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Human Studies (ISSN: 0163-8548)

Citation for the published paper:
Lindwall, O. ; Ekström, A. (2012) "Instruction-in-interaction: The teaching and learning of a manual skill". Human Studies, vol. 35(1), pp. 27-49.

http://dx.doi.org/10.1007/s10746-012-9213-5

Published in Human Studies
DOI 10.1007/s10746-012-9213-5

Instruction-in-Interaction: The Teaching and Learning of a Manual Skill

Oskar Lindwall & Anna Ekström

Abstract This study takes an interest in instructions and instructed actions in the context of manual skills. The analysis focuses on a video recorded episode where a teacher demonstrates how to crochet chain stitches, requests a group of students to reproduce her actions, and then repeatedly corrects the attempts of one of the students. The initial request, and the students' responses to it, could be seen as preliminary to the series of corrective sequences that come next: the request and the following attempts make it possible for the teacher to launch instructional sequences specifically designed and addressed to the students who need further guidance. In the interaction between the teacher and the novice student, the reasoned character of the instructed actions is not explained so much as installed and tuned. The materiality of the project makes it possible for the two parties to methodically and meticulously adjust their actions in accordance with each other, and towards the gradual realization of the aimed-for results. In connection to this, a number of issues pertaining to the reproducibility and recognizability of manual skills are raised: how instructions-in-interaction orient towards the progression of the skill rather than the interaction itself; how attempts by and mistakes of the instructed party provide grounds for further instruction; and, consequently, how instructions in the form of corrections build on the instructor's continuous assessments of the instructed actions.

Keywords Instructed action, Correction, Manual skill, Ethnomethodology, Conversation analysis

Introduction

In order to function as a social member, it is necessary to master a vast array of manual skills. Over and over again, people are instructed in how to tie a necktie, crack an egg, or use the clutch on a manual transmission. Despite their massive presence and importance, such instructional practices have attracted relatively little academic interest. To some extent, this reflects that the learning and instruction of each skill seldom present any major or long-standing problem; the skills quickly become taken-for-granted and the details of the trajectory towards competent performance become irrelevant. Given that social science has a tendency to investigate issues that are discussed and debated in society at large, mundane skills and activities are easily overlooked or held to be of minor importance. In the field of educational research, for instance, thousands of studies have investigated classroom interaction in the context of science, mathematics, or language. Compared to this body of research, relatively few studies have taken an interest in the interactive details of teaching and learning specific manual skills. There are, of course, exceptions. For instance, in contrast to most traditions in the social sciences, ethnomethodology and conversation analysis have from their inception taken an interest in the ordinary, routine, and mundane. In the words of Garfinkel, ethnomethodological studies pay ‘‘the most commonplace activities of daily life the attention usually accorded extraordinary events’’ (1967: 1). As a consequence, the ‘‘interests in skill and reasoning lie as much in activities such as dancing the tango, performing close-up magic, and playing soccer as they do in arguing legal cases and deducing theorems of formal logic’’ (Livingston 2008: 9). It is not only that these activities are important to investigate in themselves. One could even argue, as does Schegloff, that ‘‘without bringing this inexplicit part of our culture and of the basic repertoire of practical conduct under empirically grounded analytic control, we are unlikely to grasp at the deepest level how either language or action or sociality work’’ (1996: 211–212).

With an interest in the organization of instruction-in-interaction, the current study focuses on a video-recorded episode from a course in textile crafts. In the episode, a teacher demonstrates how to crochet chain stitches, requests the students to make ten stitches, and after having noticed some problems with one of the student’s attempts, engages in one-to-one instructions through a series of corrective sequences. The study builds on previous ethnomethodological work on the achieved relation between instructions and instructed actions (e.g., Amerine and Bilmes 1988; Garfinkel 2002, chapter 6; Livingston 2008; Lynch and Jordan 1995), ethnographic and auto-ethnographic investigations of the acquirement of expertise (e.g., Ingold 2000, 2006; Sudnow 2001) and sequential analyses of corrections in instructional activities (e.g., Goodwin 1994; Keevallik 2010; Hindmarsh et al. 2011; Macbeth 2004; Nishizaka 2006; Weeks 1985). The specific interests of this study are, on the one hand, the reproducibility and recognizability of manual skills, and on the other, the tight and reciprocal interplay between the design of instructions in the form of corrections and the observable attempts to follow them. For someone who already knows how to crochet, the directive ‘‘make ten chain stitches’’ might not be that much different from ‘‘can you pass the salt’’. Without these skills, however, the

directive in itself is not sufficient: the novice who wants to do the stitches also needs to imitate or reproduce something that is shown or follow instructions leading up to the asked for actions. While notions such as reproduce, imitate, and follow may indicate that this is a passive, simple, and one-directed affair, instructions-in- interaction, such as the ones investigated here, are rather characterized by both parties being reciprocally attentive and finely tuned towards each other and the developing skill.

Instruction-in-Interaction: The Empirical Case

The analyzed episode is about 2 min and 15 s long and was video recorded in a series of lectures on crocheting. There are a number of reasons for selecting this particular episode from the larger corpus. First, it exhibits various forms of instruction. Among other things, the episode shows how instructions-in-interaction are tied to different forms of participation frameworks. The initial whole class demonstration (Fragment 1) can be contrasted with the demonstration and ''embedded correction'' (Jefferson 1987) that follows (Fragments 2 and 3), which, in turn, can be contrasted with the one- to-one instructions and ''exposed corrections'' (Jefferson 1987) that take place after that (Fragments 4–8). Each instructional move, moreover, can be designed in numerous ways: as verbal directions, various forms of deictics, embodied demonstrations, and physical manipulations. In relation to this, the episode is selected for its potential to show the heterogeneous but recurrent ways in which instructions are produced and understood. A second argument for selecting this particular episode is that it exhibits a student acquiring a manual skill in a relatively short period of time: at the beginning of the episode, the student is unable to do chain stitches, whereas at the end of the episode he is, albeit not in a dexterous way. The episode thus shows the whole sequence, including the initial request, the corrective sequences (cf. Keevallik 2010: 404) that follow, and the final positive assessment of the student's conduct. Third, the instructed actions are relatively simple, which makes the job of analyzing and representing them easier. Given that the meaning of the instructions are to be found in the actual crocheting, a recommendation is to read the analysis with needle and yarn in hand—to try to reenact the troubles of the student and the instructions of the teacher and thereby to read the analysis as a form of instruction or ''tutorial problem'' (cf. Bjelic and Lynch 1992; Garfinkel 2002: 167); perhaps by first getting some basic skills through following one of the many textual or video-based instructions on how to make chain stitches that can be found on the Internet.

The spoken interaction has been transcribed with the system developed by Jefferson (1984). Both the Swedish original and an English translation are included. Although important, the differences between the two languages are not so extensive that they justify an additional line with a word-by-word translation. In contrast to, for instance, Japanese, the English translation shares central features, such as the order of words, with the spoken Swedish. Together with the representations of the spoken interaction, pictures and texts illustrate and describe the embodied actions of the participants. The pictures are temporally aligned with the spoken interaction. Rather than marking the exact position of a particular frame of the video, the illustrations

represent actions that take place over time. It is notable, moreover, that most of the

illustrations are reconstructions showing the actions from another angle than those provided by the original recordings. The illustrations are in several cases accompanied by descriptive texts, which aim to highlight what the pictures are showing. In some respects, there are parallels between the functions of these texts and the teacher's attempts to verbally highlight what she is doing, showing, or pointing at. Most importantly, the sense of both texts and utterances are to be found in the act of crocheting rather than in the written or spoken contributions per se. When read this way, the transcripts might not be less fallible objects than the instructions themselves: they are, to use the words of Garfinkel, necessarily loaded with problems of "factual adequacy, completeness, ambiguity of expression, followability, effective procedure, unique correspondence of representation and object" (2002: 202) and so on.

Request, Demonstration, and Embedded Correction

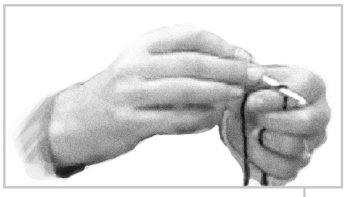
Before the following episodes (Fragments 1–3), the students have started their work with the stitches: the teacher has demonstrated how to make a slipknot and she has made certain that all the students have managed to do that part. In Fragment 1, she continues by requesting the students to make ten chain stitches at the same time as she demonstrates how to do it.

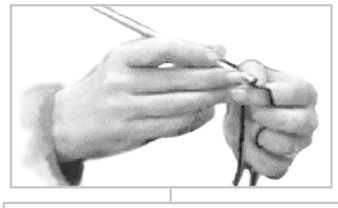
Fragment 1

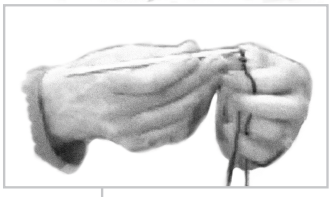
001 Ann: .hhhhh (.) S:O, (0.6) U:h (0.4)
.hhhhh (.) S:Å, (0.6) E:h (0.4)

002 THEN (0.4) you (.) MA:ke,
DÅ (0.4) LÄgger ni (.) UPPh:,

003 (0.6) te:n stitches, (1.1)
(0.6) ti:e masker, (1.1)







004 >°n' then,°< (0.4) by just pulling: the loop through like that¿
>°å sen,°< (0.4) genom att bara dra: öglan igenom så¿

005 (1.0) prec:isely (0.4) chainstitches it is ca:lled¿
(1.0) precis: (0.4) luftmasker kallas de:¿

006 (7.4) ((the teacher continues to do stitches))

The teacher leaves many things implicit when she tells the students to make ten stitches "by just pulling: the loop through". In order to understand how the instructions are assembled and the practical work of following them, however, it would be a mistake to focus on the words alone. The teacher's utterances are designed as part of an embodied demonstration in which her hands, the hook, and the yarn play essential parts. During the demonstration, the teacher shows how the yarn should be held, how to pull the yarn through the loop, how to hold the hook, and where to place one's fingers. Words and displayed actions should consequently be understood as reciprocally intertwined or as standing in a reflexive relationship to each other. What

the teacher says is indexical to and gets its sense from what she shows: by looking at what the teacher is doing, it is possible to discover the locally-relevanced meaning of the words ‘‘loop’’ and ‘‘pull’’. At the same time, her spoken utterances draw attention to and highlight certain aspects of what she is currently doing. In this way, what could be seen as a single continuous action becomes easier to discern as a set of sub-actions. When the teacher says ‘‘°n’ then°’’/‘‘ °åssen°’’, she gets the yarn with the hook. She then stops during her ‘‘by just pulling: the loop’’ before pulling the yarn through the loop while saying ‘‘through’’ and then stopping again at ‘‘like that’’. By adding the ‘‘like that,’’ she marks the pulling-part as completed and then continues to crochet at a normal pace. Words and actions are thus interlinked through the use of pace and timing, which further segment the crocheting into recognizable sub-actions.

A second characteristics of the demonstration—which can be seen as equally critical and distinguishing as its embodied nature—is that the teacher adjusts her actions to the local circumstances as they unfold moment by moment. While the demonstration found in this first episode is addressing the whole group of students, telling them what to do in a rather general way, it is still organized in response to its situated position there and then. At the beginning of the episode, the teacher addresses the whole class by raising her voice and positioning herself so that everyone can see her. The actual demonstration is thus delayed so that the attention of the students can be secured. During this time, she also projects what is to come as an additional step in a sequence of tasks. In the transcript, the Swedish‘‘så” is translated into ‘‘so’’ in line 1 and ‘‘like that’’ in line 4. In both cases, the word, which does not have any exact English equivalent, ‘‘takes part in the temporal (or ‘aspectual’) profiling of the act; marking the shift from its ‘ongoing’ performance to its status as ‘accomplished’’’ (Andrén 2012). While the second ‘‘så’’/‘‘like that’’ points towards a particular part of the teacher’s demonstration, her ‘‘pulling: the loop through,’’ the first indexes the ordering of the students’ task. By ending the previous project, the ‘‘S:A° ,’’/‘‘S:O,’’ marks what is to follow as a next step and thereby elicits a certain mode of listening. This is further enforced by her ‘‘THEN (0.4) you (.) MA:ke, (0.6),’’ which makes it relevant for the students to look and listen for their next actions.

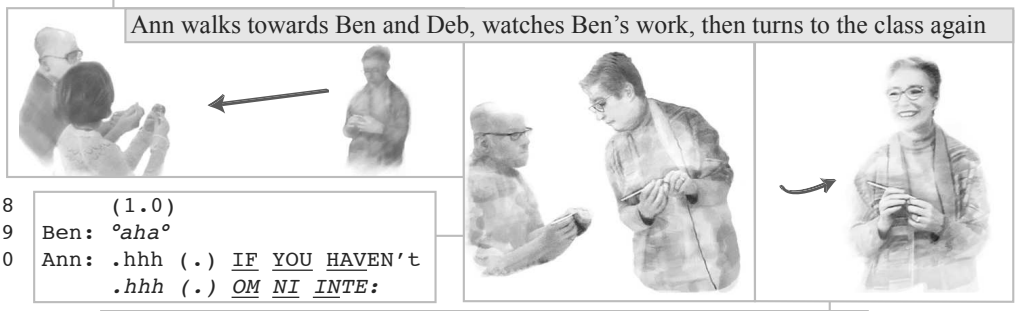
Although all the students have to attend to the teacher’s conduct in order to know how to proceed with the task, their attention is dependent on their previous experience and thereby not uniform. In this particular class, most of the students are already competent at crocheting. They can therefore immediately comply with the teacher’s directive by making ten stitches of their own. They just need to know what to do next (that is, ten chain stitches), not how to do it. For them, the directive ‘‘MA:ke (0.6) te:n stitches’’ is therefore somewhat similar to requests such as ‘‘could you pass the salt, please?’’ said at a dinner table. However, drawing too strong parallels between the teacher’s directives and requests would miss central aspects of how these instructions are designed and understood. The distinction is, albeit weakly, indicated in the way that the directive is formulated: it is not prefaced by any modal auxiliary such as ‘‘could’’ or ‘‘would,’’ neither does it end with a politeness marker such as ‘‘please?’’ It is not that the students are asked to do something for the teacher or that she could ask someone else or do it herself if they turned her down. The central issue is whether they are able to do what the directive tells them and not whether they are going to comply or reject it. In fact, one could say that these kinds of instructional directives are routinely

produced so as to ask for actions and achievements that the students cannot easily provide; thereby involving them in some sort of learning-by-doing.

For at least one of the students, who lacks previous experience of the technique, it is not enough to know that he should make ten stitches. For him, or anyone else who does not yet know how to crochet, the initial direction ‘‘MA:ke (0.6) te:n stitches’’ rather works to solicit a certain way of monitoring the ensuing demonstration; it tells him to consult the teacher’s conduct for what he should do and how. As is illustrated in Fragment 2, assembling the stitches for the first time is not a trivial task. There are also a number of visual constraints: the teacher stands at a distance from the students; her body is not directly turned towards him; and both the material and movements involved in the technique are tiny.

Fragment 2

007 Deb: that on the thread through (collecting)
den på tråden genom (hämtar upp)



008 (1.0)
009 Ben: *°aha°*
010 Ann: .hhh (.) IF YOU HAVEN’t
.hhh (.) OM NI INTE:
011 e::h I: should probably have taken it somewhat properly,
e::h j:ag skulle väl ha tagit de lite ordentligt,
012 on how one holds the thread¿=
om hur man håller tråden¿=
013 Ben: =m::

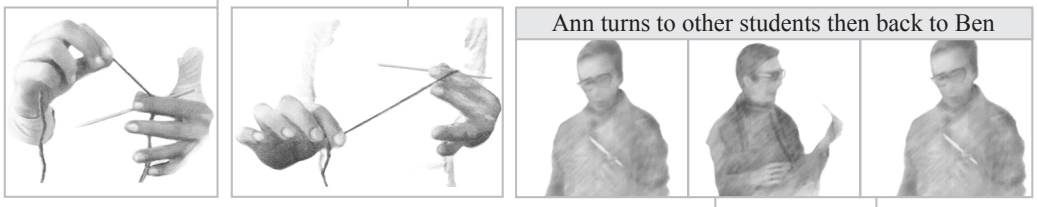
Since the students are not just listening to the teacher’s instructions, but also attempting to make ten stitches by themselves, their competencies become publicly available in and through their conduct. Not only does this give an opportunity to separate the competent students from those who encounter problems; the specific mistakes the students display also make it possible for the teacher to adjust her instructions in response to these mistakes. At the beginning of Fragment 2, one of the students, Ben, holds the yarn in his left hand in a way that would make crocheting very hard or even impossible. This is picked up by his fellow student Deb, who starts to describe the procedures to him while she simultaneously shows how it should be done. Meanwhile, the teacher approaches the two students, which makes it possible for her to overhear the instructions provided by Deb. Having noted the trouble, the teacher takes a couple of steps back and says ‘‘IF YOU HAVEN’t’’. By using the second person plural ‘‘ni’’ and a raised tone of voice, she is hearably addressing the students as a cohort (cf. Payne and Hustler 1980). Her subsequent restart (line 11–12), which prefaces the actual demonstration (in Fragment 3), is doing several things. First of all, it stalls the demonstration until she gets into a physical position where she can be seen by a majority of the students. Furthermore, it positions the responsibilities of any potential troubles in the teacher’s not showing

''properly'' rather than in the students' lack of competence or attentiveness. The preface also frames the upcoming demonstration as something already shown and provides a gloss for it, ''how one holds the thread''. In this way, the students are given some resources for deciding whether they should attend or not. Since the demonstration was touched off or triggered by Ben's problems, the relevance of his attention is specifically warranted. It is not until the teacher says ''thread'' (line 10) that Ben turns his gaze from his own project towards the teacher, which indicates that the actual demonstration awaits his attention (cf. Goodwin 1981: 127–142).

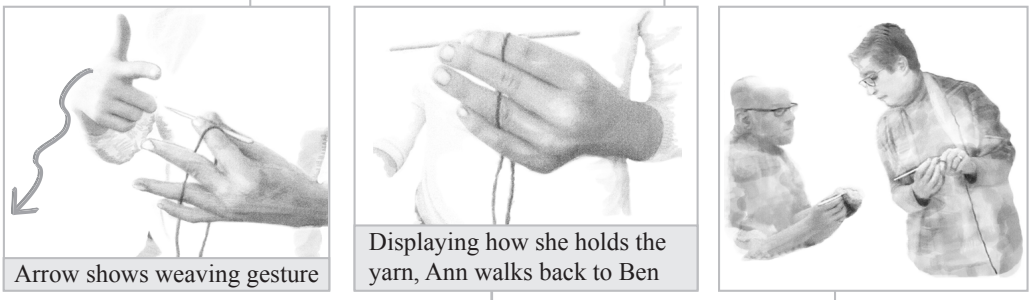
For Ben, or anyone else who does not know how to hold the thread, the preface does not just ask for attention; it also furnishes a particular way of looking at and listening to the subsequent demonstration by providing an interpretational and temporal framework for subsequent actions. In this respect, it is similar to prefaces used in other activities such as storytelling (Sacks 1992, Vol. 2, chaps. 1 and 2). Both demonstrations and stories typically take some time to produce and involve several turns of talk. For a recipient, having the means to project how and when to respond therefore becomes critical. Goodwin (1996) writes about prefaces in terms of ''prospective indexicals,'' and notes that ''hearers must engage in an active, somewhat problematic process of interpretation in order to uncover the specification of the indexical that will enable them to build appropriate subsequent action at a particular place'' (Goodwin 1996: 384–385). In this case (Fragment 2), the preface projects that the students should watch for the way ''one holds the thread,'' and when they have seen what is demonstrated they should show that they know how to do it (cf. line 17).

Fragment 3

014 Ann: one holds the thread ar:ound the index finger¿
man håller tråden r:unt pekfingret¿



015 (1.2) .hh and for the thread not to slide away: (.) I: u:se
.hh och för att inte tråden ska glida iväg så (.) an:vänder ja
016 (0.9) the system that I wea:ve it between the thr- (.) fingers (1.3)
(0.9) systemet att ja väver de mellan tr- (.) fingrarna (1.3)



017 °like that,° (1.3) >°so that I°< can (.) pinch: it. (.) like that yea.
°så,° (1.3) >°så att ja°< kan (.) knipa å:t. (.) sådär ja.
018 (0.7)

Like the preface in Fragment 2, the explanatory account in Fragment 3 also furnishes a particular way of looking at the demonstration. Since it is said while the teacher is performing the demonstration, however, it has a different temporal relation to the embodied actions—in a way, it could be seen as an online explanation of what the teacher is currently showing. When the teacher says ''ar:ound the index finger,'' she simultaneously positions the thread on her finger by using an exaggerated movement. She then pauses for more than a second, holds a fixed posture and looks at her finger, thereby giving the students some time to look at the way she is holding it. One can further note that the utterances consist of descriptions of the ways she is holding the thread ''ar:ound the index finger'' and ''wea:ve it between the thr- (.) fingers'' as well as accounts for doing so ''for the thread not to slide away:'' and ''[°so that I° \ can (.) pinch: it''. Explicating the reasons for the action provides yet another resource for the students trying to reproduce what the teacher is demonstrating—as will be discussed in relation to Fragment 4, attempting to reproduce the holding of the yarn, without understanding the reasons for doing so, might result in additional problems.

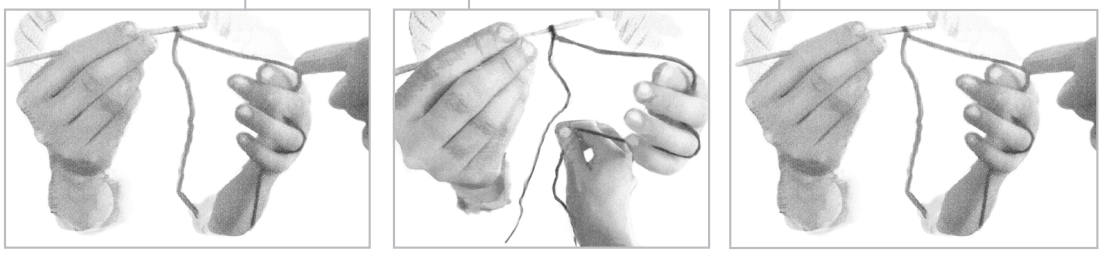
Throughout the demonstration, the teacher addresses the students in a differentiated way, which gives the demonstration a ''split audience design'' (Linell 2009: 101). On the one hand, the teacher's demonstration highlights something that could be seen as missing in the initial demonstration. In presenting her particular ''system'' (line 16) of holding the yarn, the demonstration is potentially relevant to students who already know how to crochet; it is something that might be different from the way they do it and which they could adopt if they want. On the other hand, it specifically addresses the fact that Ben is not holding the yarn with his left hand in the right way, thereby initiating a correction of his performance. The dual purposes and addressees are reflected in the teacher's gaze and the way she positions herself. During the first part of the demonstration, the teacher orients toward Ben (line 14). She then momentarily directs her upper body towards some other students while saying, ''for the thread not to slide away:,'' after which she immediately turns to Ben again and inspects what he is doing. The sequence ends with the teacher approaching the student, assessing his way of holding the yarn with a ''like that''/''sa°da¨r'' followed by the acknowledgement token ''ja''/''yea''. In the words of Payne and Hustler (1980), the teacher is acting here ''like a shepherd attempting to have his entire flock moved along to wherever [s]he wants them to go, but continuously having to attend to individuals and groups who for whatever reason are not 'with the others'' (Payne and Hustler 1980: 63).

Corrections of the Holding of the Yarn

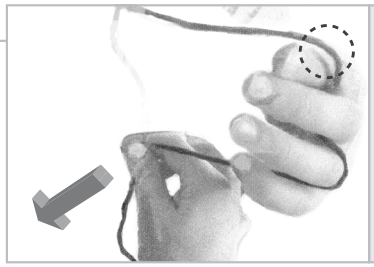
At the end of the Fragment 3, the teacher was moving towards Ben, looking at his hands, and acknowledging his way of holding the yarn as partially correct. She then positioned herself just in front of him so that his hands, the yarn, and the hook are right between them. Instead of addressing the whole class, she is now exclusively orienting towards a single student. The spatial-orientational arrangement in the two previous episodes was designed to give the cohort of students visual access to the teacher's demonstration. Her new position in the room severely restricts the access of students other than Ben. Instead, it gives the teacher increased access to Ben's work, thereby affording other forms of interaction and instruction.

Fragment 4

019 Ann: n'so that one holds this much closer to the finger¿ (0.3)
åsså att man håller detta mycket närmare fingret¿ (0.3)



020 (1.7)
021 Ben: okay
okej
022 Ann: yet closer
ännu närmare
023 Ben: °oh°
°oj°



The yarn is weaved between Ben's fingers, but the circled part is not stretched around the index finger as it should be. Ann pulls the yarn in the direction of the arrow and gets it into right position.

Both the students and the teacher have a space directly in front them where the actual crocheting takes place and where the relevant objects are kept—what Mead (1938: 167–172) refers to as a ''manipulatory sphere''. Up to this point, these spaces were not intersubjectively shared. Although the students have been attending to the teacher when she was performing the demonstrations, and the teacher has been monitoring the students' conduct, the teacher and the students have not inhabited or physically shared each other's manipulatory spheres. The joint space makes it possible for the teacher to guide and physically manipulate the actions of the student: to be involved in a collaboration of hands, as it were (cf. Goffman 1979: 35). It is important to note, however, that even though the two parties have direct access to the space between them, they do not have the same rights, roles, or competencies to act in it. As a consequence, their interaction is characterized by a clear division of labor tied to their positions as teacher and student, or, more specifically, instructor and instructed. Learning by doing means that the doing is done in the service of learning. The aim of the activity is not just to make ten chain stitches, but for the students to learn how to make such stitches. This means that the teacher cannot complete the assignment for the student. Still, the hands of the teacher can and do play an active role in guiding the hands of the students and thereby producing the stitches. Central for this work are the ways in which corrections are initiated and carried out.

At the beginning of Fragment 4, the teacher notes that the yarn is not stretched around the index finger despite that Ben now is holding the yarn woven between his fingers. This time, she does not demonstrate how ''one holds,'' but points directly to the problems she sees; thus, her instructional moves change referent from the teacher's demonstrated and correct way of doing it, to the student's partly incorrect attempts. First, she points at and touches Ben's index finger ''holds''/''håller''; then, she quickly grabs the yarn ''detta''/''this,'' whereafter she returns to the finger once more ''fingret''; finally, at the end of the turn, she grabs the yarn again and pulls it

during the rest of the sequence. The meaning of the teacher's utterances is closely tied to the configuration of the student's fingers and the yarn. If the teacher had pointed from a distance, it would have been hard to see what ''this'' or ''the finger'' referred to. By being physically close to each other, it becomes easier to visually distinguish the referents of the deictic gesture. In addition, the intercorporeality of their actions makes it possible to find what the teacher is pointing to with means other than eyesight. As the teacher is touching the student while pointing, the referent can be decided by using a tactile sense. The intercorporeality also enables the teacher to carry out certain types of corrections. The second time the teacher pulls the yarn, she is not just demonstrating or indexing a way of holding it, she is actually pulling the yarn into place. Although it is the student who must embody the correct holding of the yarn, the teacher has the option to mold the student's hands and yarn into the right position (cf. Becvar Weddle and Hollan 2010: 128).

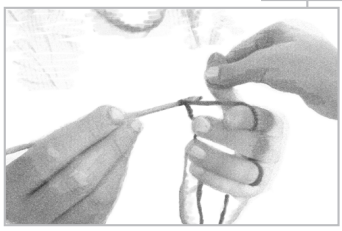
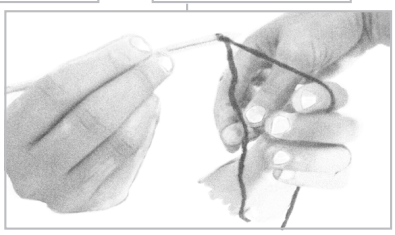
Not only does the spatial-orientational arrangement (in Fragment 4) afford certain physical and manipulatory actions, it also tightens the sequential relationship between the actions of Ann and Ben. By having established a spatial and orientational relationship of mutual monitoring (Goffman 1963: 18; cf. Goodwin 1980), the ensuing interaction can trade on the same ''architecture of intersubjectivity'' (Heritage 1984: 254) as ordinary conversation does. This means that they can expect of any action ''that, unless otherwise provided for, it is addressed to what just preceded—to its adjacent prior, or that after which it is 'next'''. (Schegloff 2000: 19). The student's ''okay'' and concurrent adjustment (line 21, 22) display an understanding of the teacher's instruction to hold ''this much closer''. Through her ''even closer,'' and by further adjusting the way that the student holds the yarn, the teacher, in turn, displays her analysis of the student's attempt to follow the instruction—it shows that the student's embodied interpretation of close was not close enough for the teacher. In this way, both parties are reciprocally and continually calibrating their actions so as to respond to each other and to the developing situation. As has been shown (in Fragment 1–3), there was a calibration of actions in the previous episodes as well: the teacher demonstrated how to do stitches, the students attempted to replicate the teacher's demonstration, and the teacher performed a new demonstration based on the problems she perceived. Since the teacher was addressing the cohort of students, however, there were no taken-for-granted sequential couplings between the actions of the teacher and that of individual students. Even though the teacher's second demonstration (Fragments 2 and 3) was triggered by a particular student, she could not assume that this student would understand her subsequent actions in that way. Therefore, she had to work to secure his attention before she could continue with the actual instruction. Since the demonstration was potentially relevant to students that did not have access to what triggered it, moreover, it was performed as a more or less self-contained unit.

While the spatial-orientational arrangement in some respects makes the interaction similar to that of a conversation, it is obvious that the notion of ''adjacency'' or ''nextness'' should not be limited to turns-at-talk. Even in ordinary conversations, there are problems of just focusing on talk or construing interactive contributions solely on a turn-by-turn basis: people use other resources than language when talking, speakers can invite listeners' participation within single turns of talk, and speakers and listeners can produce concurrent operations on the talk of speakers (e.g., Goodwin

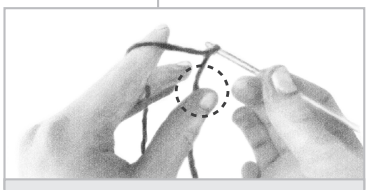
1981; Goodwin and Goodwin 1987; Iwasaki 2009). Still, there is an even stronger sense in which this is relevant for instructions-in-interaction. Whatever resources are used, and regardless of whether they are produced concurrently or in an adjacent position, the operations in this context are not primarily done on talk. The teacher's instruction, ''one holds this much closer to the finger'' is addressing the way the student holds the yarn and makes conditionally relevant the embodied enactment of a certain bodily move. While the student's ''okay'' shows an understanding of being instructed and a commitment to follow it (cf. Merritt 1978), the utterance does not comply with the instruction. Correspondingly, the teacher's ''even closer'' does not initiate a correction of the student's ''okay,'' but of his way of holding the yarn; it makes relevant an adjustment of the yarn rather than a re-phrasing of what was said. In these episodes, utterances and other actions are thus primarily orienting towards the progressivity of the student's attempts at crocheting rather than the progressivity of the talk itself (cf. Nevile 2007; Stivers and Robinson 2006), which also has consequences for the recognizability, projectability, and meaning of the actions.

Fragment 5

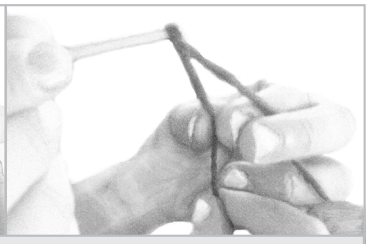
024 Ann: n'so that you hold (.) that thumb (.) on that yarn.
åsså att du håller (.) den tummen (.) på de: garnet.

025 Ben: °like that?°
°så°?

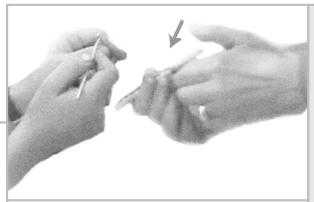
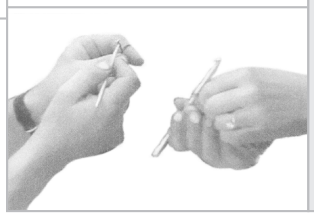


Ben holds the thumb against the yarn, but he does not pinch it against the index finger.

Ann moves the yarn between Ben's thumb and index finger

026 Ann: against the finger¿
mot fingret¿
027 Ben: against the finger, (.) oh:
mot fingret, (.) ah:
028 Ann: n' then (.) pinch
å sen håll (.) knip
029 Ben: *a:[ha,]*
030 Ann: [pi]nch: that (.) there.
[kn]i:p den (.) där.
031 Ben: aha:. (.) like that?
aha:. (.) s:å?
032 Ann: li:ke that yea¿
s:å: ja¿
033 Ben: yea:.
ja:.

Ann taps her thumb against the yarn and index finger three times.

She then pinches her thumb on the yarn and index finger, which is followed by Ben imitating her.

When the teacher introduces a new issue or addresses a new source of trouble, it is important for the student to realize that the ensuing instructions are, in fact, addressing something different from the previous instructions. In relation to this, the teacher's turn initial ''åssså''/''n'then'' in Fragment 5 could be seen as managing the transition from one issue to another: it projects further instructions on how to crochet, thereby a continuation of the overarching project, whereas its phrasing and intonation also indicate that the projected instructions are a next step, potentially involving something other than the weaving of the yarn between the fingers. What this something other might be is then specified by the teacher through her moving the student's finger while saying, ''you hold (.) that thumb (.) on that yarn''. Meanwhile, the student's hands are docile; he lets the teacher move his thumb and then stays in that position. Given that the student does not know what the teacher has set out to correct and lacks the resources to assess whether he has managed to enact the corrected actions, it might be difficult to do much more than accept the adjusted position of his thumb. The student's try- marked ''så''/''like that'' (line 26) is hearably oriented towards the adequacy of his performance as unsettled, thereby prompting a next move by the teacher. In some contexts, this particle can be ''used to indicate that something was properly accomplished, according to normative conventions or, in some cases, in relation to locally established expectations'' (Andre´n 2012). Since the student in this case is a novice, it is rather the attempt that is marked as accomplished and not the instructed action itself. The student's uses of ''sa°'' (lines 26 and 32) can in this respect be contrasted with the teacher's confirming ''s:å: ja''/''like that yeah'' (line 33). While the student's ''så°'' makes the teacher's assessment of his performance conditionally relevant, the teacher's ''så ja'' responds to this by confirming his now corrected attempt. Both parties are oriented towards the adequacy of the student's performance, but at this point only the teacher has the means for assessing it.

Evidently, the teacher and the student do not share the same understanding of the instructed actions: if that were the case, instructions in the form of corrections would be unwarranted. At the same time, the instructions need to rely on some understandings that are shared by the instructor and the instructed. Such shared understandings permit the instructions to be produced as recognizable actions, thereby providing for the potential manifestation of responses in line with the instructions. In the words of Macbeth: ''These are the understandings that organize the sequential production and coherence of instructing occasions. They are the understandings that permit instruction to go on'' (2011: 411). Knowing how to crochet is not a requirement for hearing ''n'so'' as prefatory to the instruction of a new issue or the teacher's ''like: that yeah'' as a confirmation of the student's performance. With or without competence in crocheting, moreover, it is probably clear that the aim of each instructional move is to correct the student's performance, and, consequently, that the reasons for the instructions are to be found in his incorrect—or at least not yet sufficiently correct—conduct. Still, the specific reasons for the teacher's instructions, and exactly what these instructions aim to accomplish, are only discernible to someone with relevant experience of yarn techniques. At the beginning of the episode, the student has his left-hand

thumb pointing upwards instead of using it to pinch the tail of the yarn. If he had instead pinched the yarn between his thumb and index finger, he could have had it stretched, which, in turn, would have provided some stability and made it much easier to perform the actual crocheting. With some skill in crocheting, observing the student's thumb at the beginning of the sequence would immediately make these issues relevant and thus provide an understanding of the specific aim of and reason for the teacher's ensuing actions. With such skills, moreover, it would be possible to explain why the teacher does what she does and what she aims to achieve with these instructions.

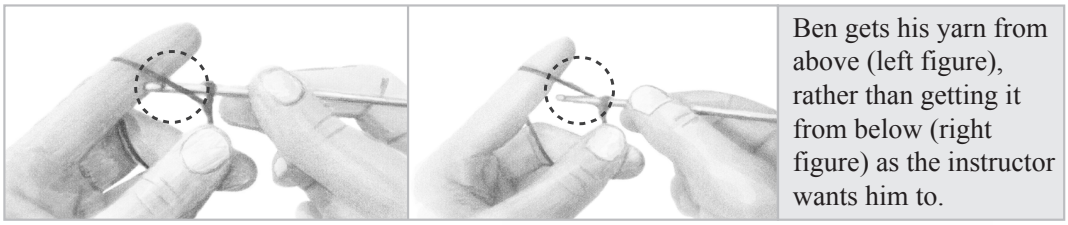
From the point where the teacher engages in one-to-one instructions (Fragment 3 and onwards), her verbal commentaries could be understood as ''thin descriptions'' (Ryle 1971) as they only capture the behavioral dimension of the instructed actions. According to Ryle such a description ''requires a thickening, often a multiple thickening, of a perfectly specific kind before it amounts to an account of what the person is trying to accomplish'' (1971: 489). As is indicated by the interaction in Fragment 5, the student's lack of understanding of what the instructions are trying to accomplish makes it hard for him to follow them adequately. For instance, holding one's thumb on the yarn without pressing it against one's finger is not a meaningful thing to do—it is not a difference that makes a difference in the act of crocheting. Still, this is precisely what the student does as a response to the teacher's initial correction (line 24). Without knowing exactly why the teacher corrects him or why these corrections are important, the descriptions and adjustments of limbs, tools, and materials risk being without any specific aim or meaning; at least before the manual skill is in place. Ryle (1971: 489) contrasts a description of a behavior, such as ''pencilling a line or dot on paper,'' with an account of what someone is attempting to accomplish through this behavior, for instance, ''design a new rigging for his yacht''. It is notable that the teacher's description in this episode, as well as in most of the others (Fragments 1, 3 and 5), are produced at a relatively ''thin accomplishment level''. Her words and embodied actions mainly address the position and movement of certain body parts rather than characterize meaningful actions. However, even though thicker descriptions might be more appropriate for characterizing the action and the aimed at accomplishment, this does not mean that they are necessarily better for installing a basic manual skill. There are other ways of finding the sense of actions and their accomplishment than having them explained. When the behavioral instructions are adequately followed, the pinching might make sense simply because it makes it easier to perform the actual crocheting. In the words of Garfinkel (2002), there is a natural accountability or praxeological validity tied to the production of the stitches.

Corrections of the Use of the Hook

So far, the teacher's interaction with Ben has mainly concerned the way he holds the yarn. While this is a necessary condition for making the stitches, the student

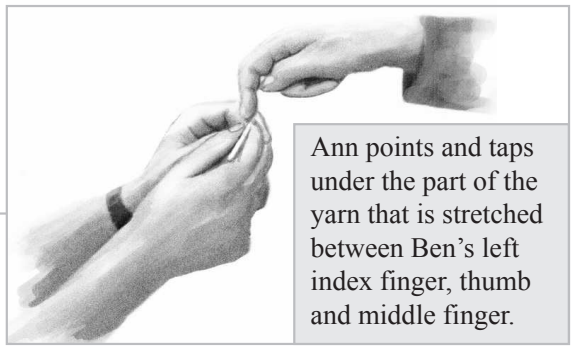
also needs to move and use the hook in specific ways in order to crochet. In the rest of the interaction (Fragments 6–8), the teacher attends to two interconnected aspects of the student's needlework: how the yarn is collected and how the hook is rotated.

Fragment 6

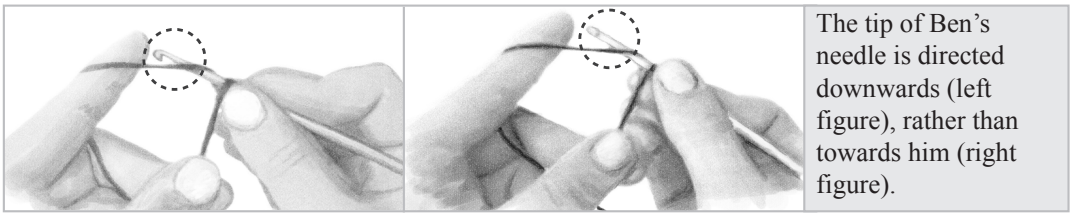


Ben gets his yarn from above (left figure), rather than getting it from below (right figure) as the instructor wants him to.

```
034          (1.2)
035   Ann:   >and [then]
               >å [så hämt]ar
036   Ben:         [>n'then<]
                  [>å sen<]
037   Ann:   you get the yarn from<
               du garnet från<
038          (.) that direction¿
               (.) de: hållet¿
039          (0.9)
040   Ben:   °like that°
               °så°
```

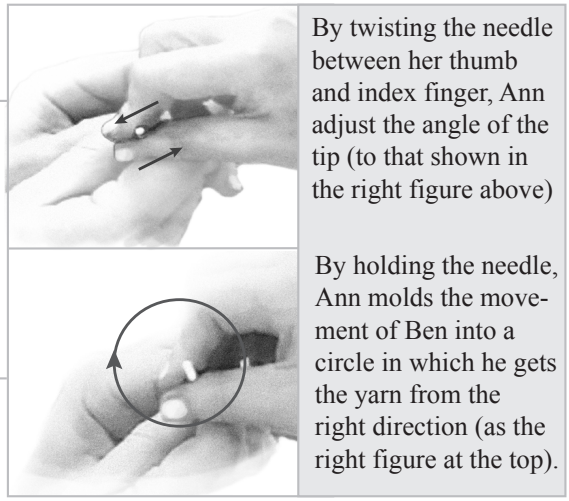


Ann points and taps under the part of the yarn that is stretched between Ben's left index finger, thumb and middle finger.



The tip of Ben's needle is directed downwards (left figure), rather than towards him (right figure).

```
041          (1.2)
042   Ann:   yea: althou:gh (.) turn
               ja: fastän: (.) vrid
043          it in the way you had
               den så som du hade
044          [it] in the begin[ning.]
               [den] från bö[rjan.]
045   Ben:   [yea:]          [okay]
               [ja:]        [okey]
046          (.) okay
               (.) okay
047   Ann:   like that.
               så.
048          (1.0)
049          then,
               sen så,
050   Ben:   °n'then°
               °å så:°
051          (1.2)
```



By twisting the needle between her thumb and index finger, Ann adjust the angle of the tip (to that shown in the right figure above)

By holding the needle, Ann molds the movement of Ben into a circle in which he gets the yarn from the right direction (as the right figure at the top).

At the top and middle of Fragment 6, illustrations representing the sources of trouble addressed by teacher (on the left) are contrasted with illustrations of the instructed ways of performing the action (on the right). In order to find and see

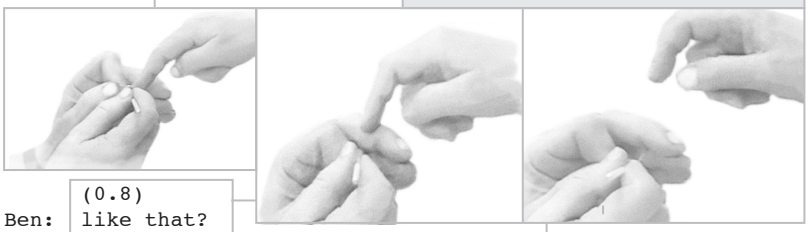
the relevant movements in the images and associated texts, some skill in crocheting is required. Even with such skill, however, it can be hard to grasp the exact nature of both trouble source and instructed actions. The images only show hands, yarn, and needle at frozen points in time; they do not show what preceded, how the movement progressed, or why one way of doing it is preferred to the other. Before the moment depicted by the image at the top left, for instance, the needle has been moved beyond the yarn from its upper side and it is about to hook it. In the image on the top right, the needle is positioned in front of the yarn and below it and is about to be moved under it in order to fetch it into a new stitch. As collecting the yarn from below means moving the needle in a small circle around it, a novice like Ben might experience getting the yarn from above as more natural or straightforward. Nonetheless, it is still easier to pull the yarn through the loop when it is collected from beneath, which accounts for the correction initiated by Ann in line 35. The trouble source represented in the middle of Fragment 6 can be similarly unpacked. For the purposes of this study, however, it is sufficient to note that when the student adjusts the way he collects the yarn, he simultaneously changes the direction of the hook from a correct position to a faulty one.

In relation to this fragment, notions such as direction, position, beneath, and above have a different character than they have in relation to Fragments 2–5. When asked to weave the yarn between the fingers or move the thumb, exactly how the yarn and fingers are moved to their correct positions is not immediately relevant: both the problem and the achievement of the instructed actions are rather to be found in a static arrangement of limbs and objects. In Fragments 6–8, however, the instructions aim at unfolding movements and procedures. Consequently, the teacher's utterance ''get the yarn from that direction'' and the associated pointing gesture should not primarily be consulted for the position to which ''that'' refers, but for the way in which one ''gets the yarn''. Like the illustrations and associated texts have limitations on how they allow the explication of unfolding movements, so the verbal and embodied resources used by the teacher have limitations on installing such movements. Perhaps responding to this, the teacher's instructive actions become increasingly hands-on. Her twisting in of the hook (lines 42–45)—like her previous pulling of the yarn (Fragment 4) and movement of Ben's thumb (Fragment 5)—physically sets out to create the appropriate configuration for the instructed actions to come. Addressing the actual movement, the teacher's next instruction (lines 48–50) has yet again a somewhat different character. Still holding the handle of the hook, she performs a circling movement which forces Ben to collect the yarn from below with the point of the hook turned towards him. This way of guiding his conduct is only possible now when the basic configuration is already assembled and the student, at least on a basic level, is able to get the yarn. By holding the student's needle with two fingers, the teacher's ability to actually make the stitches is limited, but she can restrict his way of making them and thereby perform the intended correction.

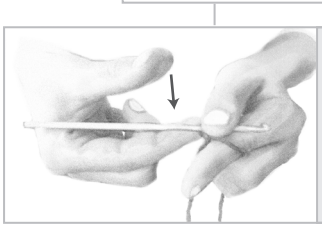
Fragment 7

052 (2.2)
053 Ann: not from that direction.
inte från de hållet.
054 Ben: no-
int-

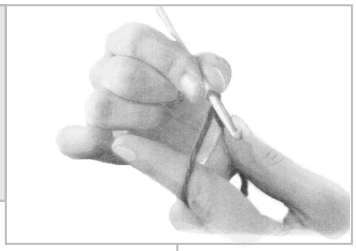
Ann points at the top of the needle, then lets her finger ”hover” while she observes, and finally she draws back.



055 (0.8)
056 Ben: like that?
så?
057 Ann: like tha:t yea,
s::å ja,
058 (1.2)
059 Ann: bu:t if you look at¿ (0.3) at the
mä: om du tittar på¿ (0.3) på
060 direction of the needle (.) there
riktningen på nå:len (.) så
061 (0.5)
062 Ann: if you hold it (.) li:ke
om man håller den (.) så
063 that with the thumb on that,
så: med med tummen där på,



Ann repeatedly taps on the flat surface of the needle (left figure). She then shows how the needle is turned when getting the yarn (right figure).



064 Ben: m::
065 (1.0)
066 Ann: then then one has (ju) the hook against oneself,
så så har man ju kroken mot sej,
067 (.) .h n’then one get in like that and collects.
(.) .h å så går man man in så å hämtar igenom.

After the teacher and student have jointly made two stitches, the teacher lets go of the hook. When continuing to make stitches on his own (Fragment 7, line 51), Ben immediately goes back to collecting the yarn from above. Even though the teacher has shown how it should be done and the student has managed to make some stitches together with the teacher, this does not mean that he has yet acquired the necessary skill to make the stitches. Learning to crochet—like learning to weave a basket, play the piano, or computer games—is not only about seeing or discerning what should be done but also about getting the body to act in certain ways. Even the most basic skills, such as making chain stitches, require practice and repetition. After a while, actions might become stable and

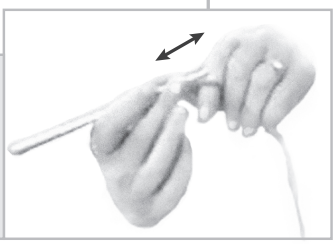
repeatable. Until then, the skills are fragile and there is a risk that central details get lost despite the fact that these were previously included.

This time, the teacher's correction (line 52) trades on the previous instructional work of establishing the right direction: she only points out the source of trouble, not what the student should do instead. While the student adjusts the way he gets the yarn, the teacher's right index finger stays ready to intervene (lines 55–56). After having observed his conduct for just over a second, she yet again notes that his correction of the way he gets the yarn also results in him turning the hook downwards. She positions herself so that the student can observe how she holds the hook, and proposes that he look at the direction of the hook while she slowly and demonstratively makes one chain stitch. She then stops with her crocheting and starts to tap with her right hand thumb on a section of the hook close to the middle. This tapping is clearly not part of the crocheting, but used to direct the student's attention towards the location where the thumb should be pressed. Many hooks, including the ones used by the teacher and the student, have a ''thumb rest''; that is, a part of the hook that is more flat than the rest. When holding the thumb there, it becomes difficult to simultaneously collect the yarn from below and twist the hook away from the body. Previously, the teacher used her own hands to force the student to collect the yarn and turn the hook in certain ways. Now, she suggests a way of letting the affordances of the hook do this work for her. Using the terminology of Latour (1992: 237), the design of the hook could be seen as part of a ''distribution of skills,'' in which specific ''programs of actions'' becomes ''pre-inscribed'' into the artifacts used. As is illustrated by the last episode (Fragment 8), however, when applied to human action, notions such as programs or pre-inscribing do not imply any form of determinism: despite the fact that the hook makes it difficult, and even though the teacher has told him how to do it correctly, Ben still manages to turn the point of the hook downwards.

Fragment 8

```
066          (3.0)
067  Ann:    not like that then
             inte så då
068          (0.7)
069  Ben:    but now I have (ju) the thumb here
             m'n:u har jag ju tummen här
070  Ann:    nyeah: but, (0.5) if you
             nja: men, (0.5) om du
072          (1.0)
073  Ann:    [one-]
             [engå-]
074  Ben:    [I] think I do precisely:
             [jag] tycker jag gör precis:
075          (0.9)
076  Ann:    no:¿
             n:ej¿
077          (3.2)
```

078 Ann: I (.) hold the thumb there (.) n'then I go from (0.4) the lower
jag (.) håller tummen där (.) åssså går jag från (0.4) nedre
079 p[art] of the index finger,
de[len] av pekfingret,
080 Ben: [yea:]
[ja:]
081 (0.7)
082 Ann: un:der
un:der
083 (1.4)
084 Ann: like that
så
085 (1.6)
086 Ann: and pull through
å drar igenom
087 Ben: °yeah like this yeah°
°ja såja°
088 (1.0)
089 Ben: th[en you do the same¿]
s[en gör man likadant¿]
090 Ann: [n'then (0.4) ten] like that yeah (.) precisely
[åssså (0.4) tio] såna ja (.) precis



Having shown how she holds her thumb, Ann moves the hook back and forth on her index finger (along arrows). She then shows how she collects the yarn "under," finishing her demonstration with a "så."

After having provided some verbal guidance, Ann acknowledges Ben's attempt and walks away.

Fragments 7 and 8 begin in similar ways. After having silently observed the student's attempts at crocheting for a couple of seconds, the teacher delivers a grammatically negated instruction telling the student what he should not do: "not from that direction" (line 52) and "not like that then" (line 67). The teacher's instructions make sense from a background where the student has already been instructed what to do: she has previously addressed how to fetch the yarn and how to turn the hook and the student has been able—at least with some help from the teacher—to get it right in previous attempts. Designing instructions based on previous instructional work can be an effective approach, but it can also turn out to be a somewhat delicate matter. If the student does not know what mistake he has made, or what a correct action should look like, it leaves unspecified what the student's next move should be. To some extent, the student's "but now I have (ju) the thumb there" (line 69) and "I think I do precisely:" (line 74) can be heard as complaints or as seconds to a complaint: they are formulated in a plaintive tone of voice, account for the student's previous attempts, and partially question the legitimacy or applicability of the teacher's negated instruction. At the same time, these utterances are not formulated from a position of someone with the same socioepistemic rights as the teacher. The student does not claim that he does exactly what the teacher says, but that he "thinks" that he does the same. Similarly, the modal particle "ju" which in some contexts can be used to claim that some knowledge or understanding is shared (Heinemann, Lindström, and Steensig 2011), is used here analogously to the student's use of "så": it makes relevant the teacher's assessment of the understanding—or, perhaps, misunderstanding—exhibited in and through the student's claim (cf. Hindmarsh, Reynolds, and Dunne 2011). In this case, his "but now I have (ju) the thumb there" shows that he has misunderstood the "that" in the teacher's "not like that". It is true that he has now placed his thumb on the hook in the way the teacher showed him, but he still does not collect the yarn in

the appropriate way and it is ‘‘that’’ that the teacher addresses at the beginning of the fragment (line 52).

Realizing that the student has misconstrued her previous instruction, the teacher yet again demonstrates how he should collect the yarn. After the student has reproduced the part of the movement that the teacher has demonstrated, she acknowledges this and tells him to ‘‘pull through,’’ which he also does. This time, it is not the teacher who produces the acknowledgement, but the student himself. The confidence that his ‘‘ja såja’’ (line 85) expresses, and which was lacking in his previous ‘‘så’’ (lines 25, 31, 40 and 54), seems to be grounded in the realization that he now has come to grips with the way the yarn is collected. This is also indicated in the way that he projects further actions as just repetitions of what he has done. The teacher leaves him with the instruction to do ‘‘ten stitches just like that,’’ which, in one sense, is the same instruction she formulated at the beginning of the sequence. At this point in time, however, the necessary manual skills have been installed and these instructions can be followed, if not perfectly, at least to a sufficient degree.

Summary and Discussion

The investigated episode begins with the teacher telling the students to make ten chain stitches (Fragment 1) and ends when all the students, including Ben, have shown that they are able to do what the teacher requested (Fragment 8). With reference to previous studies of talk-in-interaction, the sequential structure of the episode could thus be characterized as a base adjacency pair consisting of a request and a compliance with this request, intersected by a series of insertion sequences that are ‘‘launched to address matters which need to be dealt with in order to enable the doing of the base second pair part’’ (Schegloff 2007: 99). As Psathas (1986) argues in a study of direction giving, however, ‘‘rather than being a ‘mere’ insertion sequence, considered for its sequential structure with reference to adjacency pairs, the insertion sequence may be a mechanism for accomplishing some aspect of the ‘work’’’ (Psathas 1986: 232). In relation to the investigated sequence, it is noteworthy that the lion’s share of the instructional work takes place between the initial request and the teacher’s positive appraisal of the student’s attempt. As has been previously pointed out, the instructional activity is not so much aimed at the production of chain stitches, as at the teaching and learning of the skills that are required to make these stitches. The central issue is therefore not whether the students accept or decline to make the stitches, but whether or not they have the skills to make them. In this sense, the initial request, and the students’ responses to it, could be seen as preliminary to the series of corrective sequences that come next. The request and the following attempts make it possible for the teacher to launch instructional sequences specifically designed and addressed to the students who need further guidance.

In many other educational activities, it is hard or even impossible for the teacher to see how the students understand what is taught. If, for instance, a university course is given as a series of lectures on history, math, or science, which are attended by a large group of students, there might be little material grounds for making any claims about the learning or understanding of individual students. For

the practical purposes of teaching the course, whether and what these students supposedly learn or understand by partaking in the lectures are commonly postponed and treated as evidenced by the students' performance on later tests and exams. Similarly, in academic text supervision (cf. Vehviläinen 2009), how students understand the supervisors' comments and feedback are not primarily displayed in the session itself, but in the next iteration of the students' texts. In contrast, when learning how to crochet, the students' understandings of what the teacher is instructing are immediately and visibly available in what they are doing. This gives the additional option of designing the instructions as a series of corrections. The materiality of the project and the two parties physical proximity make it possible for both the instructor and the instructed to methodically and meticulously adjust their actions in accordance with the other party and towards the gradual realization of the aimed for results. The progression is achieved by segmenting the instructions and instructed actions into a series of corrective sequences, each centered around a specific issue or ''correctable'' (Weeks 1985): how to weave the yarn between one's fingers (Fragments 2 and 3), how to stretch the yarn over one's index finger (Fragment 4), how to pinch the yarn between thumb and index finger (Fragment 5), and how the hook is held and yarn collected (Fragments 6–8). Throughout the episode, there is a stepwise transition from one issue to the next: a new issue is regularly introduced by the teacher's turn initial ''åssåº'' /''n'then'' and the corrective sequence is then closed by the teacher's positive evaluation when the correction is achieved.

Even though the teacher opens and closes the corrective sequences, it is ultimately the student who has to bring the actual correction to completion. This can be contrasted with other types of instructional corrections (cf. Macbeth 2004). When, for instance, a student answer ''Sydney'' rather than ''Canberra'' to a question about the capital of Australia, the teacher might choose to perform the actual correction by replacing the student's erroneous answer with the correct one. In that case, the issue concerns the selection of the right name, not the ability to verbally produce the names in the first place. In the investigated case, the actions of the student cannot be replaced by the teacher; the whole point of the exercise is that the students themselves should reproduce what the teacher is doing and demonstrating. But even though the teacher cannot perform the actions for the student, there are several ways through which she can guide his conduct: she can demonstrate and describe how she does it (Fragments 1, 3 and 5); touch certain parts of the hook, yarn, or hand as a way of pointing (Fragments 4 and 6); move or twist the yarn, fingers, or hook into certain positions (Fragments 4–6); and mold the actual movement by holding and moving the tip of the hook (Fragment 6). It is only in the two last fragments (Fragments 7 and 8) that the corrections are initiated without the teacher immediately giving some guidance on what to do next—where the student, to begin with, is left to locate both the source of trouble and the remedy without further assistance. Regardless of whether the instructor merely indicates that there is some ''as-yet-unspecified correctable'' (Weeks 1985: 218) or forces the student to move his hook in certain ways (Fragment 6), the student needs to turn what the teacher is saying and doing into practical courses of action. Furthermore, he needs to assess whether what he is doing, has done, or is attempting to do

matches up with what the teacher is instructing, which, as has been shown, is a far from trivial task. As formulated by Ingold:

The problem we all experienced lay in converting each instruction, whether verbal or graphic, into actual bodily movement. For while the instruction was supposed to tell you how to move, one could only make sense of it once the movement had been accomplished. We seemed, almost literally, to be caught in a double bind, from which the only escape was patient trial and error. Of course we had resort to the instructions, but far from directing our movements, what they provided was a set of landmarks along the way, a means of checking that we were still on track. (Ingold 2000: 357–358)

The problem described by Ingold applies regardless of whether the instructions are delivered by someone experienced in the technique or by means of printed or electronic media. In either case, the task of the instructed party is to progressively ''tune'' (Ingold 2000, 2006) both movements and perception so as to achieve a skilled performance. In the case of one-to-one instruction, however, there is also an ''attunement to the attunement of the other'' (Barwise and Perry 1983: 294). Among other things, this means that the instructed party has the option to leave parts of the assessment to someone with more experience: in the investigated case, by tagging a try-marked ''så'' to a finished attempt; by holding up crocheting for the teacher to see; and, by providing a candidate self assessment, such as ''I think I do precisely,'' as a response to a correction initiation. While it is still a form of trial and error, the job of sorting erroneous trials from the sufficiently correct is in this way left to the instructor. Consequently, it becomes possible for the instruction follower to check whether he or she is on track before the action is accomplished—before he or she has found the sense in the instructed action itself.

Acknowledgments

The research reported here was carried out as part of the project Communication and Learning in Sloyd Practices (KOMOLÄR) and the Linnaeus Centre for Research on Learning, Interaction and Mediated Communication in Contemporary Society (LinCS)—both funded by the Swedish Research Council. The text was written while the first author was a visiting scholar at the Centre of Language, Interaction and Culture (CLIC) with a grant from the Swedish Foundation for International Cooperation in Research and Higher Education (STINT). Special gratitude goes to Chuck and Candy Goodwin for the wealth of insights they shared during this visit. We would also like to thank two anonymous reviewers and the students and teachers in the investigated settings.

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