Implementing Pattern Grading in a Computer-Aided Patternmaking Course: Developing Materials and Utilizing Learning Tools

April Elisha Stanley and Fatma Baytar, Iowa State University, USA

Key words: Grading, computer-aided patternmaking, pedagogy

Grading is the process of producing garments in a range of sizes by of applying increases and decreases at points of a base size pattern to make it larger or smaller. In the apparel design curriculum, students are often provided with a brief definition of grading and basic informational materials, as a result, most of them express a disconnection in understanding the basics of pattern grading. Computer-aided patternmaking software can help instructors explain the concept of pattern grading clearly by providing instant visualizations during student application of grading rules. An example of effective teaching of grading was reported in the literature (Dragoo, 2013) and there is a need to share more teaching strategies on this particular topic. The overarching goal of this study was to develop class materials for a computer-aided (CAD) patternmaking course to introduce the concept of pattern grading and assess student thinking and learning of the grading process. We wanted to develop methods to explain pattern grading to the students in a simplified, meaningful way.

Two assignments were developed to help students visualize and apply the concept of grading. For the first grading assignment, students measured and calculated grades among t-shirts, which were purchased from a mass retailer in three different sizes (small, medium, and large). This assignment had three components: (1) measuring, (2) grading (1" overall grade), and (3) student self-assessment of thinking (i.e. the Story Chart). Students were provided with the medium size t-shirt measurements for the grading component and were required to fill in the grades for the small and large t-shirt sizes. For the second assignment, students graded basic slopers (front, back, and sleeve) in the CAD program and applied a 1" grade using the grading rules from Handford (2003). Data collection occurred through the utilization of two learning tools, a "Windows to:" chart and a Story Chart. Students also submitted a *Final Go 'Round* statement, a prompt requiring all students to provide an answer about their learning to close the class period. The *"Windows to:" learning tool* from Project LEA/RN™ was used during the lectures to focus students' attention on the lecture subject matter. This tool required students to: (a) identify pertinent information in the lecture, (b) personal feelings about the lecture topic and observations of the peer reactions, (c) student generated questions in need of clarification, and (d) ideas for future uses of the information learned during the lecture. The *Story Chart learning tool* was specifically used as both a student self-assessment and instructor assessment for the grading project with an aim to capture the initial stage of student thinking about measuring and grading. This tool requires students to respond to the following questions: (a) What is going well? (b) What is not going well? (c) What did you hope to achieve? (d) What improvements can you make? (e) What do you want to accomplish for your final outcome? (f) What can you do to reach your goals?

Student self-assessments of learning were compared between two assignments. The results of the Story Chart indicated that students: (a) found the assignment to be doable after hearing the lecture on manual pattern grading, (b) felt they should be meticulous when measuring garments, (c) thought they should practice further application of grade rules, and (d) intended to continue using class materials as a reference for practice. The results from the "Windows to:" charts demonstrated the students, particularly the ones with no prior knowledge or experience of pattern grading, found the lectures informative. A few students had prior experience with manual grading and believed that the CAD software would be easier to use for grading. Only one student had previously attempted to learn grading by using the CAD patternmaking software prior to enrolling in this course. Students expressed eagerness to use pattern grading for future class projects and felt both lectures helped them to better comprehend apparel sizing differences. Students also felt that the manual pattern grading lecture assisted in their understanding of computer-aided grading.

Students' comments for both assignments demonstrated their belief that learning pattern grading was valuable knowledge for a future industry career. Students found the directional grading chart confusing for grading in CAD patternmaking software, and some students expressed issues in remembering to use positive and negative numbers. Apparel design students can apply this knowledge in the upper level courses, during internships, and future jobs. Although the Story Chart was developed for this T-shirt grading assignment, it can be utilized in other apparel and textile courses as a project assessment tool. In the future, we should provide students with a step-by-step explanation as well as modeling the pattern grading movements rather than relying on the chart from the grading textbook (Hanford, 2003). The Final Go 'Round supported the comments from the "Windows to:" charts. Reflecting our limitations for the present study, we plan on adding a variety of garments to both assignments and make sure patterns used in the CAD patternmaking software exactly match the ones used in assignment 1.

References

Dragoo, S. (2013, November). *Pattern grading approaches – Assessment of grade rules and fit as applied to merchandise*. Paper presented at ITAA 2013 Annual Conference, New Orleans, Louisiana. Abstract retrieved from http://cdm16001.contentdm.oclc.org/cdm/compoundobject/collection/p16001coll5/id/17098/rec/147

Handford, J. (2003). *Professional pattern grading for women's, men's, and children's apparel.* New York: Fairchild Publications.