 – delivered back to weaver
- 5 – sold to customer

## Harris Tweed Design and Production Models

### Customer Initiated – Weaver Model



- 1 – design process between customer and mill
- 2 – weaver selects and purchases yarn from mill
- 3 – mill prepares yarn and delivers to weaver
- 4 – fabric is woven and collected by the mill
- 5 – delivered back to weaver
- 6 – sold to customer



## Reflection on Existing Harris Tweed Design Practice and Processes

The majority of Harris Tweed fabrics are created through adapting previously woven fabrics by changing colours. It also appears that a limited range of woven structures are utilised. Examining existent design practice and processes indicates minimal opportunity for exploration and confirms the scope for an investigative approach to design innovation.

Due to time spent working in industry expert pattern designers and weavers accrue a wealth of knowledge. There does not appear to be a system in place to record the design process, or method to document insight relating to yarn colour blends, structures, drafts or fabrics. Selection during the design process is based on an expert's ability to internally visualise the likely outcome of a different structure and colour combination. Therefore, it is highly necessary to explicate the Harris Tweed textile design process to enable transference of knowledge to future generations.

The use of computers as part of the design process at Harris Tweed Hebrides was found to be non-existent although a rather archaic system did exist at another island mill.

## Practitioner-Researcher Investigations

Understanding gained regarding existing design practice, processes and fabrics directed the practical investigations. Each investigation was recorded and documented through sketches, peg plans, technical data, photographs, digital files and textile samples.

Pointcarré, computer aided design (CAD) software was used at varying stages. Prior to commencing weaving a warp, samples to be achieved on that warp were designed by the author using hand-drawn techniques and CAD. While sampling these predetermined designs, observations were made regarding the effect of introducing alternative weft colours or patterns. Changes to patterns and weft colours were made immediately during the sampling of a particular warp, with other ideas recorded to inform future warps.

The initial intention was to investigate design possibilities viable on looms currently used in the production of Harris Tweed fabric (four shaft patterns). The investigations then extended to explore the possibilities of designs that could be produced if changes were made to existing looms (eight shaft patterns). The focus was to create designs that extend beyond those currently manufactured or evident in archives.

The two resulting Collections each comprise 20 small fabric samples (dimensions are 5cms x 10cms or 10cms x 20cms) and two fabric 'test blankets' (dimensions are approximately 40cm x 70cms).

## Practitioner-Researcher Investigations

### Development of 'Four-Shaft' Collection Textiles

Warps 1 and 2 were set up to explore four shaft patterns. Some of these warps produced samples with patterns and surface qualities quite different to the existing Harris Tweed fabrics observed. Warp 1 produced samples which, due to the longer float length and grouping of warp floats, had much more surface texture than any existing or previously produced Harris Tweed fabric.



## Practitioner-Researcher Investigations

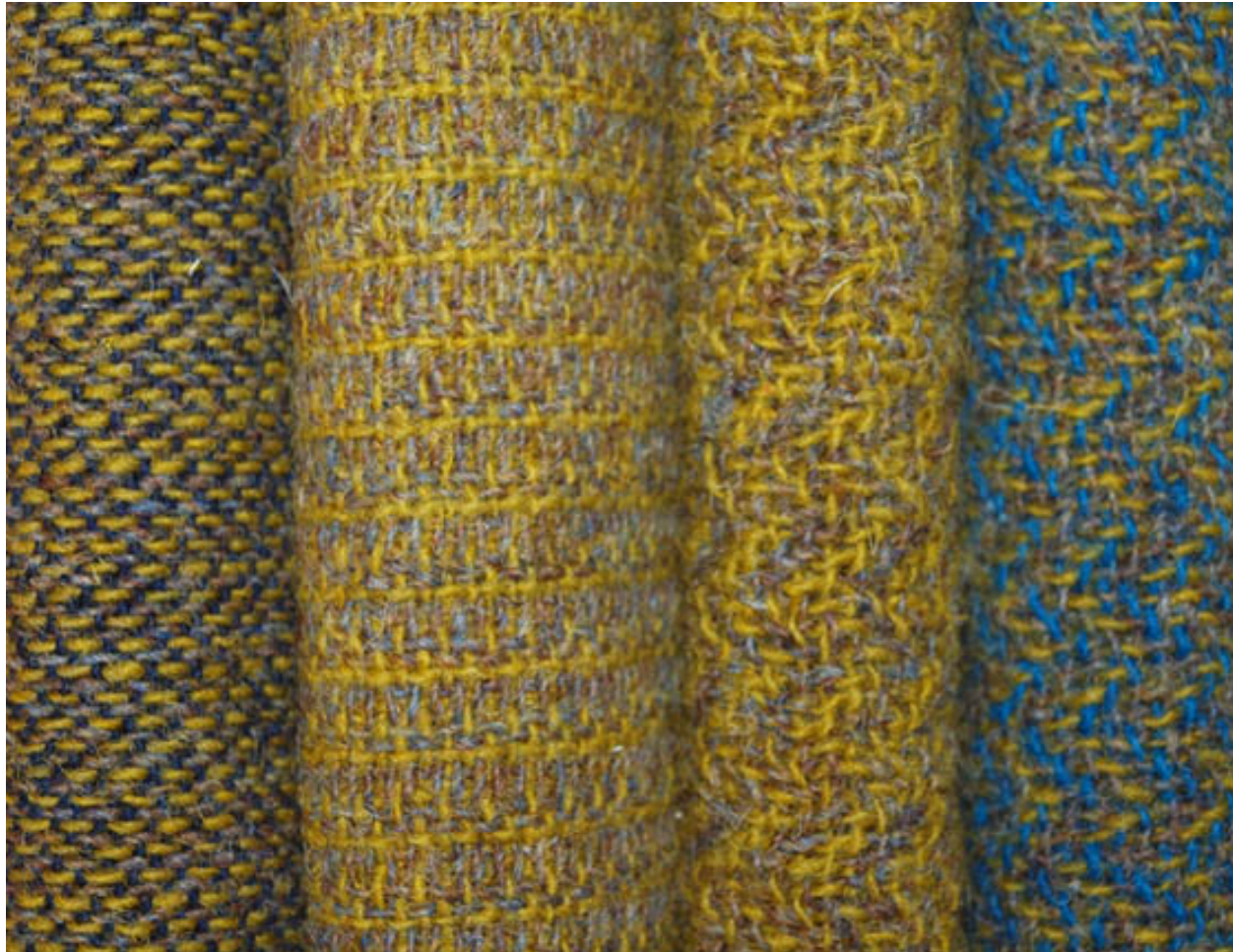
Development of 'Four-Shaft' Collection Textiles



Selected Warp 1 Samples

## Practitioner-Researcher Investigations

Development of 'Four-Shaft' Collection Textiles



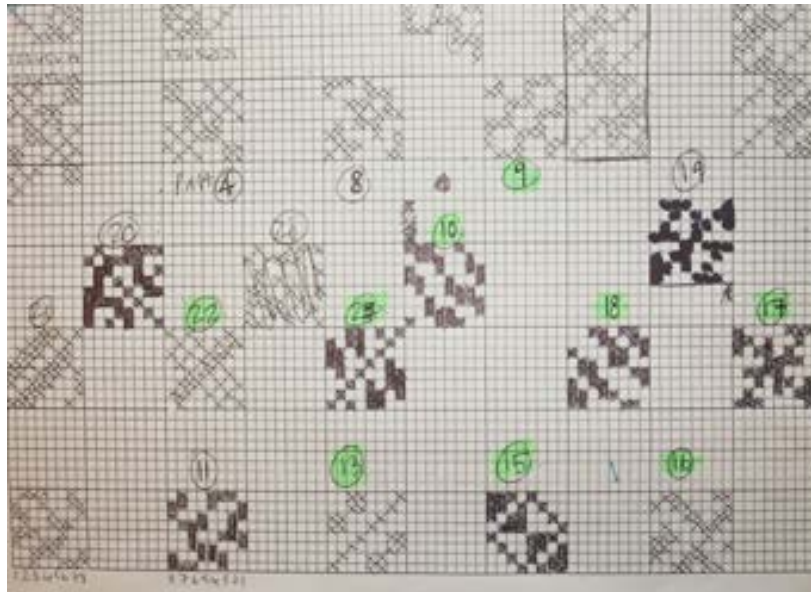
Selected Warp 2 Samples



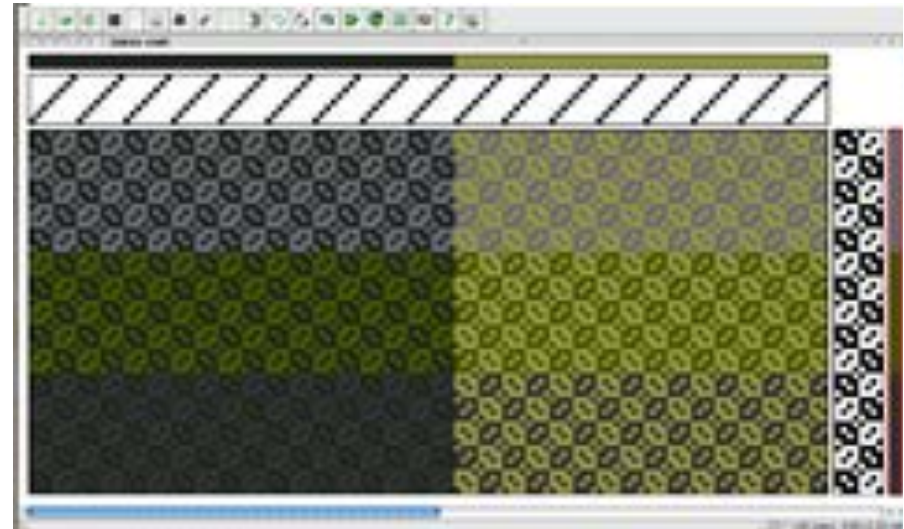
## Practitioner-Researcher Investigations

### Development of 'Eight-Shaft' Collection Textiles

The first of the eight shaft warps (warp 3) was set up using a draft and structures selected based on previous weaving knowledge. Structures were initially explored by hand drawing on pointpaper and were later transferred to CAD primarily as a means of recording structures used.



Design drawings on pointpaper (warp 3)



CAD drawn design (warp 3)

## Practitioner-Researcher Investigations

### Development of 'Eight-Shaft' Collection Textiles



Selected Warp 3 Samples



## Practitioner-Researcher Investigations

### Development of 'Eight-Shaft' Collection Textiles

Warp 4 used the same draft and structures as warp 3 but introduced different groupings of coloured threads in the warp (8 dark blue threads and 8 green threads in repeat) and different combinations in the weft, which produced a set of designs that were visually completely different from previous samples woven as part of this research and different to existing Harris Tweed samples; it was possible to produce similar patterns at a larger scale or create completely new ones.

## Practitioner-Researcher Investigations

Development of 'Eight-Shaft' Collection Textiles



Selected Warp 4 Samples

## Practitioner-Researcher Investigations

### Development of 'Eight-Shaft' Collection Textiles

In warp 5 seven different sections of warp and weft colour orders were being considered, this would produce 49 different possible designs from each individual pegplan. Fifteen different pegplans were under consideration as possibilities for weaving - this meant a total of 735 possible designs could be woven on this particular warp. A method of selection had to be developed prior to setting up the loom.

The intention was to identify those combinations of structures and colours that were not evident in existing Harris Tweed Collections or archives. The researcher used knowledge of previous warp structures, in conjunction with CAD visualisations to make informed choices about pegplan selection for weaving.

Each design received a score from zero to four, with zero showing the least potential and four showing the most potential to produce an innovative design. Potential was assessed on the new aesthetic look of a design, surface texture due to combination or placement of warp or weft floats, drape and handle.

The example scoring sheet shows design scoring 3 highlighted by a green circle and those scoring 4 with a green block. Pegplans with the most high-scoring weft colour orders were selected to be woven.

## Practitioner-Researcher Investigations

### Development of 'Eight-Shift' Collection Textiles

WARP 5 PATTERN 10 **WVEN**

REMOVE THIS SECTION

NTPD	GREY	SPD	2ND	4TH	6TH	8TH	10TH	
A	B	C	D	E	F	G	H	
0	0	0	2	2	0	2	3	1
3	1	1	3	3	0	4	4	2
0	0	0	1	0	1	6	0	3
1	1	1	3	3	0	4	4	4
4	2	3	4	4	0	3	5	5
4	2	4	3	3	0	2	2	6
2	2 (old)	2	2	2	2	3	3	7
3	2	3	3	3	0	3	3	8

DONT WARP

Warp 5 Example Scoring Sheet



## Practitioner-Researcher Investigations

Development of 'Eight-Shaft' Collection Textiles



Selected Warp 5 Samples

## Practitioner-Researcher Investigations

### Development of 'Eight-Shaft' Collection Textiles

Warp 6 utilised the same threading order and selected structures from warp 3 and 4 along with colour orders and combinations resulting from reflections on those employed in warp 5. The samples from this warp, contain a vast number of designs many of which are quite distinct from samples produced earlier in the project or existing Harris Tweed samples.

The selection method developed in Warp 5 was also utilised when considering the set up of warp 6 and warp 7.

## Practitioner-Researcher Investigations

Development of 'Eight-Shaft' Collection Textiles



Selected Warp 6 Samples

## Practitioner-Researcher Investigations

### Development of 'Four-Shaft' Collection Textiles

Warp 7 returned to use only four shafts and used a draft and set of structures informed by warp 2, but also used knowledge gained during the 8 shaft investigations regarding colour orders and combinations of warp and weft yarns. Samples from warp 7 have similarities to warp 2 samples, however, the patterns are more clearly shown as the two warp colours are more contrasting than those used in warp 2.



## Practitioner-Researcher Investigations

Development of 'Four-Shaft' Collection Textiles



Selected Warp 7 Samples



## Proposals to enhance Harris Tweed Design Innovation

### *'Four-Shaft' fabric developments*

Four-shaft designs produced offer an immediate solution to increasing the range of Harris Tweed fabrics. These could be woven on the existing looms, requiring little investment. Four shaft designs received a favourable response from Harris Tweed Hebrides. Technical data will be provided for a selection of these designs for production by Harris Tweed Hebrides, market feedback will be sought from customers.

### *'Eight-Shaft' fabric developments*

Adapting existing looms or introducing new looms with eight boards would facilitate the possibility of creating a vast array of new designs. Harris Tweed Hebrides representatives selected eight shaft patterns, as the production of these fabrics requires loom adaptation, sample lengths are to be woven at GSA and industrially milled by HTH to test the effect of the finishing process and prompt further loom adaptation discussion.

## Proposals to enhance Harris Tweed Design Innovation

### *Practitioner-researcher influencing designer-weaver*

The way in which the Harris Tweed industry operates, and the relationship between mill and weaver could be developed. The author as practitioner-researcher, used a cyclical design process. Weavers producing for a mill work laterally and are not involved in fabric design. However, these individuals possess a wealth of understanding of woven structures. Capitalising on their insight and establishing ways for mills to work more closely with weavers could lead to new design ideas and innovations.

### *Training designer-weavers and potential to extend the role of the weaver*

Due to current market demand, the existing population of weavers is fully occupied with 'business as usual production', using tried and tested structures, leaving little time for research and development or the inter-generational transfer of tacit knowledge. To allow further innovation to take place, ways need to be established to permit time for speculative sampling and testing of new ideas and structures. Interaction between older and newer generations of weavers needs to be facilitated to encourage transference of insight.

### *CAD utilisation*

Weave specific CAD software was used throughout the practical investigations to aid the design and selection process. CAD became essential to the design process when creating eight shafts patterns. CAD could be introduced into the design of Harris Tweed to record and archive previously woven samples, this would be a valuable resource for companies and provide a huge number of designs that could be accessed in future. The current designing and sampling process would be enhanced if CAD was utilised in conjunction with hand-drawn techniques and the pattern designer's extensive knowledge of existing structures, patterns and colour combinations.

## Concluding Statement

The output *Surpassing Tradition: 'Four-Shaft' and 'Eight-Shaft' Harris Tweed Textile Collections* resulted from a research project, from which an extensive quantity of potential design innovation ideas were produced. Adopting the practitioner-researcher position was beneficial to undertaking textile design innovation research, however, decision-making regarding the level of detail and specific information to be communicated required continual reflection and refinement, due to the amount of data amassed.

While, initially it may appear that regulations governing Harris Tweed limit the industry's growth, these factors are key to the uniqueness of the product. There is scope for innovation within the industry when working within the boundaries of the Harris Tweed regulations. Combining the traditional skills and knowledge of those who have considerable experience with the new generation of weavers who bring a different skill-set and outlook could facilitate innovation unseen within the industry for many years.