Chapter 7

Knitting as a Cultural and Bodily Practice

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Introduction

At the beginning of the 21st century, knitting is again extremely popular. It enjoys a vivid renaissance and is trendy in many ways that one could hardly have imagined a few decades ago. "Celebrity knitting" is one of the phenomena that fuel the popularity of knitting. When Hollywood stars knit—and do it in public—they lend their glamour to this practice so often connected with tradition and female domesticity. (Parkins, 2004; see also Hosegood 2006, pp. 75–79; Stoller, 2003, p. 14; www.worldknit.com/celebrityknitters.html) On the home front, the new popularity of knitting and its competition with other domestic activities is humorously captured in the title of Betsy Hosegood's book (2006): *Not Tonight Darling, I'm Knitting.*

Figure 1. Albert Edelfelt: A girl knitting a sock, 1886. (Gösta Serlachiuksen taidesäätiö. Mänttä, Finland).

In craft science and textile and clothing teacher education, knitting skills have always been taught, and knitting has been an object of study from different points of view. Knitted garments have been studied as traditional craft (Almay, Luutonen & Mitronen, 1993; Luutonen, 1997), designing knitted garments has been studied as a profession (Luutonen, 1999), and knitting appears in one way or other in several studies of women's crafts. Knitting as an activity of the hands has also been studied in relation to mental well-being (Vähälä 2003). There are also a number master's theses with a focus on knitting. However, there is no comprehensive and profound study of basic knitting skills to inform research-based teaching. Furthermore, knitting skills have not been considered to be unimportant. Rather, they have been considered to be self-evident, as most Finnish women—and some men—know how to knit. In addition, manual skills as such have not been a popular research object in craft science, probably in the fear that focusing on manual skills might reduce craft, or the image of craft, to that of *mere* manual skill, if not dexterity.

In this article, we conceive knitting as a cultural and bodily practice. The art of making knitted artifacts consists of a number of human faculties and phases of work, such as developing ideas for products and their properties, familiarity with materials and tools and their suitability for the project, designing patterns of the product, designing stitch patterns and surface texture, calculating stitches and adapting the stitch pattern to the product pattern (dimensions and shapes), seaming separately knitted pieces and hemming the edges, finalizing the surface, and finally, knitting as a technique of producing stitches. This technique is adopted in a socio-cultural setting and adapted to one's own body—seemingly to one's hands, but having an effect on the whole upper body. We focus on this last point, the act of knitting with yarn and needles.

From our own experience of knitting and the teaching of it, we knew that Finnish women probably knit using the so-called continental method, with yarn in the left hand, which is one of the three basic methods used around the world. We also knew that what we suggest as an easy, fluent, relaxed and ergonomic position for hand knitting is not adopted by all knitters. However, we did not know exactly what kinds of variations—that is, knitting positions—of this method are used and what knitters' own experiences of their work might be. This is why we carried out an extensive study in order to obtain a well-grounded (quantitative) overview and (qualitative) understanding of how people knit in Finland and why they knit as they do. We do not seek one "correct" way of knitting; rather our aim is to find research-based arguments for our teaching and our suggestions for future teachers who carry on this traditional textile technique.

Individual and Cultural Skill

On the one hand, skills constitute highly individual qualities of a human being. This means that one can give away material and immaterial products of one's skill and one can share knowledge about skill, and demonstrate it; but, skill as such cannot be transferred from person to person. On the other hand, skills are cultural artifacts in the sense that they are developed in cultural contexts. A human being has a readiness to acquire skills, but which skills are relevant to be exercised highly depends on the socio-cultural environment. As Niiniluoto (1993, p. 11) notes, besides experience, certain background knowledge is a prerequisite of skills. They cannot be acquired *a priori*, independent of experience. One needs to have an active interaction with surroundings in order to acquire that knowledge.

Keller and Keller (1999, 30) give a good example of an extremely fruitful environment in their study of an artist blacksmith's workshop and tool use. They argue that cultural competence, continuity of tradition, and viable innovation are rooted in visual cognition. Technical tools are psychological tools used in the construction and manipulation of visual concepts. The skillful use of technology requires a stock of images and the capacity to construct reasoned connections among them. This visual stock is the primary mental content of the tradition. Thus Keller and Keller demonstrate that the conceptual flow and structure are primarily visual and rooted in technical tool use.

Elsewhere in their study of the blacksmith's skill, Keller and Keller (1999, p. 9) present even more interesting connection between the maker, material and tool use, which is summarized in three principles: transformation, think hot, and work freehand. *Transformation* refers to changing forms and dimensions of raw material to a desired shape. *Think hot* refers to the accomplishment of those transformations while the iron is in a plastic state. *Work freehand* refers to the preference for use of hand-guided tools of risk.

In spite of the completely different material, these principles are applicable to knitting. Transformation is obvious when shaping any material, but we might guide a learner to *think wool*, for example, when highlighting the nature of yarn in a knitting process. Hand knitting is indeed working freehand, as everything is controlled by hand, and routine and consistency in that control is vital for the result.

Several scholars have proposed divisions of human skills. We only site two of these divisions. Romiszowski (1999, pp. 462–463) divides skilled activity into four categories: cognitive skills, psychomotor skills, reactive skills, and interactive skills. Furthermore, he suggests a continuum of reproductive-to-productive skills. According to this division, the basic act of knitting is reproductive psychomotor skill. At its best it is repetitive and automated. When it is mastered, it allows for the development of productive knitting skill, for example,

making non-routine details, which is linked with cognitive skill but which still demands psychomotor skill for that matter. This distinction is akin to Scheffler's (1965, pp. 91–105) classical distinction between facilities, which may also be termed routinizable skills, and critical skills. Both are needed in craft, but practicing routine seems to be a great challenge in the present era of impatience.

Fitts proposed a useful and very influential framework for skill acquisition in the 1960s. Based on his observations that different cognitive processes are involved at different stages of learning, he distinguished three phases: cognitive, associative, and autonomous. Early in the learning of skills, the learner uses cognitive processes to understand the nature of the task and how it should be performed. After the instructions have been learned and task expectations are understood, the learner enters the associative phase. In this phase, inputs are linked more directly to appropriate action, and the need for verbal mediation is diminished. When task performance has reached the autonomous phase, it is said to be automatic. It no longer requires conscious control. To reach this phase may take months or years, but once it has been reached, an automated task can be performed concurrently with many other activities. (Proctor & Dutta, 1995, p. 15)

These phases can be distinguished in the acquisition of knitting skills, although the transition from phase to phase in not always clearly identified. Fitts also observed that the transition is gradual rather than being marked by an abrupt shift.

Fragmented History of Knitting

The origin of the hand knitting technique is unknown. One of the earliest findings is a pair of Coptic, or Romano-Egyptian, socks from the 5th century (Rutt, 1987, p. 31). It is probable that Arabs introduced the knitting technique to Europeans after they had conquered Egypt and continued on to the southern parts of Europe. However, Europeans who had grown used to woven material were reluctant to adopt this new method of making textiles. Knitting was generally known only in the late Middle Ages, from which period there are only occasional findings but no clear evidence of how the skill spread across Europe. The most important knitted products were gloves and socks, which remained luxury items for the wealthy, while the poor continued to use cloth hose. (Snidare, 1991, pp. 10–11; Tarrant, 1994, p. 92)

A fragment of Egyptian knitted cotton from 1000–1200 AD (Rutt, 1987, p. 35) and a Spanish glove from the first half of the 13th century (Schoeser, 2003, p. 78) have been made in multi-colored pattern knit. Both of these indicate well-established skill. At least three religious Italian paintings and one German painting from the 14th century depict the Madonna knitting with five needles in her

hands. In the German painting, four needles are around the neckline of the otherwise finished garment. (Rutt, 1987, pp. 44–49) For socks, circular knitting was practical, and probably it was the main way of constructing early knitted garments. This is also supported by the fact that the earliest known purled stitches are from mid-16th century (p. 24).

One of the few systematic studies on knitting—with the same kind of interest as ours in how people actually knit—was carried out by Eilert Sundt, a Norwegian sociologist, in the 1860s. In his multi-method study, Sundt managed to distinguish three different ways of knitting in Norway. From his massive data he could infer that differences were connected to the knitter's social position. Peasant women's way of knitting was different from that of town dwellers, for example. Peasant women's knitting was slower but the result was also intended to be tighter and stronger than other knitters' products. (Wintzell, 1980, p. 11)

Another study of how and what people knit was carried out in Sweden by Eva Trotzig (1980), also a sociologist. Her informants came from Eastern-European countries, Turkey and the Middle East. They had their own ways of knitting—some of them similar to the Swedish ways—which represented living local traditions, quite different from the situation in Sweden. These knitters had not only moved to another country but "they had also moved a hundred years in time" in their own words. Trotzig observed immigrant women's knitting methods in order to study cultural processes: what was brought from their native culture, and how Swedish culture and other cultures influenced each other.

Although we are not particularly interested in history here, the diffusion of the skill is relevant to our study. The slow progress of the technique and the reluctant adoption of knitted garments may be the reason for the variety of knitting methods. Over the centuries, people who had seen knitting or heard about it did not necessarily have anyone nearby, who would have been willing and capable of handing down the skill as a continuous tradition.

Variety of Methods

There are three basic knitting methods: yarn in the left hand, yarn in the right hand, and least common, yarn around the neck or safety-pinned on the knitter's clothes. The idea of producing stitches using yarn and needles is the same, whichever of the methods is used. Knitting literature prioritizes the first or the second method depending on the target market area. Moreover, having introduced one or two methods, knitting publications generally exclude hands from illustrations and only present pictures with needles and yarn in order to highlight the detail itself and its suitability to any knitting method, and position of the hand within any method.

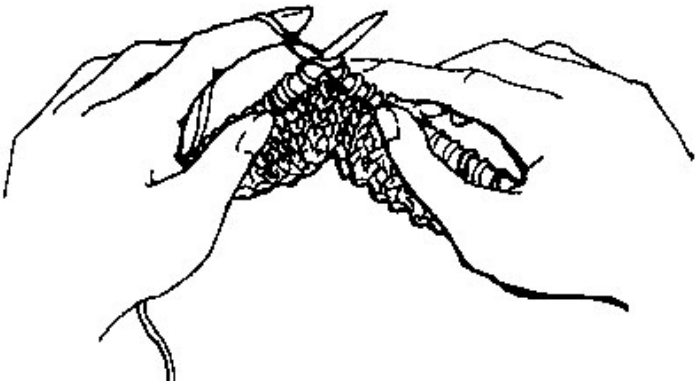

Figure 2. Continental knitting, yarn in the left hand (Whiting, 1988).

In the continental knitting method (figure 2), also called German, Swiss, Norwegian or Scandinavian knitting, yarn is held and controlled by left hand. The knitter holds both needles in her hands as a knife is held when cutting. (Stanley, 1986, p. 25; Brown-Reinsel, 1993, pp. 91–92; Vogue Knitting, 2002, p. 23)

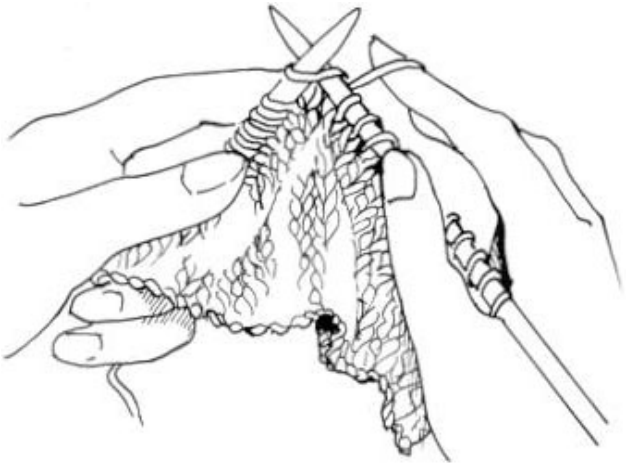

Figure 3. Yarn in the right hand (Whiting 1988).

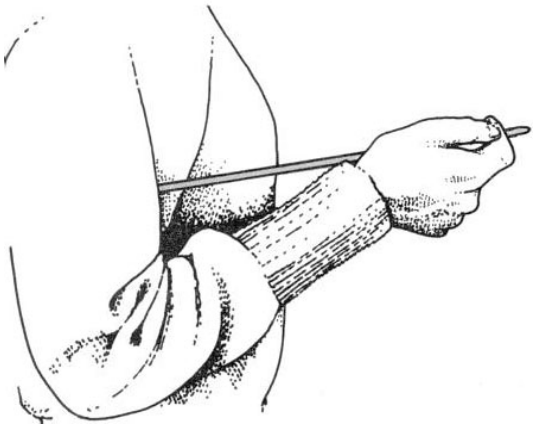

Figure 4. Yarn in the right hand and right needle under the right arm (Stanley 1986).

Yarn is held in the right hand in France, Great Britain, North America, and other English speaking countries. Some knitters hold the right needle as a pen is held (figure 3). Other knitters tuck the right needle under the right arm (figure 4), and thus their knitting position is less symmetric than in other methods. (Stanley,

1986, pp. 23–24; Brown-Reinsel, 1993, pp. 90–91; Stanfield & Griffiths, 2000, p. 15; Whiting, 1988, pp. 25–26; Vogue Knitting, 2002, p. 23). It is worth noticing that knitting methods with yarn in the right hand as described here do not include the mirror position of yarn in the left hand, which is used only by left-handed knitters in those regions where yarn in the left hand is the prevailing method.

According to Rutt (1987, pp. 17–18), it was only in the 19th century that English ladies began to hold the right-hand needle like a pen. Before that English knitters had held the right-hand needles under the palm as in the continental knitting method. This new drawing room knitting was less efficient and limited the speed of knitting. In spite of its inefficiency, working-class knitters began to emulate the new fashion, and it became the most common way of knitting in England.

Yarn around the neck or pinned on clothes is the least common way of holding the work. It is used in some parts of Portugal, Greece, Egypt, and South America (Stanley, 1986, p. 26; Rutt, 1987, pp. 20–21; Brown-Reinsel, 1993, p. 93; Kozma, 2004, p. 46).

Figure 5. Yarn around neck (Stanley 1986).

Figure 6. Yarn pinned on clothes. (Kozma 2004).

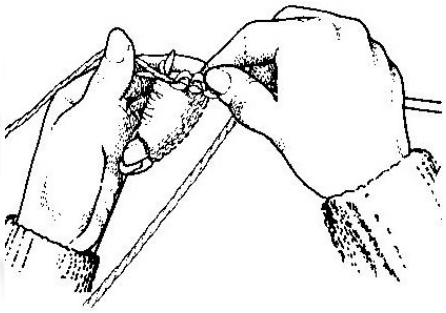

Figure 7. Left thumb controlling yarn (Stanley 1986).

The origin of knitting in Finland is as confused as the diffusion of the skill in Europe in general. This is due not only to too few documents but also to the fact that knitting was confused with another technique, nalbinding (nålbinding), i.e. making yarn products with a single, eyed needle. However, knitting with two or more needles was known at the beginning of the 17th century at the latest. (Kaukonen, 1985, p. 93) Knitting skill was imported through different routes, which was reflected in the variety of terminology (Kaukonen, 1985, pp. 93–94;

Rauhala, 2003, p. 180). Still today, there are two terms for knitting: the western Finnish word *kutoa* and the eastern Finnish word *neuloa* (*Suomen kielen perussanakirja*, 1996).

As knitting was first dedicated to luxury items made by professionals, it did not become a vernacular practice before the 18th century (Luutonen, 2003). In 1886, Albert Edelfelt painted *A girl knitting a sock*, a Finnish peasant girl probably tending cattle on the forest meadows and simultaneously knitting (figure 1 at the beginning of this article). The girl's knitting method is the continental one with yarn in left hand. This painting illustrates the way of knitting, which became prevalent in Finland, but it does by no means reveal the whole truth at that time. Both knitting methods—yarn in the left hand and in the right hand—were adopted in Finland when knitting skill was handed down as a vernacular tradition. As late as in the 1950s there still lived people who knitted with yarn in the right hand and who had learned this method at home. When the elementary school system began in 1866, craft was included in its curriculum. At the same time and thereafter teacher education prioritized knitting yarn in the left hand, and subsequently this method came to prevail when the skill was learned as part of common formal education instead or in addition to learning at home. (Kaukonen, 1984; Rauhala, 2003)

The same kind of stabilizing process has taken place in Sweden at the end of the 19th century. Hulda Lundin had traveled abroad and familiarized herself with different ways of knitting. When she wrote a book *Handledning I kvinnlig slöjd* (An introduction to female craft), she chose to introduce the continental knitting method with yarn in the left hand. The book was first published in 1892, but due to its popularity it was reprinted several times. Thus Swedish people learned one knitting method and forgot others. (Trotzig, 1980, p. 10)

Ergonomics of Knitting

Ergonomics is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance (International Ergonomics Association). Thus the aim of ergonomics is to reduce friction between a human being and her or his work.

While knitting method and position may be determined by cultural traditions and personal preferences, it is also a matter of ergonomics. Although none of the knitting positions is absolutely right or wrong, there are positions that are easier, faster, and more balanced than others (Ellen, 1992, p. 32). For ergonomic knitting, the aim is to obtain fluency with as small and relaxed movements as

possible. When the wrist movements are large, the danger of stress injuries increases (Kukkonen & Louhevaara, 1995, pp. 12–16).

The most natural and thus the most efficient movement of hands is symmetric. This is due to the human being's nervous system. If the weaker hand repeats approximately mirror movements of the dominant hand, its input for the work performance may double. When the work movements are not symmetric, the weaker hand usually only holds, while the dominant hand works. (Silta, Heikkilä & Kuorinka, 1986, p. 82) If the knitter holds one needle still in one place, the other needle and hand need to do all movements, which makes working slow (Stanley, 1986, p. 21). Fluent knitting looks and feels symmetric, even though hands do not perform exactly mirror movements.

Knitting position is ergonomic, when both hands hold the work firmly but without tension. When fingertips are close to the needle tips, they need to move only very short distances. If stitches seem to become too loose in this manner, it is more recommendable to add yarn tension with other fingers instead of extra movements or a different position of the forefinger, which is optimally close to the needle. (Koskennurmi-Sivonen & Mikkilä, 1984, p. 21; Stanley, 1986, p. 21).

From the ergonomic point of view, many pictures of knitting positions are incomplete, because they only show needle tips and stitches. Hands are rarely shown, and even when they are shown, the posture of the whole upper body and free movements of the hands are neither illustrated nor discussed properly.

Research Questions and Methods

The research questions are: How have knitters adopted their knitting position? How do knitters actually knit using the continental method? Is one particular knitting position better than another for any reason? What are the knitters' own perceptions of their working and holding of the work in their hands? Is it possible to change the position once it has been adopted?

To answer the research questions, we recruited all first-year students in the textiles and clothing teacher education at the University of Helsinki as participants of this study in 2004, 2005, and 2006 (N=95). For the survey part, we video-recorded these participants knitting and purling with two needles in the way they found most suitable or "natural" for them. Additionally, all participants answered a questionnaire, which consisted of a few background questions and ten open-ended questions of their knitting history and conceptions of knitting positions. For the in-depth part, we carried out case studies interviewing those participants who had developed their own exceptional way of knitting with unique positions.

Video-recordings were analyzed by identifying, classifying and comparing knitting positions and the sequences of knitting movements so that the results could be reported with visual illustrations and quantitative parameters. Quantitative and qualitative content analysis was used for open-ended questions in questionnaires and case interviews.

The basic assumption was that all participants already had at least some degree of knitting skill and that it had not been taught by any of us. As knitting skill is not demanded for starting craft studies and textile and clothing teacher education and new students skills vary, the informants well represent young Finnish women in general, perhaps not the entire population, but those interested in crafts, i.e. those who are relevant to the study of skills.

How Knitters Have Adopted Their Knitting Position

To a surprising extent, participants who were first-year teacher students 2004–2006 had learned the basics of knitting at home, either from their mother or grandmother (62,1%, f=59). Approximately one half of them had learned to knit before school age and the other half during the first or second school year, at the age of 7 or 8, before knitting was taught at school. In older age groups it has been usual that craft skills were learned at home and before school age (Heikkinen, 1997, p. 51), but it seems that contemporary young women also are descendents of a skill tradition handed down in the family, typically by a grandmother. Watching family members' knitting has aroused children's interest in this technique, or knitting needles and yarn have been offered to them as the means of keeping them busy. However, we did not find explicit traces of the Protestant doctrine that industriousness is a virtue and idle hands the Devil's workshop which, according to Myers (2001, p. 23), replaced real need as the underpinning of habit.

Practically all knitters have learned their skill by imitating an adult knitter and following oral instructions. Some children have been literally guided by the hand. If the skill was practiced continuously, i.e. without several years' pause, it became fluent and one of the three positions described below was adopted. Exceptional knitting positions were developed by participants who had learned to knit before school age, but who had not reached fluency, the autonomous phase of skill in other words. They could manage the basic things, and thus their teachers did not pay much attention to their knitting position. Instead, they were left alone to catch up with what they had learned earlier. Deviating positions and ergonomic difficulties were revealed only too late.

When the aim is to avoid deviating and stressful knitting positions, it is equally important to monitor and tutor the working positions of those novice knitters who manage the basics as those who start from the very beginning. If a

skill is learned in a conscious manner, it is also easier to change in a conscious manner, if needed (see Lepistö, 2004, pp. 82–83). Studying knitting skill is typically an activity, which is criticized and belittled in the contemporary craft world, as it is based on repetition and continuous practicing. Yet, practicing holds an important place in the development of skills, as they change and improve during a long period of time, even after a thousand repetitions (Vartiainen, Teikari & Pulkkis, 1993, p. 41).

It is typical that a skill learned at home improved at school. Increasing and decreasing stitches were learned at school as well as different pattern stitches. Thus, school appears to have been a place for a further development of knitting skills but not its initial instructor. As for the quality of teaching, the written knitting histories of this study confirmed what is generally known: there are immense differences depending on the teachers' own education in craft skills.

Although words are used in teaching knitting, the role of watching and imitating is by far the most important in the cognitive phase of learning. This is highlighted in the cases of left-handed knitters. When lucky, they have watched a right-handed teacher demonstrating left-handed knitting. More typically, learners have only seen right-handed knitting and adopted it in spite of their basic left-handedness. Part of left-handed knitters have only seen right-handed demonstration but managed to flip it into the mirror position in their own hands and minds.

Originally we were interested in whether any regional differences or typical features could be traced. This is why the informants were asked, where they had learned to knit. There seem to be some differences depending on the region where knitting was learned, but they are so minimal that they do not give a good enough reason for further investigation.

How Knitters Actually Knit Using the Continental Method

As expected, the video-recordings reveal that all participants (f=95) knit using the continental method. It is possible to distinguish two principal variations and a third, more unusual version, a fusion of the two first examples. In the interest of brevity, we discuss the general findings only from the viewpoint of right-handed knitters, although six of the participants are left-handed. We return to left-handed knitting later.

The majority of knitters (64,2%, f=61) hold their work in the way described in figure 8. The position of the hands is symmetric, and the left forefinger that holds the yarn is close to the left needle resting against it in a relaxed manner. Both the stitches and the knitter's hands are close to the needle tips.

The second most common (28,4%, f=27) way of holding the work is illustrated in figure 9. The left forefinger is half crooked and far from the needle. It

looks as if the finger were tense, although the knitter does not necessary feel it to be so.

The third, least common version (7,4%, f=7) is illustrated in figure 10. The left forefinger is about one centimeter above the left needle, and it makes a constant up-and-down movement.

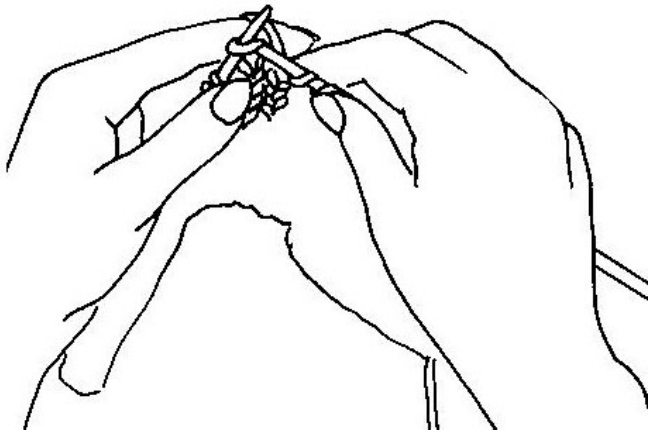

Figure 8. Forefinger close to needle (Koskennurmi- Sivonen).

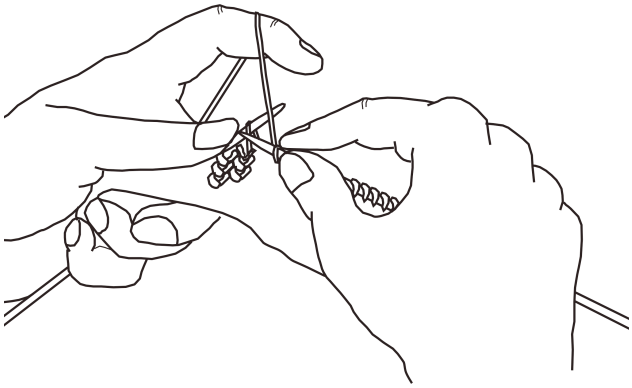

Figure 9. Forefinger far from needle (Virtanen).

Figure 10.Forefinger 1 cm from needle (Halme et al. 1985).

If we have a close look at how the yarn tension is controlled, eight types can be found. The most common place of the yarn is on the left forefinger just in front of the first joint. The second most common place of the yarn is at the root of the forefinger nail. All together 84% of knitters hold the yarn in either of these places.

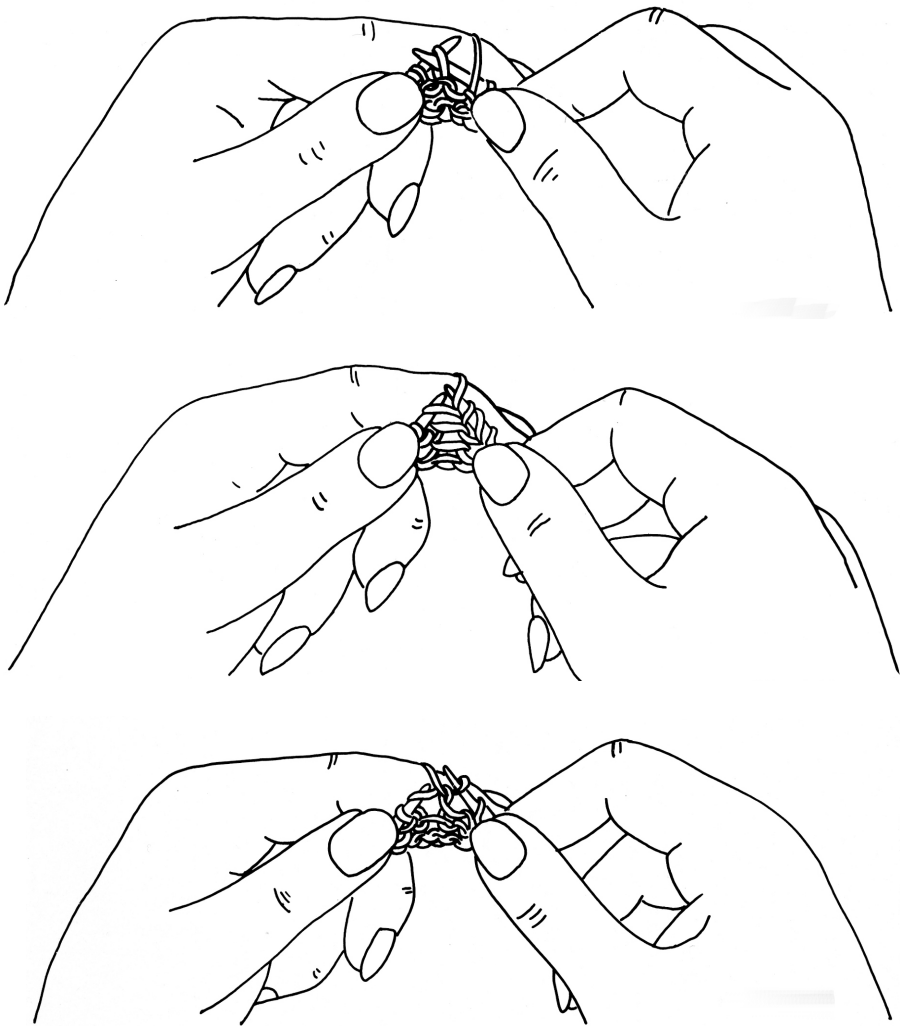

Figure 11. Purling sequence. (Koskennurmi-Sivonen).

To purl, the majority of knitters (56,8%, f=54) have the yarn on the left forefinger as when knitting. They put the right needle tip under the yarn and to the next stitch on the left needle with one small movement (figure 11).

Part of knitters (13,7%, f=13) leave the yarn automatically in front of the left needle when purling (figure 12). An equal number of knitters (13,7%, f=13) make a distinct movement in order to bring the yarn in front of the needle for purling. This extra movement is typical of beginners, whose knitting skill has not yet reached automation and fluency, but it may remain as a feature of very quick knitting, too.

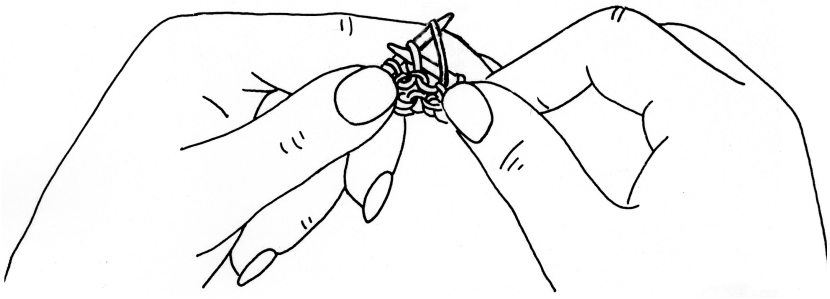

Figure 12. Beginning of purling sequence with yarn on left needle tip (Koskennurmi-Sivonen).

The time codes of video-recordings allow calculating and comparing knitting speed. Although we were not especially interested in the efficiency of knitting, speed is one indicator of fluency and thus relevant to general knowledge of knitting skill. The time required for knitting and purling four stitched was measured in order to get the average time for one stitch. The time needed for knitting one stitch is 3–12 seconds and for purling 5–17 seconds.

The fastest knitters were found among the majority who knit in the relaxed manner illustrated in figure 8, as can be expected. However, it is worth noticing that one can become a quick knitter using whichever of the described manners, as they were found in all groups.

In principle, speed is a consequence of fluency and symmetry. Although the left hand and right hand perform different movements, they look quite symmetric. Almost all of the knitters who knitted fast or fairly fast (3–7 seconds/stitch) also had a symmetric knitting position. When skill has reached the automatic level, fluency, symmetry and speed have developed simultaneously. On the other hand, automatic movements and speed do not guarantee symmetry and smooth movements, as a few fast knitters twisted their left wrist or performed an extra up-and-down movement with their left forefinger.

A strong twist at the wrists is the most common extra movement. For example, by twisting the left wrist the knitter aims to help the right hand in fetching the yarn onto the right needle. Or, the right forefinger makes a constant spanworm movement in order to tighten the last stitch or to move the row forward on the needle, which is unnecessary if tension is ideal.

Rutt (1987, p. 22) notes that measuring the speed of knitting has not been done scientifically. According to him, sponsored-knitting organizers estimate that an average knitter works 35–40 stitches a minute, which equals 1,5–1,7 seconds per stitch. As this was based on estimation and not controlled measuring, it is not worth comparing the speed. We agree with Rutt in that, for most knitters, who do not knit for an income, it is more important to knit rhythmically and with economy of effort—and therefore with pleasure—than to knit at high speed.

Knitters' Own Perception of Their Working

The participants seemed to know what a good knitting position and posture would be, even when they had not adopted them for their own work. Relaxed position and small movements of the hands were most commonly mentioned criteria for a good position. The participants paid more attention to the position of hands and fingers than to shoulders and the general posture of the upper body. Consequently, almost all knitters mentioned that they find knitting physically stressful. This finding is parallel with an earlier study, which revealed that knitting causes considerable physical stress. However, the informants of that study found pain less meaningful than the pleasure they got from knitting (Beloff, 2001, p. 72). It is astonishing and alarming that, in both studies, participants seemed to find physical pain in shoulders and tension in neck or hands somehow natural, something belonging to knitting.

The relationship of eyesight and knitting posture came up as an important factor of ergonomics. It is not connected to any particular knitting position but is connected with knitting in general. A few participants held their work relatively high because of their eyesight, which caused extra tension. It is understandable that novice knitters do not happen to think of the role of their eyesight, if it is normally good for working on the table, for example. However, a relaxed knitting position is lower and thus further away from eyes than when working on the table.

All participants agreed on the fact that there is no one right way of knitting. Only fluency was found to be relevant. While they seemed to be happy with the way they knit, not all of them were satisfied with the first style of purling that they had learned. A second person may have taught an easier way of purling than the first one. Or, the knitter may have discovered an easier way by herself.

In contrast to the basic knitting position, which seems to be hard to change, somehow it makes sense to change the way of purling, when a more convenient position is available. This may be due to the fact that knitting becomes automatic much faster than purling does.

An Exceptional Knitting Case

Out of four participants, whose knitting position differed from others in a notable way, we describe here one. Lilli learned to knit at school in Helsinki at the age of nine, and her grandmother taught her, too. Thus she has experience from the two most common introductions to knitting. She regards herself as being a rather clumsy and slow knitter, and she has not much experience in knitting. During the knitting classes, which are part of her teacher education, she regained

her interest in this technique, but she did not adopt the suggested relaxed position for her own work.

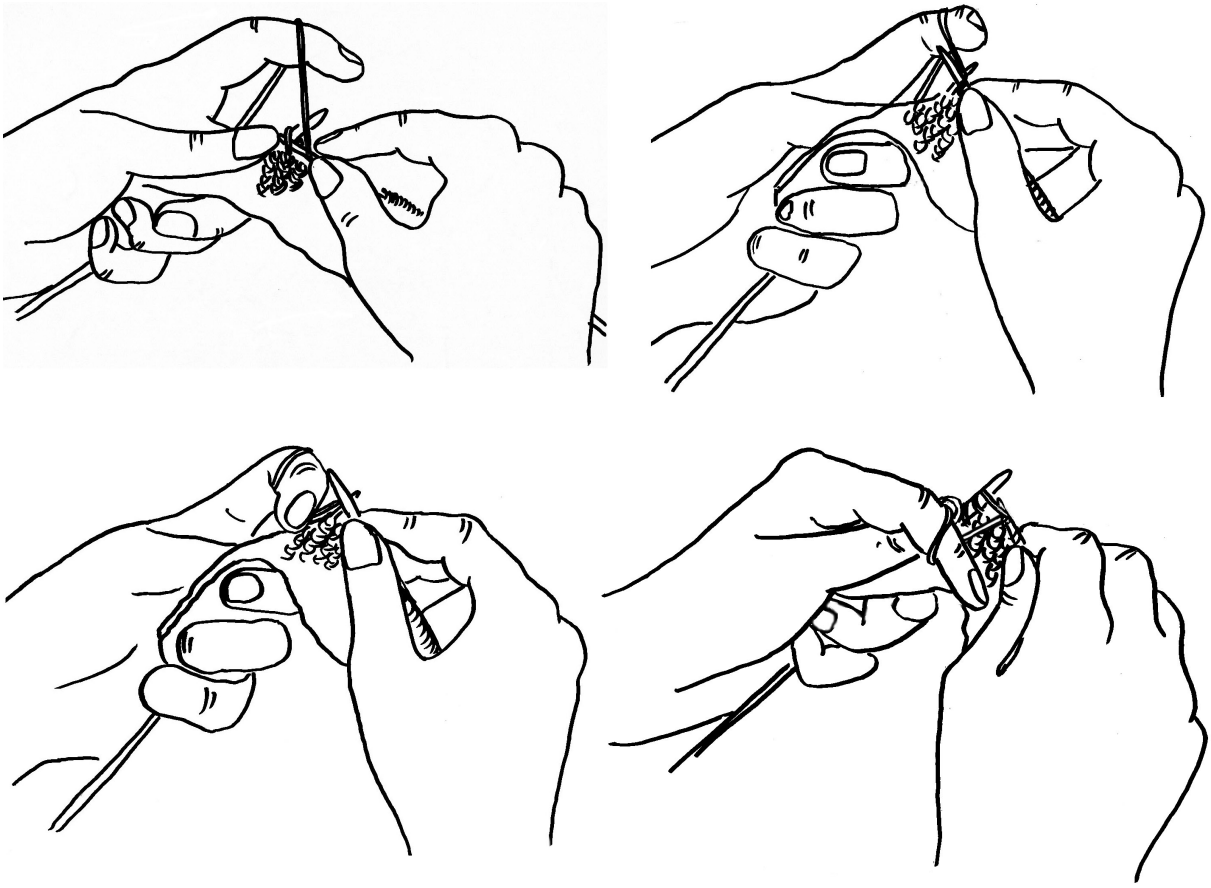

Figure 13. Exceptional purling sequence (Virtanen).

This participant holds her work high, and her left forefinger is far from the needle, making large unnecessary movements. One of the reasons why she has not been able to adopt a more economic and ergonomic knitting position may be that her own perception of her knitting is that it is natural. She must have created this position some time between early learning and adult-age knitting classes.

Catching up on a skill on one's own that has not reached automatic fluency, because a continuous learning process was interrupted earlier, may be the reason of complicated knitting positions in other cases as well. All of the participants with an exceptional knitting or purling position understand its limitation to their own use and the need to use another position when demonstrating knitting to their pupils.

Conclusions and Recommendations

As a conclusion from the videoed survey part of the study, the most common and also ergonomically recommendable manner of knitting in Finland can be described as follows:

- Hands hold the work firmly but without tension.
- Finger controlling the yarn leans relaxed against the left needle.
- Yarn is on the left forefinger in front of the first joint.
- Hands and stitches are close to the needle tips.
- Arms are free and elbows do not lean against table or armrests.
- Both hands have balanced work and movements are symmetric.
- To begin purling sequence, yarn is either on left finger as when knitting or on left needle, but ideally with no extra movement.

Knitters do not necessarily adopt alone an ergonomic knitting position and posture. Although too much interference may kill enthusiasm, when a beginner is just on the verge of catching the fluent sequence of movements, it is worth paying conscious attention to how the new skill is performed in the cognitive and associative phases. When the movements have reached an automatic level, it is difficult to change them and knitters are reluctant to take on the new challenge of learning the same skill again even though it would be healthier.

Changes in purling positions reveal that with good motivation it is possible to adopt a new sequence of movements. When skills have been learned in a conscious manner, they are easier to change in a conscious manner, too.

Knitting as a Contemporary Trend

Lisa Myers (2001) explains the present good status of knitting from the feminist point of view. Women who are secure in their new roles can appreciate and even cultivate what have been considered to be traditional activities. Unlike a generation ago, dismissing knitting now would be participating in a centuries-old habit of devaluating women's work. Another fact that works in favor of knitting is the return to an era of one-of-a-kind, pride in craftsmanship, and honor of patience and artistry (p. 25).

We are not quite sure of a return to patience. However, the trend Myers describes might also include the honor of knitting skill as a cultural and bodily practice without the fear that cultivating physical activity might threaten creativity. Knitting skill allows for a varying degree of ambition and creativity. Furthermore, as Dormer (1994, p. 57) reminds us, practical knowledge is an incentive to conceptual reflection. It prompts questions of other ways of doing it.

In Finland, knitting is continuously taught and learned at school but not as consistently as earlier. Instead, the skill is being revived through a new vernacu-

lar of learning in both virtual and real-world communities all over the world. However, different sources of teaching material are not completely separated. Käspaikka, The Virtual Craft Place (www.kaspaikka.fi), has been developed to support craft education at school, knitting included, but it serves anyone who looks for craft knowledge on the Internet.

The number of knitting associations and their respective websites, e.g. in the USA (www.tkga.com), Canada (www.cgknitters.ca), the United Kingdom (www.ukhandknitting.com), and several other countries, event calendars (knittersreview.com/upcoming_events.asp) and conferences (milehighlaceknitting .com; www.taitopohjoiskarjala.fi), sometimes organized in collaboration with museums (www.nordicmuseum.org) reveal how widespread and organized knitting enthusiasm is. And, of course, in February 2007 a new web-based encyclopedia dedicated to knitting was launched (www.knitting-and.com/wiki).

There are also a great number of private knitting websites and blogs in which individual knitters discuss their hobby and through which they form a virtual community. While it continues to be true that craft knowledge is best passed on from skilled person to novice and not learned from books (e.g. Dormer, 1994, pp. 40–57), the Internet offers a fusion medium for passing on craft knowledge and supporting skill acquisition with video demonstrations with voice, still pictures, and written descriptions. Probably novice knitters have realized that they need routinizable skills, facilities, to co-work with their developing critical skills and expression of their ideas, and respectively, expert knitters are willing to support the acquisition of basic skills as well as the sharing of ideas for creative purposes.

We have not systematically analyzed knitting websites; however, visits to some sites suffice to reveal that knitting methods and positions are an issue there, too. Access to international sites arouses interest in different methods of knitting. Watching video clips makes comparing different knitting methods and their variations easy. This possibility encourages knitters to experiment with different methods, when they depend neither on local traditions nor on available books (e.g. www.knittinghelp.com/knitting/basic_techniques/purl.php; www.spelling tuesday.com/continentalpurl.html).

New ways of learning and spreading knitting skill and knowledge may challenge learning and teaching in formal settings, such as schools. However, they do not dismiss our research interest as unimportant to present-day knitters. When hobby-based knitting is spreading rapidly, the pleasure and potential pain of knitting should be the concern of millions of people. According to the survey carried out by the Craft Yarn Council, every third woman in the United States knits. The estimation of the number of knitters in the USA is over 38 million people, four million of whom have started to knit during the last few years. (Stoller, 2003, p. 16) In Finland 60% of women knit, and knitting is the most popular of women's craft hobbies (Hanifi, 2005, pp. 126–127).

Teaching and learning continue to be present in new face-to-face knitting communities, too. Lisa Myers, a scholar, knitter, author and yarn seller, argues that joining a knitting group almost always makes a member a better knitter. Scheduled demonstrations are organized, and even if they are not, other people's work processes reveal new strategies and solutions (Myers, 2001, p. 46).

Today's knitters do not exercise craft out of necessity. On the one hand, they are inspired by textures, surfaces, colors, and material. Even so, as Françoise Tellier-Loumagne's fabulous book *The Art of Knitting* (2005) illustrates, the realization of creations finally comes back to how to knit and purl, cast on and off, even if only on the last pages. On the other hand, knitting appeals to people simply as a rhythmic physical movement with an aesthetic feeling of the material in their hands. It is done in order to soothe one's nerves and manage stress. One paradox of knitting is that, while it helps to manage stress from other sources, it may cause stress and strain in the body. This harm can be eliminated, however, with conscious attention to position, particularly in the automating phase. The second paradox is that knitting helps to concentrate on another task, but it also helps to eliminate disturbing thoughts. At its best, knitting represents an alternative temporality. The joy from simple making is strongly present in new knitting books (Mayers 2001; Stoller 2005; Hosegood 2006). They mix cultural background, the beginner's ABC's, and the global village, and they season knitting with a warm humor that it well deserves.

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