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# Ombre Alpaca Nuno Felting

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Title: Ombré Alpaca Nuno Felting

Key words: textile innovation, couture techniques, sustainability

Measurements: bust 21 inches, waist 19 ½ inches, hip 20 inches, length 21 inches

**Contextual Review and Concept.** Felted wool as an apparel fiber has superior qualities that have been used for past and current textile applications (O'Mahony & Braddock, 2002). Sheep's wool and alpaca's dense fiber structure is great for protection against winter weather elements and its complex makeup of springy fibers protected by a sheath outer-coating prevent water from fully saturating sheep and alpaca textiles, keeping the wearer warm even when wet (Shishoo, 2005). Felted wool techniques implementing sheep fibers were used to create interesting and luxurious fashion collections as seen in the Thom Browne and Sumaji Fall 2016 ready-to-wear presentations; yet, felted fabric with alpaca fibers has not recently been explored by designers to create apparel. Since alpaca does not carry lanolin, a common allergy found in sheep's wool, it could be an excellent substitute for creating felted textiles (Brooks, 2012). Thus, the objective of this sweater design was to explore alpaca fiber's ability to create a functional, aesthetic, and organic felted garment. The overall design was inspired by the stark contrast of the pollutant side of the textile industry verse the emergence and interest of sustainable and ethical textiles. Several experiments were completed with various felting techniques to create different color combinations, felting structures, patterns and thicknesses. This sweater design is expected to inspire the use of alpaca fiber for sweater design in more various ways.

**Aesthetic Properties and Visual Impact.** Alpacas come in a variety of colors and the natural hue of the animal was used for the textile coloration without the implementation of fabric dyes. The design of the ombré effect was intended to represent the negative side of the textile industry's use of harsh chemicals and dyes verse the growing influence and use of natural and environmentally friendly textiles. Black, brown and cream fibers were experimented with in the design process, and a black and white color combination was chosen for the final textile design. The stark contrast between the black and white roving was used to show the harsh contrast between two sides of the textile industry, the dark and chemically harmful side verses the pure and environmentally friendly side. The simplicity of the sweater's silhouette was used to draw focus on the sweater fabric alleviating the use of details such as extra seam lines and garment fastenings.

**Process, Technique, and Execution.** First, alpaca roving was sourced from a local California farm and several test were completed to experiment with needle felting, felting through machine-washing, and nuno felting techniques on organza fabric. Second, alpaca yarn was sourced and donated by local yarn mills, and then thirty knitted alpaca swatches were created implementing several gauges and knitting techniques. The alpaca roving was then tested

using nuno felting techniques to find the best alpaca swatch to fuse the roving through, and a twelve gauge jersey swatch and a twelve gauge ribbing swatch was determined to be the most effective at accepting the alpaca roving. At this time, the shrinkages of the swatches were calculated by measuring the length and width of the swatches before and after the swatches were felted. Third, the sweater pattern was hand drafted and a prototype was knitted and felted. Once the prototype was fitted on a size small model, adjustments were made to the pattern addressing fit and shrinkage calculation errors. Lastly, the final sweater was knitted, and the black and white alpaca roving was fused through the sweater using nuno felting techniques with an ombré effect in the textile.

**Cohesion.** The sweater was designed after experimenting with felting techniques to understand if alpaca was a workable fiber for felting and what methods were best used for felting with alpaca roving. The overall textile design symbolizes the contrast of the negative side of the textile industry shown through the black layers of roving verse the rise of an ethical, sustainable textile industry represented in the white layers of roving.

**Design Contribution and Innovation.** Alpaca felting techniques were experimented with and four key conclusions were discovered. 1) Alpaca roving is a workable fiber effective with needle felting, machine-wash felting, and nuno felting techniques. This indicates potential for alpaca roving to be used as a successful fiber for textile felting. 2) Alpaca roving was best fused to knitwear of finer gauges ranging from twelve to sixteen gauge knits with jersey and 1x1 ribbed stitches. 3) Alpaca fibers will shed if an excessive amount of roving is fused to the knit. Test samples must be completed to understand how much roving should be used to prevent shedding of the fiber. 4) Felting with alpaca roving on an alpaca knitted sweater shrinks the original garment up tot 25% of its original length, calling for the original shape of the garment to be longer to accommodate for shrinkage. Therefore, alpaca fibers can be used to create a hypoallergenic, dye-free, felted textile if samples are tested and calculated to prevent shrinkage and shedding errors.

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