

Dress Rehearsal: Gesture-based Sewing Instruction Application

ETEC 522 Venture Pitch

Alice Campbell

Overview

Dress Rehearsal - a mobile device application for OSi and Android smartphones and tablets - will be the only digital application on any platform that provides gesture-based sewing instruction in a simulated sewing environment. The primary pedagogical premise behind Dress Rehearsal is that learning a set of manual skills, such as those required in sewing, is best accomplished through kinesthetic instruction. The affordances of gesture-based computing applications, such as those on mobile touch screen devices, are ideal for manual skill instruction and acquisition. The primary market for Dress Rehearsal is 18-34 year old women crafters; the application can also effectively supplement in-person sewing instruction in high school home economics classes. Based on comparable educational applications, the price for Dress Rehearsal will be set at approximately \$4.99.

In the Dress Rehearsal application, beginning sewists will develop and rehearse foundational sewing and dressmaking skills and techniques on a virtual sewing machine before ever setting needle to fabric. In this rich, simulated sewing studio, learners will use the tactile affordances of tablets and touch-based smartphones to virtually cut, pin, and sew fabrics, and to learn to operate a sewing machine.

Project-based learning has and continues to be central to learning how to sew. Dress Rehearsal will offer detailed, virtual instruction for selected copyright-free open source sewing patterns that sewists can download on Burdastyle.com - the largest online sewing community and sewing pattern e-publisher with over 500,000 members. The patterns selected will be projects that

beginning sewists routinely turn to in building their skill sets: pillowcases (basic seams); tote bag projects (handles and inserting zippers); pajama pants (casings and elastics); skirts, basic dresses and leggings (sewing knit fabrics). As Burdastyle.com has hundreds of open source patterns available - with dozens more appearing every month - the opportunities for Dress Rehearsal to grow alongside its learners are virtually limitless.

Dress Rehearsal will provide scaffolding that is otherwise absent from online sewing instruction, by immediately responding to learners when they make a sewing error (e.g. pinning a zipper face up on a garment piece instead of face down). This scaffolding is especially relevant for beginner sewists using Burdastyle.com patterns because their instructions - technical writing translated from German - are so difficult to understand that the term “Burda-ese” has gained traction within the online sewing community. When learners make errors on Dress Rehearsal, a red flag will instruct them to correct their mistakes before continuing on with the virtual sewing project. After a learner rehearses a technique on Dress Rehearsal in a touch-based way, they are then better equipped to smoothly perform the skill on an offline sewing machine. This application will save learners time (in ripping apart seams), valuable sewing resources (i.e. fabric), and frustration.

The Learners: Women, aged 18-44, beginning DIY sewists

Data from Burdastyle.com, Craft Magazine and IBISWorld shows that Dress Rehearsal’s target market - beginner level sewists are:

- young (18-44; average age: 30)
- female (> 95%)
- college or university educated (92%, Craftzine.com)
- upwardly mobile “professionals who are often online and have disposable income” (Burdastyle.com). The average household income of Craft magazine online members is \$70,000
- passionate in supporting ‘indie’ enterprises

Most beginning sewists aged 18-44 have had limited direct exposure to sewing. Some took introductory sewing in high school home economics and a few learned from other family members or friends. However, the vast majority are self-directed, self-taught learners who rely on web-based instruction - often digital documentation of projects and techniques produced by expert, and typically amateur, crafters. The primary challenge these learners face is the difficulty of making static textual and visual information tangible - in translating the digital documentation of motor skills into practice (Torrey et al: 6). Dress Rehearsal uses the tactile affordances of touch-based mobile devices to help learners overcome this challenge.

There are no precise numbers of beginner-level sewists. However, every month Burdastyle.com (launched in 2007, membership 500,000) receives 7 million page views, while Craft magazine (launched in 2006) registers 750,000 unique visitors.

The vast majority of sewists on Burdastyle, Craft, and other sewing-related websites have a domestic sewing machine readily available for their use. Of the 26 million tablet users in the US in 2011 (Epps 2001), roughly 4.91 million are women aged 18-34; of 82.2 million smartphone users in the US in July 2011 (Comscore), approximately 8.48 million users are women (18-34). Given that beginning sewists are already tech-savvy, It is likely that many have or will soon acquire a mobile device (smartphone or tablet) capable of accessing Dress Rehearsal.

The Learning Technology

The chosen learning technology for Dress Rehearsal is a gesture-based mobile device application with a tangible user interface. This app takes inspiration equally from the sophisticated tactile affordance of mobile devices - amply experienced with Rovio's ubiquitous Angry Birds game application - and from educational applications such as Emantras' award winning virtual frog dissector, that use gesture based computing as a core part of their educational model. Emantras' applications create augmented reality (Horizon Report 2011)

simulated environments with touch-based input that facilitate the online learning of motor sequences.

One of the key challenges for new sewists learning their craft online is that the deeply tactile knowledge of how to sew is difficult to articulate (Torrey et al 2009: 1). Moreover, much of the tactile knowledge of craft production has traditionally been passed down inter-generationally through formal and/or familial apprenticeships, whereby learners received tailored feedback. It is significant that crafting, including sewing, involves idiosyncratic physical materials (e.g. silks can vary tremendously in weight and composition). Knowledge of the particular qualities of individual materials - and how to best work with them - has also similarly been traditionally passed down in person. Expertise is developed, and passed along, through physical experience. Crafters, including sewists, learn by *doing*.

Dress Rehearsal addresses the learning challenges crafters experience in translating information gleaned through digital documentation - photos and text - into skillful, sequential practice (Torrey et al: 3). It also addresses another challenge that all self-directed online learners face: the lack of scaffolding learning experiences. Although online community members work to provide effective scaffolding to other learners, many learners undoubtedly feel uncomfortable asking questions, may have difficulty interpreting how instructions and responses apply to the specificity of their own projects, and at times simply do not know what they do not know. Dress Rehearsal centrally includes features to help scaffold learners' experiences; when learners make errors, such as beginning to insert a zipper incorrectly, red flags will appear that will alert the learner to the error and show them how to fix it before they carry on rehearsing their pattern.

Developing an effective mobile device application costs between \$60,000-100,000 USD (Epps 2011); the costs for Dress Rehearsal - which will utilize a sophisticated, interactive touch-based interface - will likely reach the upper end of this range. However, this venture serves two intersecting growth markets: women 18-34 form a core demographic for both mobile device users and beginner sewists. It also uniquely responds to two key challenges of learning sewing

online - (1) moving between desk- or laptop and sewing machine and (2) translating static documentation to sewing practice.

The Market Growth

Business Week (Green 2008), the Wall Street Journal (Holmes 2011) and IBISWorld's industry report all note that the overall DIY crafting industry is experiencing significant growth. Crafting is a multi-billion dollar industry worldwide, and overall crafting materials sales in the US, including online and independent retailers, hit \$29.2 billion USD in 2010 (Holmes 2011).

- IBISWorld projects that the continued popularity of DIY fashion will propel the growth of crafting supplies sales at US national retailers (Shim 2011)
- IBISWorld projects a 10% sale increase over the next 5 years in this market segment, reaching \$4.8 billion USD (Holmes 2011).

According to IBISWorld, this growth is generated by young beginner sewists. Indeed, although overall fabric and craft supplies sales declined between 2006-2011 (due largely to the US recession's impact on discretionary spending), female DIY fashion sewists kept this industry's sales afloat over the this period.

A significant area of growth within this industry that Dress Rehearsal directly targets is in developing instructional materials for beginning sewists:

- The two leading independent sewing pattern companies for young DIY sewists - Colette Patterns (launched 2008) from Portland OR and Sewaholic Patterns (launched 2010) of Vancouver BC - are focusing their businesses on designing patterns for beginning sewists. Providing online sewing instruction in the form of digitally documenting techniques is a key part of their business strategy.

- In September 2011, the international brand Simplicity Pattern Company launched a new collection of sewing patterns (“SewSimple”) for young, beginning sewists.
- Amazon.com’s current top 5 sewing books, and 9 of the top 10, all target beginning sewists.
- Leading figures in the online sewing community, including Gretchen Hirsch (a sewing power blogger), Sarai Mitnick (owner of Colette Patterns), Kay Whitt (designer for Serendipity Studio and blogger), and Amy Butler (quilt fabric designer) have all secured contracts to publish books for beginning sewists. In November 2011, Burdastyle.com released its first book, prominently featuring over 20 sewing power bloggers.
- ‘Sewing lounges’ offering premium fabrics and personalized instruction (typically group-based) have opened in cities throughout North America; these classes are almost exclusively beginner-level.

Dress Rehearsal will be the first interactive instructional sewing technology developed; Thus far, instructional sewing materials, both on- and offline, have relied on flat textual and photographic documentation.

Dress Rehearsal is also positioned to take advantage of the projected increase in mobile device usage by women aged 18-34. As there are only two sewing instruction applications available on the Android market, Android is particularly ripe for developing instructional sewing applications.

- Prosper Mobile (September 2011) reports that Android is the most common OS among smartphone owners with a household income under \$75,000. The average household income of young sewists, according to Craft magazine, is \$70,000.
- Nielsen (2011) reports that women in the US subscribe to a larger percentage of Android phones (51%) than any other OS, although Blackberry (50%) and iPhone (49%) are very close behind.

- eMarketer (2011) projects that the introduction of lower-cost mobile devices that run Android - such as Motorola's < \$150USD Citrus smart phone or Amazon's \$199USD Kindle Fire will be a key drive in increasing mobile devices' user base.
- Comscore and eMarketer both report that 45% of all tablet users in America are women - eMarketer projects that this market share will increase to 49% by 2014.

The Competition

In-person Instruction

Dress Rehearsal will compete with sewing classes offered in sewing lounges in major cities across North America. These classes are often single session workshops (~3 hours) in which students learn a beginner level project. The classes tap into a market desire for more traditional, social forms of learning to sew, as well as the scaffolding and efficient learning provided by an experienced sewist. The average cost for these classes is approximately \$15/hour plus materials (fabric, patterns, notions - zippers, buttons, thread, etc.). Because of its price point and built-in scaffolding, Dress Rehearsal will effectively compete with, and supplement, these classes.

Other Sewing Applications

There are five sewing instruction apps available on iOS: EasyQuilt, Dress Making Beginner's Guide, iSewing Guide, Bags in Blue, Fashion DIY. While some of these offer extensive instructional aids, none make effective use of touch technologies that can facilitate gesture-based instruction. These applications draw on the traditional WIMP user interface (Windows, Icons, Menus, Pointers) associated with desktop computers (Shaer and Hornecker 2010: 1), rather than exploiting the learning potential in tangible user interfaces for motor skill development. Consumer reviews on the iTunes App Store and Android Marketplace complain that these apps offer little more than what is freely available similar on websites or in e-books.

Enhancing Social Web-based learning

Sewists - particularly those in rural areas - are drawn to the sociality and shared learning experiences available on sewing blogs and online communities. The success of Dress Rehearsal will be dependent on its enhancing the learning and user-generated knowledge that has become a hallmark of these sites. It will enhance Burdastyle.com's usability by making it easier for new sewists to practice the sewing skills that are necessary to successfully complete projects.

Given sewists' passionate support of Burdastyle.com and other indie sewing companies, Dress Rehearsal's business model will therefore rely heavily on cultivating mutually beneficial, strategic partnerships with these enterprises. Burdastyle.com is very open to partnering with various sewing brands, and sewing entrepreneurs, such as Sewaholic's Tasia Pona and Colette Patterns' Sarai Mitnick, frequently work in collaboration with other sewing professionals. Dress Rehearsal will benefit immensely from collaborating with them and tapping into their support base; for these entrepreneurs, Dress Rehearsal will remove some of the pressure they feel to develop textual or photographic instructional materials for their websites so that they can further develop other parts of their business.

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