

Liubov Vetoshkina

## **ANCHORING CRAFT**

The object as an intercultural and intertemporal unifying factor



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**Liubov Vetoshkina**

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### **Abstract**

This study focuses on the potential of objects in craftwork activities, specifically in wooden boat building. Following Marchand (2009), traditional crafts are understood as being primarily direct and un-alienated work. The monograph addresses two polar trends in scientific conceptualisations of craftwork: eliminating objects from skill-focused analyses of crafts (Sennett, 2008) and eliminating the cultural and historical potential of objects in craftwork (Risatti, 2007).

Objects appear as entities, defining craft, primarily through their practical physical functions (Risatti, 2007). Conceptualising the unifying ability of craft objects only in terms of their practical physical function makes them indistinguishable from objects in other modes of production. This situation requires putting the unifying potential of objects in craftwork into a broader perspective. This study analyses the object as an intercultural and intertemporal unifying factor. Here, history refers to the chronological record of events embodied in an activity. Culture refers to shared features developed in a particular geographical locality where the activity in question is situated.

This study aims to move beyond general interpretations of craft revival using cultural-historical activity theory (CHAT), with the core principle of the approach being a focus on concrete activities, specifically object-orientedness (Leontiev, 1978; Engeström, 2015b). The notion of an object of activity helps to ground motivation in the objective world and facilitates an understanding of why people do things. In this study, the notion of an object is used as an entity for anchoring crafts — as a way to understand concrete cases of craft revival. CHAT was put into discussion with two theoretical approaches, both of which have similar aims of understanding the role of objects in the emergence of social and subjective phenomena. Actor-network theory (Latour, 1996a, 2005) deals with humans and non-humans as actor-networks in heterogeneous socio-technical networks, and the epistemic approach proposed by Karin Knorr Cetina (1997) deals with epistemic objects as centres of socialities.

The general research question for the study is as follows: what is the potential of an object in reviving and preserving crafts?

This general research question is analysed through two specific secondary research questions:

1. What is the potential of an object in craft as a unifying factor across cultures?
2. What is the potential of an object in craft as a unifying factor across history?

The methodological approach of CHAT constitutes the methodological framework of the study (Engeström, 2015a, 2015b). The data were collected by means of a longitudinal, multi-sited ethnographic approach (Falzon, 2016; Marcus, 1995). Interviews offered the opportunity to extend a present-focused ethnography into the past and future by introducing a subjective and historical perspective (Gubrium & Holstein, 2005). The photo-elicitation interview method (Harper, 2002) was used as an instrument to establish dialogue between two distant groups of boat builders. Qualitative data analysis methods, specifically thematic analysis, were used to analyse the data.

The data for the study come from three wooden shipyards in Finland, Russia and India, collected between 2012 and 2014. All the shipyards were producing similar usable wooden vessels at the time.

The Finnish research site was a shipyard in the Suomenlinna fortress. Professionals, working in the dockyard as entrepreneurs, included a shipwright, several skilled boat builders and a number of apprentices. Boat builders repair, restore and construct a variety of vessels — from small boats to old galleass — on the premises of the Suomenlinna shipyard. One recent major project was the construction of a replica of an 18th-century rowing gunboat named Diana.

The Russian research site was the Solovetsky Shipyard, situated on Solovetsky Islands in the White Sea. The shipyard is part of the Maritime Museum, where a replica of a 17th-century historical ship named St. Peter was a central part of museum's exhibit. A group of mostly amateur carpenters carried out all the work, including wooden, metal and electrical work.

The Indian research site was located in the village of Frasergunj in the state of West Bengal. It involved assessing how one of the building crews constructed large wooden fishing and cargo boats following traditional techniques and design. The building crew, consisting of up to ten men, was quite hierarchical, with knowledge and skills being transferred in a traditional master-apprentice manner.

The potential of the object as a unifying factor across cultures was traced in the process of exploration of prospects for constructing object-oriented intercultural understanding between the Finnish and the Indian boat builders by the means of photo-elicitation interview. Building sustainable understanding was conceptualized through the process of construction of a shared object. The potential of the object as a unifying factor across cultures was that the object of activity was able to expand across cultures. The expansion of the object happened through differences in the object, which were essential for an attempt to establish understanding between practitioners from two different cultures.

The potential of the objects as unifying factors across history was studied through analysing the role of objects in the historical development of activities. Analysis focused on interviews with those involved in two cases of historic

wooden boat building in Finland and Russia. The potential of the object of activity, which acted as an intermediary object in the historical development of such an activity, resides in its ability to compress the efforts of the subjects at a specific point of the activity. This compression powers the development of activity across time. By working on the object, subjects propel history forward. The historical development of craft activities in the data appears as a heterogeneous intertwining of four lines of history. The movement across one particular line occurs through resolving tensions and conflicts by working on an intermediary object — a certain instantiation of the general object of wooden boat building.

The potential of the object in craft is that the object of activity instantiates differently in various concrete cultural and historical circumstances, specifically through cultural and historical features accumulated across time and space. Study of the object of activity offers the possibility to compress human efforts into a certain point of time and cultural moment, and thus, to expand activities across temporal and cultural boundaries. The unifying factor of the object in craft resides precisely in its diversity, in its cultural and historical features or differences, formed by specific local circumstances.

The primary contradiction in the craft of wooden boat building is the movement between adhering to old ways (following the ancient craft or even replicating history) and responding to new practices (building a boat that satisfies market demands). This constant back-and-forth movement becomes visible in the everyday work of craftsmen as certain tensions and struggles arise. Wooden boats mediate the relationships both within and across communities of craft workers. They are a way to make history and culture tangible and alive, transferring it further into the future.

Potential future research may be in analysing how digital technologies are utilised in craftwork and how they are transforming the intentionality and socio-materiality of traditional crafts.

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*Keywords:* object, cultural-historical activity theory, craft, multi-sited ethnography



**Liubov Vetoshkina**

## **KÄSITYÖN ANKKUROINTI**

Kohde kulttuurienvälisyyttä ja ajallisuutta yhdistävänä tekijänä

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### **Tiivistelmä**

Tämä tutkimus keskittyy kohteen käsitteen mahdollisuuksiin käsityössä, erityisesti puuveneiden rakentamisessa. Marchandin (2009) mukaan perinteiset käsityöt ymmärretään välittömäksi, ei-vieraantuneeksi työksi. Tässä monografiassa käsitellään kahta vastakkaista kehityssuuntaa käsityön tieteellisessä käsitteellistämässä: kohteen käsitteen häviämistä taitoihin keskittyvistä analyyseistä (Sennet 2008) ja kohteen kulttuurisen ja historiallisen potentiaalın karsiutumista analyyseistä (Risatti 2007).

Kohteet ilmenevät kokonaisuuksina, jotka määrittävät käsityötä pääsääntöisesti käytännöllisten ja fyysisten toiminnollisuuksien kautta (Risatti 2007). Käsityön kohteen yhdistävän kyvyn käsitteellistäminen ainoastaan käytännöllisten fyysisten toimintojen kautta tekee kohteesta erottamattoman suhteessa muiden tuotantotapojen kohteisiin. Tämä tilanne vaatii käsityön kohteen yhdistävän potentiaalın käsittelemistä laajemmasta näkökulmasta. Tässä tutkimuksessa analysoitiin kohdetta kulttuurienvälisenä ja ajallisena yhdistävänä tekijänä. Historialla viitataan tässä yhteydessä kronologiseen toiminnan tapahtumien taltioimiseen. Kulttuurilla viitataan jaettuihin piirteisiin, jotka ovat kehittyneet siinä maantieteellisessä paikassa, jossa toiminta tapahtuu.

Tutkimuksen tavoite on mennä yleistysten taakse tarkastelemaan käsityön elpymistä konkreettisten toimintojen kautta käyttäen kulttuurihistoriallisen toiminnan teorian lähestymistapaa. Teoriasuuntauksen pääperiaate on toiminnan kohteellisuus (Leontiev, 1978; Engeström, 2015b). Käsitys toiminnan kohteesta auttaa kiinnittämään motivaation objektiiviseen maailmaan ja ymmärtämään miksi ihmiset tekevät asioita. Tässä tutkimuksessa kohteen käsitettä käytettiin kokonaisuutena, joka ankkuroi käsityön - sekä keinona ymmärtää käsityön elpymistä konkreettisissa tapauksissa.

Kulttuurihistoriallista toiminnan teoriaa tarkasteltiin rinnakkain kahden muun teoreettisen lähestymistavan kanssa, joiden tavoitteena on samankaltaisesti ymmärtää kohteiden roolia sosiaalisten ja subjektiivisten ilmiöiden kehittämisessä. Toimijaverkkoteoria (Latour, 1996a, 2005) käsittelee inhimillisiä ja ei-inhimillisiä toimijaverkkoja heterogeenisissä sosioteknisissä verkostoissa ja Karin Knorr-Cetinan (1997) episteeminen lähestymistapa käsittelee episteemisiä objekteja sosiaalisuuden keskuksina.



Työn yleinen tutkimuskysymys oli: Mikä on kohteen potentiaali käsityön elpymisessä ja säilymisessä?

Tätä kysymystä analysoidaan kahden tarkentavan tutkimuskysymyksen avulla:

1. Mikä on kohteen potentiaali käsityön yhdistävänä tekijänä kulttuurien välillä?

2. Mikä on kohteen potentiaali käsityön yhdistävänä tekijänä ajallis-historiallisesti?

Tutkimuksen metodologisena viitekehyksenä toimi kulttuurihistoriallisen toiminnan teorian lähtökohta (Engeström, 2015a, 2015b). Aineisto kerättiin pitkitäisen monikenttäisen etnografian avulla (Falzon, 2016; Marcus, 1995). Nykyhetkeen keskittyvän etnografian lisäksi haastattelut täydensivät etnografiaa tuoden siihen subjektiivisen ja historiallisen perspektiivin, joka laajensi tarkastelussa olutta ajallisuutta menneeseen ja tulevaan (Gubrium and Holstein, 2005). Aineiston hankinnassa käytettiin myös erityistä menetelmää eli valokuvien avulla tapahtuvaa dialogin rakentamista kahden toisistaan etäällä olevan veneenrakentajaryhmän välillä (Harper, 2002). Aineiston analyysissa käytettiin laadullisia menetelmiä, etenkin temaattista analyysia.

Tutkimusaineisto on kerätty kolmelta puuvenetelakalta Suomesta, Venäjältä ja Intiasta vuosina 2012 – 2014. Kaikki telakat valmistivat puualuksia käyttöä varten.

Suomalainen tutkimuskohde sijaitsee Suomenlinnan linnoituksessa. Ammatillaiset, jotka työskentelevät telakalla ovat laivanveistäjä, veneenrakentajat sekä harjoittelijat. Veneenrakentajat korjaavat, restauroivat sekä rakentavat erityyppisiä aluksia pienistä veneistä suuriin kaljaaseihin Suomenlinnan telakalla. Eräs viimeaikaisista suuremmista rakennustöistä oli 1700-luvun soudettavan tykkisluoppi Dianan pöydän rakentaminen.

Venäläinen tutkimuskohde sijaitsee Solovetskin telakalla, Solovetskin saarilla Vienanmerellä. Telakka on osa merimuseota, jossa 1600-luvun historiallinen laiva Pyhä Pietari oli keskeinen osa museon näyttelyä. Enimmäkseen harrastelija-puusepistä koostuva ryhmä teki kaikki työt, sisältäen puu-, metalli- ja sähkötyöt.

Intiassa sijaitseva tutkimuskohde on Frasergunjin kylä Länsi-Bengalin osavaltiossa Intiassa. Tutkimuksessa seurattiin yhtä rakennusmiehistöistä, jotka rakentavat isoja puisia kalastus- ja rahtilaivoja käyttäen perinteisiä tekniikoita ja suunnittelua. Rakentajaryhmä, joka koostuu 10 miehestä on hierarkkinen ja tieto ja taidot välittyvät perinteisen mestari-oppipoika -mallin mukaisesti.

Kohteen potentiaali yhdistävänä tekijänä kulttuurien välillä jäljitettiin tarkkailemalla mahdollisuuksia rakentaa kohteeseen perustuva yhteisymmärrys suomalaisten ja intialaisten veneenrakentajien välillä. Tämä tehtiin näyttämällä veneenrakentajille valokuvia toistensa telakoilta haastatteluissa. Yhteisymmärryksen muodotaminen käsitteellistettiin yhteisen kohteen rakentamisen kautta. Kohteen potentiaali kulttuureita yhdistävänä tekijänä oli siinä, että toiminnan kohde laajeni kulttuurien välillä. Tämä laajeneminen tapahtui kohteessa olevien erojen kautta,

mitkä olivat olennaisia yrityksessä rakentaa yhteisymmärrys kahden eri kulttuurin ammattinharjoittajien välille.

Kohteen potentiaalia ajallis-historiallisena yhdistävänä tekijänä tutkittiin analysoimalla kohteen rooli toiminnan historiallisessa kehittämisessä. Analyysi keskittyi kahden tapaustutkimuksen haastatteluihin Suomessa ja Venäjällä. Toiminnan kohteen potentiaali, joka toimi välikohteena toiminnan historiallisen kehityksen prosessissa, on sen kyvyssä tiivistää subjektien pyrkimykset tietyssä toiminnan kohdassa. Tämä tiivistys antaa voiman toiminnan kehittymiselle ajallisesti. Työskennellessään kohteen parissa tekijät saavat historian etenemään. Käsityön historiallinen kehittyminen aineistossa näyttäytyy heterogeenisena neljän historiallinjan nivoutumisena. Liike linjan poikki tapahtuu ratkaisemalla jännitteitä ja konflikteja työskentelemällä välikohteen parissa, joka on yleisen veneenrakennuksen kohteen tietty ilmentymä.

Kohteen potentiaali käsityön kannalta oli se, että toiminnan kohde, joka ilmeni eri tavoin konkreeteissa kulttuurisissa ja historiallisissa olosuhteissa, etenkin kulttuuristen ja historiallisten ominaisuuksien kasaantumana ajassa ja paikassa, tarjoaa mahdollisuuden tiivistää inhimilliset pyrkimykset tietyssä historiallisessa hetkessä ja tietyssä kulttuurissa, ja tämän kautta laajentaa toimintoja läpi ajallisten ja kulttuuristen rajojen. Käsityön kohteen yhdistävä tekijä on sen monimuotoisuus – erojen kulttuuriset ja historialliset piirteet tai erot, jotka tietyt, paikalliset olosuhteet ovat muokanneet.

Ensisijainen ristiriita puisen veneenrakennuksen käsityössä on liike, joka tapahtuu vanhassa pitäytymisen (entisaikaisen käsityön seuraaminen tai jopa historian jäljentäminen) ja uuteen vastaamisen (käyttöön tarkoitetun ja markkinoiden tarpeeseen vastaavan veneen rakentaminen) välillä. Tämä jatkuva liike tulee näkyväksi jokapäiväisessä työssä tietynlaisina jännitteinä ja kamppailuina. Puuve-  
neet välittävät yhteisöjen sisäisiä ja yhteisöjen välisiä suhteita. Ne ovat keino tehdä historiaa ja kulttuuria eläväksi ja käsin kosketeltavaksi, välittäen niitä eteenpäin. Jatkotutkimuksen kannalta kiinnostavaa olisi analysoida kuinka digitaalisia teknologioita käytetään käsityössä ja kuinka ne muuttavat tarkoituksellisuutta ja sosiomateriaalisuutta perinteisillä käsityöaloilla.

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*Avainsanat:* kohde, kulttuurihistoriallinen toiminnan teoria, käsityö, monikenttäinen etnografia



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One can build a small boat alone. Building a ship requires a collective endeavor. A dissertation is like a ship: what on the surface looks like solo work, actually consists of contributions and efforts from multiple actors. I want to thank everyone, who made the launch of my academic ship possible.

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*Do. Or do not. There is no try*

Yoda, Grand Master of the Jedi Order

Star Wars: Episode V - The Empire Strikes Back (1980)

Helsinki, 10.10.2018

Liubov "Liuba" Vetoshkina

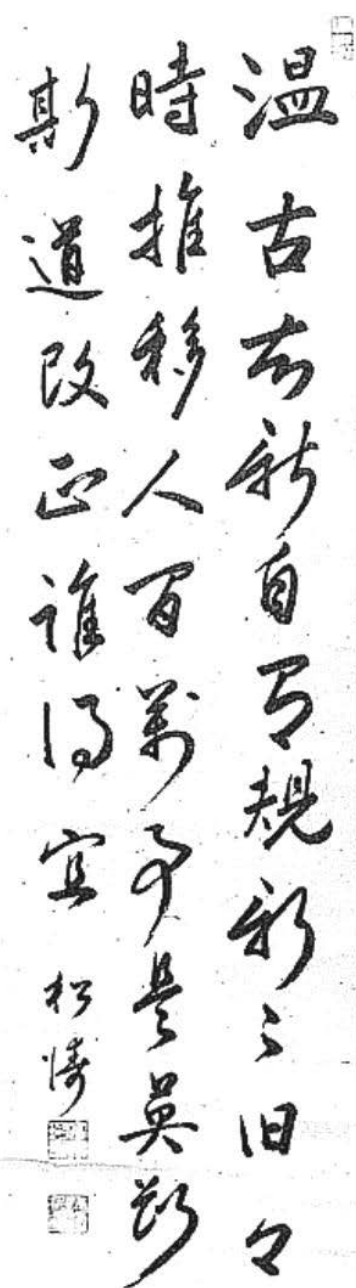
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*To search for the old is to understand the new.  
The old, the new  
This is a matter of time.  
In all things man must have a clear mind.  
The Way:  
Who will pass it on straight and well?*

Poem by Master Gichin Funakoshi<sup>1</sup>

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<sup>1</sup> Gichin Funakoshi (1868-1957) was a karate master, who is considered to be “the father of modern karate”. Poem and calligraphy from Funakoshi, G. (1973). Karate-do kyohan: The master text. Ward Lock Ltd.

# 1 INTRODUCTION

## 1.1 Wooden Boat Building: A craft Struggling to Sustain and Revitalize Itself

This work began in 2012 as part of the *Concept Formation and Volition in Collaborative Work* research project.<sup>2</sup> The project studied processes of collective concept formation and volition in collaborative work activities. My work as a doctoral student started with a deep immersion in one of activities under investigation, namely wooden boat building. First, I conducted ethnographic fieldwork on a shipyard, located in the Suomenlinna fortress in Helsinki. After my first visit, it became clear to me why traditional crafts are often idealised: from the nice smell of freshly chopped wood to the romance of seafaring to the idea of creating tangible ways to preserve cultural and historical heritage (Skorgström, 1994). These unfamiliar and unique experiences provided me with a reason to why write and speak about crafts, specifically wooden boat building, which often takes the form of passionate and personal storytelling (Spectre & Larkin, 1991; Vartiainen, 2011). One of the apprentices<sup>3</sup> from the Suomenlinna shipyard later expressed this drive, explaining his passion for building wooden boats:

But somehow these boats in places, for example this dockyard, it somehow pulls you back ... I, like now, say something to the record: ‘I’m not going to work here in a couple of years’, but if you come here [in] 2015, I will be here.

(Interview from 08.03.2013, Lines 123–125)

Further fieldwork and engagement with two other research sites, wooden shipyards in the Solovetsky Islands, in Russia, and in the village of Frasergunj, in India, showed other aspects of the everyday lives of artisans: hard work, economic constraints stemming from the market economy and the pressing need to make traditional crafts meaningful and relevant. Wooden boat building appeared as a normal occupation with little mystery behind it. The head of the crew at the Solovetsky shipyard put it this way:

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<sup>2</sup> Funded by the Academy of Finland, project no. 253804, Principal Investigator Yrjö Engeström, 01/09/2011–31/08/2015.

<sup>3</sup> A detailed account of the key actors who participated in the research is provided in Appendix 1.

That is all a simple [idea], simple desire of normal people to build a ship.  
(Interview from 18.06.2012, Line 1)

In a similar way, this study aims to shift from a romanticised description of traditional crafts to more of a description of craft as work activity, with all its peculiarities. In the mid-19th century, the highly skilled, craft-based activity of wooden boat building dominated the market, but it was quickly replaced by the complex engineering advances of constructing metal vessels (Slaven, 2013; Spectre & Larkin, 1991). Nowadays, the craft of wooden boat building exists both as an occupation, i.e. an economic activity, and as a hobby. Artisans face great, primarily economic, challenges when turning professional (Chapelle, 1994). The introduction of electric tools has largely transformed wooden boat building, especially the division of labour: a single person is able carry out a task that used to require several workers. Wooden boats, though losing out in competition against plastic, aluminium and fiberglass boats, are still creating their own markets, developing new practices and building new cultures around them (Jalas, 2006).

## 1.2 Anchoring Craft

The word *craft* is utilised in various ways in both every-day and scientific discussions. *Craft* is both a verb and a noun; interestingly, the first listing for *craft* as a noun defines it as a high degree of skill in doing something, with occupation only being listed second.<sup>4</sup> There is also a lack of clarity when it comes to the actual practices of *craft*, as the word is used to refer to both for unique handmade objects and mass-produced industrial products (Korn, 2013).

Indeed, nowadays crafts can take different forms when it comes to actual craft practices. Craft may exist as a type of hobby. It appropriates various technologies, gathering communities and movements around them, such as the current DIY movement and Makers Movement (Gibson & Carr, 2018). In this case, a sense of enjoyment, bringing meaning to life and a feeling of happiness emerge in studies and discussions on craft (Kouhia, 2016). Craft is also a school subject. Then, the importance of teaching about crafts and technologies for children's development and school performance is emphasised (Hilmola & Lindfors, 2017; Marsh, 2015). Craft can exist as an occupation, either a primary or secondary economic activity. When it comes to the occupational aspect, work based on traditional crafts is often seen as upholding national and cultural heritage (Kawatoko, 2017; Kouhia, 2012), or as a critical mode of production (Crawford, 2009), not as an essential element

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<sup>4</sup> Definition of craft, *Merriam-Webster.com*. Retrieved from <https://www.merriam-webster.com/dictionary/craft> (accessed 10 September 2017).

of modern production (Gibson & Carr, 2018; Wilkinson-Weber & Ory deNicola, 2017).

This study focuses specifically on studying traditional crafts as work. When using the word *traditional*, I follow Marchand's (2009) understanding of traditional craft as being primarily direct and un-alienated work:

The use of the term traditional in describing Djenne's masons implies neither stasis in their professional practice nor temporal displacement in some imagined and romanticized past. Rather, traditional in this context qualifies their direct and un-alienated mode of production. Building is normally realized without interference from architects or engineers, and all stages of construction, from foundations to finishes, are executed solely by masons. (pp. 9-10)

The world of modern work is dominated by digitalisation, automation and platform economies (OECD, 2016; Mäenpää, 2016). Still, a variety of trends and modes of production co-exist and are intertwined with one another (Watson, 2017). Locality is also crucial: one can hardly obtain similar results by looking at trends of work in Silicon Valley and in a small settlement in northern Russia. In this study, I analyse traditional crafts as an essential, though marginal, part of modern production, not as a critical view on other modes and ways of production (Wilkinson-Weber & Ory deNicola, 2017). This point of view makes it possible to move from simple critical positions to complementing and enriching discussions on the complex world of work.

Similarly to studies of craft practices, theoretical discussions on craft have provided multiple interpretations of the phenomenon. Many craft theories focus on analysing craft not in a narrow, but in a broad, sense, almost as a synonym for skill (Crawford, 2009; Sennett, 2009). In Sennett's (2009) illuminating analysis, craftsmen 'are dedicated to good work for its own sake' and craftsmanship is founded on 'skill developed to a high degree' (p. 20).

Craftwork can also be seen as a historical type of work, one based on tacit knowledge (Victor & Boynton, 1998). Any type of human practice, for instance writing a scientific paper or creating a computer code, therefore appears to be 'craft'. Craft and craftsmanship are equated with the idea of skill and seen as true, a-historical forms of dignified individual human production. These ways of analysing and utilising craftwork provide a strong critical stance towards other types of production and constitute a powerful tool for understanding the nature of skill. Nonetheless, they give little insight into why concrete craft activities are either experiencing a revival or being marginalised.

The primary focus on skill makes it challenging to explain concrete cases of the revival or marginalisation of traditional crafts. The rise and fall of the Arts and Crafts Movement is one example. Though the movement arose between 1850 and

1920 as a protest against industrialisation, the products resulting from the Arts and Crafts Movement were not mere copies of the past. Members of the movement tried to make their products both modern and relevant. For instance, buildings were constructed from local materials and designed to fit into the landscape (Naylor, 1971; Cumming & Kaplan, 1991).

A present-day example is the rediscovery in the 1970s and 1980s of craft brewing. Originally developed as a response to the general standardisation and unification of the beer supply in the UK and US, craft brewing in recent years has become a worldwide movement (Cabras & Bamforth, 2016). The definition of a craft brewery generally applies to relatively small, independent breweries, employing traditional brewing methods and strongly emphasising flavour, quality and the novelty of the product (Garrett, 2011). The majority of craft breweries operate locally and construct their identity through locality. Several craft breweries have turned into significant competitors for the multinational producers. BrewDog PLC, a Scottish brewery, is a notable example. Started in 2007 by two university graduates, by 2016 it had grown into a company with 750 employees, 46 bars around the globe and 214,000 litres of beer brewed annually.<sup>5</sup> The means of their growth were adherence to the production of innovative and unique beers, brewed with traditional methods combined with an unorthodox ‘punk’ philosophy for doing business and marketing. Regardless of its current size and prevalence, BrewDog still produces craft beers. The owners have managed to support its growth by campaigns of selling company shares to their customers (Smith et al., 2010). Modern craft breweries appear to be constantly searching for a balance between traditional recipes and technologies and customer demand for novel beers, market regulations and competition from multinational brewing companies, who are now entering the growing craft beer market with own craft-like beers.

The historical development of concrete craft activities and practices in the above examples are not simple repetitions of the past; they appear as the interplay of a variety of factors, coming together at certain times and in certain place. Each case of craft revival is a unique response to specific cultural and historical circumstances, even to local socio-technical arrangements (Kawatoko, 2017; Peach, 2013). Explanations of the historical development of craft activities that focus simply on skill-based approaches look like an attempt to moor a ship without an anchor.<sup>6</sup> Crafts need to be anchored. An anchor is not only a traditional maritime

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<sup>5</sup> Retrieved from <https://www.brewdog.com/about/history> (accessed 11.09.2017).

<sup>6</sup> In this thesis, I utilize ‘anchor’ as a metaphor, not as a theoretical concept, as does, for instance, Hutchins (2005) when referring to material anchors.

anchor – a heavy object attached to a chain, used to moor a vessel to the sea bottom. It is also a *thing, which provides stability or confidence in an otherwise uncertain situation.*<sup>7</sup>

In this study, I utilize the notion of object as an entity for *anchoring* crafts. Primarily, I will draw on cultural-historical activity theory (CHAT) and the notion of the object of activity. CHAT provides a potential framework for studying concrete craft activities and concrete cases of the revival of traditional crafts. First, CHAT takes concrete object-oriented, collective and culturally mediated human activities as a primary unit of analysis. Second, the concept of the object of activity is employed for understanding why people do things. The object of activity is understood as a concrete entity, as a true motive of activity. Objects define and drive activities, while activities become assimilated with their objects (Leontiev, 1978; Engeström, 2015b).

### 1.3 Research Questions

The notion of the object in craft theories is analysed as an entity that defines a particular craft (Risatti, 2007). This way of conceptualising crafts focuses on the idea of the object as something that transcends culture and history (Kouhia, 2012). The unifying ability of craft objects is defined through their practical physical function:

...it is practical physical function that unites what otherwise would be a distinct areas of activity. (Risatti, 2007, p. 18)

As seen from the examples above, concrete craft communities develop not only around particular products or for the sake of skill. These factors must be merged with specific cultural and historical circumstances.

There are two seemingly opposing trends in the scientific conceptualisation of craft. First, skill-focused approaches eliminate objects from analysis of the revival of crafts, as if artisans would be driven just by the process of work alone or as if they are merely responding to cultural and historical circumstances. Second, the cultural and historical role of objects seems to be missing from the possible potential of objects in the revival of crafts. Conceiving of the unifying ability of the object in craft only in terms of its practical physical function makes the object in craft indistinguishable from objects involved in other modes of production, as they also possess a certain practical physical function. This situation requires putting the unifying potential of the object in craft into a broader perspective.

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<sup>7</sup> Definition of anchor, *Merriam-Webster.com*. Retrieved from <https://www.merriam-webster.com/dictionary/anchor> (accessed 7 November 2017).

Engeström et al. (2003) conceive of the ongoing historical transformation of objects of work through expansion across, among other things, temporal and cultural dimensions. Hopwood (2016) explores such essential dimensions of professional practice as times, spaces, bodies and materiality. Ritella (2017), utilising Bakhtin's (1981) notion of chronotope, emphasises the organisation of space-time in collaborative learning processes though focusing on a given situation on the level of actions. Hautala (2015) also emphasises the central position of objects across spatial and temporal (dis)connections in interactive knowledge creation among artists and artisans.

When taking many of these dimensions into account, the dimensions of time and space appear to be potentially fruitful specifically for anchoring crafts, as craft activities are deeply rooted in culture and history. The significance of the cultural and historical aspects of objects in work and learning calls for analysing the potential of the object in craftwork as an intercultural and intertemporal unifying factor. Before proposing research questions, I will limit and operationalise the understanding of culture and history in this study as follows. *History* focuses on the chronological record of events embodied in an activity. The movement through history occurs on the dimension of *time*. *Culture* refers to shared features developed in a particular geographical locality where the activity in question takes place. The movement in this case occurs across the dimension of *space*.

Drawing on the argument above, I put forward the following *general research question* for the study:

What is the potential of the object in reviving and preserving crafts?

This general research question is analysed through two *specific secondary research questions*:

1. What is the potential of the object in craft as a unifying factor across cultures?
2. What is the potential of the object in craft as a unifying factor across history?

In general terms, the turn to craftwork as a dignified capitalist mode of production may be seen as a way to overcome alienation from the objects of production by rediscovering meaningful objects and their use value. This study aims to go beyond this general interpretation by anchoring crafts with the notion of object. By primarily using the theoretical and methodological approach of cultural-historical activity theory, which grounds the notion of object in concrete activities, I will analyse the potential of the object in craftwork as an intercultural and intertemporal unifying factor.

## 1.4 Structure of the Study

The study consists of seven chapters. Chapter 1 has introduced the particular craft under investigation — wooden boat building. A description of the activity in question was followed by a brief overview of craft theories and how they make sense

of the current rearrangement of traditional crafts. Based on this discussion, the research problem and research questions were introduced in section 1.3.

Chapter 2 brings forth a critical analysis of three theoretical approaches, all of which have the concept of the object at the core of their approach. The chapter discusses the actor-network theory approach, the epistemological approach of Knorr-Cetina and cultural-historical activity theory. The discussion of the three views on objects forms the generic theoretical and conceptual framework of the study.

Chapter 3 begins by introducing the methodological framework used for studying the potential of objects in craft to serve as an intercultural and intertemporal unifying factor. The methodological framework is followed by a description of the general methods of data collection and data analysis: multi-sited ethnography and thematic analysis, respectively. In this chapter, I also ponder ethical principles and concerns relevant for the study.

Chapter 4 describes the three research sites — three cases of wooden boat building in Finland, Russia and India — as well as their historical and cultural background. In the concluding section of this chapter, I bring the three research sites together.

Chapters 5 and 6 include the results of empirical analysis. Chapter 5 focuses on the intercultural dimension of objects in craft in the process of constructing a virtually shared object across cultural boundaries. Through analysis of photo-elicitation interviews, conducted at the Finnish and the Indian sites, I explore the potential of the object of activity as a unifying factor across culture. Chapter 6 explores the intertemporal dimension of crafts by analysing the potential of the object of activity in the process of historical development. An analysis of semi-structured interviews from the Finnish and Russian sites was the basis for exploring the potential of the object of activity as a unifying factor across history.

Chapter 7 forms the concluding part of the study. Section 7.1 contains responses to the research questions, followed by a discussion of the key findings in section 7.2. The chapter also reflects on the research process, including issues of ethics, the researcher's role and the risks and limitations of the study. The chapter finishes with the conclusions of the study.





## 2 THREE CONCEPTUALISATIONS OF THE OBJECT

### 2.1 Introduction

The notion of object has always been a crucial concept in philosophy, although mostly as a way to distinguish between a subject and an object. In the most general sense, philosophy treats objects as things towards which consciousness is directed, what is perceived and imagined, in contrast to an active subject, who perceives and imagines (Blackburn, 2008). Objects were previously given little potential in explanations of human intentionality (Hintikka, 1975). In mainstream social theory, which studies and makes sense of social phenomena, objects, specifically material objects, were given little attention as a separate and independent concept. Marx (1964) aimed to overcome the separation of subject and object by analysing the notion of practical activity, specific to humans, and the process of labour, where humans transform nature by creating artefacts:

the eye has become a human eye, just as its object has become a social, a human object — an object made by man for man (Marx, 1964, p. 139)

Although objects were central to Marx's analysis of practical activity, a turn towards an analysis of the relationship between humans and objects occurred only later with a growing interest in the study of practices (Miettinen, 2005).

Since the overall aim of this monograph is to understand the potential of objects in craft to serve as an intercultural and intertemporal unifying factor, I will mainly ground the theoretical discussion of the study in the framework of cultural-historical activity theory (Leontiev, 1978; Engeström, 2014). Object-orientedness forms the core principle of this approach: human intentions are directed towards an object of activity. The principle of object-orientedness with respect to activity originally aimed at revolutionising psychology based on dialectical materialism (Leontiev, 1978). The modern conceptualisation of the notion of object in CHAT offers the potential facilitating an understanding of why people do things, especially in the case of complex objects and the networks of interacting activity systems around objects (Engeström, 1995, 2015b; Kaptelinin, 2005; Toiviainen & Vetoshkina, 2016, 2018).

In developing a theoretical framework for this monograph, I will employ an activity-theoretical understanding of the notion of object in a discussion of two theoretical approaches, both of which have similar aims of explaining the role of objects in the process of emerging social and subjective phenomena. Actor-network theory (Latour, 1996a, 2005) and the epistemological approach proposed by Karin Knorr Cetina (1997) both deal with complex objects, the relations between

objects and multiple actors, and the networks and collectives surrounding an object.

Although the three approaches have different philosophical, disciplinary and methodological backgrounds, they have certain common points, which can provide a basis for a rigorous theoretical discussion. First, all three approaches include the objective world in an analysis of social phenomena and stress the significant role played by material artefacts and objects to activities, practices or sociality. Second, these three approaches aim at overcoming a certain duality, generally a dualism of subject and object, manifested differently for each of the approaches. A solution to the duality in each case lies in creating a certain kind of thirdness, a new kind of relationship between phenomena. The approach of actor-network theory (ANT) responds to the dualism between nature and society, with concepts of generalised symmetry and the production of nature and society (Latour, 1996a, 2005). Knorr Cetina (1997, 2008) aims at overcoming the dualism between individualisation and objectualisation with notions of post-social relationship and object-centred sociality. For its part, CHAT (Leontiev, 1978; Engeström, 2015b) deals with the dualism between subject and object, idealism and materialism, by analysing the dialectical, mediated relations between subject and object through activity.

These common points create the possibility for establishing a discussion between the three approaches. The complexity of each approach and the multiplicity of concepts under analysis may pose a barrier to establishing common ground between the views. In order to make the discussion solid and structured, I introduce three basic theoretical questions, intended at establishing points of intersection between the three conceptualisations of the object:

1. *What kinds of objects are under analysis?* This question aims at understanding what kinds of objects are at the core of the approach.
2. *What are the main features of the objects under analysis?* The second question aims at understanding what are the main features and characteristics of the objects distinguished by the approach.
3. *What is the analytical potential of objects?* The last questions aims at clarifying the analytical potential of conceptualising the objects using each of the approaches.

The structure provided by the questions makes it possible to analyse the concept of object using each of the approaches. The structure also provides points for establishing common ground in the theoretical discussion of the three approaches.

The theoretical analysis will follow a simple procedure for each of the approaches. I will briefly introduce the approach, including the duality underpinning the approach as well as the ways for overcoming it. Then, I will examine each approach using the theoretical questions. In the conclusion to the chapter, I will bring the various viewpoints regarding objects to the discussion as a means of answering the three questions. Further, I will critically evaluate the ideas of actor-

network theory and works by Knorr Cetina from the standpoint of CHAT. Then, I will elaborate on possible insights that ANT and Knorr Cetina's approach can provide to CHAT's understanding of object. Based on this discussion, I will outline a theoretical understanding of object for the purposes of this monograph.

## 2.2 The Concept of the Object in Actor-Network Theory

Actor-network theory (ANT) is a diverse constructivist approach to social theory. ANT in general aims at analysing relationships in heterogeneous networks (Law, 2009). ANT was developed in the 1980s in the field of science and technology studies (STS) by Michel Callon (1986a, 1986b), Bruno Latour (1987) and John Law (1987) as a critical approach to conventional sociology. ANT is a descriptive approach rather than an overarching theory, as it does not explain the 'why' behind the phenomena, only the 'how' (Bloor, 1999).

Originally, ANT aimed at understanding how knowledge is constructed and produced in laboratories and research communities by means of analysing the interactions between actors in heterogeneous networks (Latour & Woolgar, 2013; Latour, 1987, 1999b). It primarily differs from mainstream STS by the fact that it employs a material-semiotic method – simultaneously including the relations between things and objects (material) and concepts (semiotic) into the analysis. Later, in the 1990s, ANT moved beyond STS and now is being applied to analysis of a variety of settings in the social world, for example market and organisational studies (Law, 1992; Law & Hassard, 1999; Latour, 1999a, 2005). Theoretically, ANT challenges classical sociological theories by introducing non-humans into the analysis and replacing an idea of society with an idea of a collective. Society — a collective in Latour's (1991, 1993) understanding — emerges from the active assembling of humans, things, technologies and concepts.

ANT can be depicted as a combination of diverse ideas, greatly dependent on the author and time of production of each text. As I am not aiming to provide a detailed account of the manifold approaches of ANT and complex history of its development, I will mainly focus on the works of key scholars of ANT: Bruno Latour, John Law and Michel Callon.

According to Latour (2012), modern social theory is always operating with a one-dimensional language: explanations and descriptions employ the opposite poles of *nature* or *culture* (*nonhumans and humans*, respectively). The construction of knowledge and emergence of artefacts is either explained by society or by nature. In order to overcome the duality of *nature versus culture*, ANT introduces the idea of a *symmetrical relationship*, one grounded in *the principle of generalised symmetry* (Callon, 1986a, 1986b; Latour, 1991, 1993), for the analysis of relationships in heterogeneous networks. The basic idea behind the principle of generalised symmetry is a commitment to explain conflicting and diverse entities in the same terms. Putting it simply, it means that humans and nonhumans are treated

equally. The role of human and nonhuman actors in the process of constructing a heterogeneous network is also analysed in equal terms (Callon, 1986). To transcend the dualism between nature and culture, ANT creates a new dimension: the focus of analysis is transferred to the *process of constructing nature and society*, that results in the stabilisation of a network. The construction of knowledge and emergence of artefacts is seen as a consequence of the common effort of opposite poles, both human and nonhuman actors.

Introducing the basic ideas of ANT provides grounds for focusing on how the notion of object is conceived when employing ANT and answering the three questions introduced at the beginning of this chapter.

***What kinds of objects are under analysis?*** According to ANT, society is constituted by heterogeneous collectives of humans and nonhumans. Every entity that plays a role in the process of assembling a network, whether human or nonhuman, is an *actor*:

An actor in ANT is a semiotic definition — an actant — that is something that acts or to which activity is granted by another ... an actant can literally be anything provided it is granted to be the source of action. (Latour 1996b, p. 373)

Although Latour does not fully accept the use of the notion of object, he talks about objects as concrete heterogeneous material-semiotic entities (Latour, 1996b). Any object can be analysed as an actor so long as it plays a significant role in the construction of a network. An actor in ANT is any entity that claims to have authorship over an intermediary — anything that passes from one actor to another. The key to understanding what kinds of objects are the focus of ANT has to do with making the distinction between *intermediaries* and *mediators*. Intermediaries are entities that do not affect the phenomenon under investigation; they just transport the force of another entity with minimal or null effect.

Mediators are entities that multiply the number of differences; any input involving mediators does not predict the output:

However, objects are not means, but rather mediators — just as all other actants are. They do not transmit our force faithfully, any more than we are faithful messengers of theirs. (Latour, 1996b, p. 240)

Object-mediators — actors — become an object of study when using ANT, unlike with traditional sociology, which looks at most things as mere intermediaries. For example, silk or nylon may be analysed as intermediaries, symbolizing the upper and lower classes, respectively. The real concrete garments are irrelevant in this type of analysis. Analysing garments as mediators from the standpoint of ANT requires looking at them in their specificity and concreteness: one needs

to look at the concrete groups and powers behind and surrounding each concrete garment. With ANT, silk and nylon are social things, and these things must be constantly constructed and performed in a network and via their connection with other actors in this network (Latour, 2005).

Mediators make and multiply difference in a network. This is the main feature of objects when using ANT. I will elaborate more on ANT to answer the second theoretical question of this chapter: ***What are the main features of the objects under analysis?***

*Making/multiplying difference, transforming or acting* in the process of assembling a network, are the main features of objects when using ANT:

Toolmaking, constructing the social, acting, interacting, localizing, globalizing, determining, constraining — all these verbs rest not only on a certain model of the individual or collective, human or non-human actor but also on the definition of *action*. If it seems impossible to give objects that remain simply ‘objective’ their place in society. It seems even more difficult to integrate them as the mere fabrication of an all-powerful actor. In order to render them usable by sociological theory we must modify on the one hand the objective nature of objects and on the other hand the concept of action. Now normal anthropological usage presupposes in action a ‘making-be’ for which it induces, by extension, a *subject* with appropriate competencies and an *object*, which thanks to the actor has now gone from potentiality to actuality. Nothing in this schema seems to be reusable by a social theory interested in sharing sociality with things. Indeed action cannot be the point of origin except at the price of *stopping* the circulation, or the series of transformations whose movement continually traces the social body. The competencies of the actor will be inferred *after* a process of attribution, pause, abutment or focusing. [...] we need to consider any point as being a mediation. (Latour, 1996, p. 237)

Acting is conceptualised with ANT via the notion of *translation* (Callon, 1986a). The notion of translation is grounded in semiotics, which helped form the basis of ANT. The concept of translation was originally introduced in order to bridge a gap between the different entities constituting networks. According to Callon,

translation involves creating convergences and homologies by relating things that were previously different. (1981, p. 211)

The notion of translation has also been utilised to provide a new point of view on the issue of power, which naturally appears in any heterogeneous network. Translation is understood as ‘all the negotiations ... acts of persuasion and violence

thanks to which an actor or force takes ... authority to speak or act on behalf of another actor or force' (Callon & Latour, 1981, p. 279). According to ANT, the existence of heterogeneous sociotechnical networks requires translation as a process by which diverse elements are related to one another, a process by which

the identity of actors, the possibility of interaction and the margins of maneuver are negotiated and delimited. (Callon 1986b, p. 203)

In ANT's understanding, relationships in networks need to be constantly performed; force should be transferred through multiple translations and transformations. One way to transfer the power between actors is through the circulation of tokens or quasi-objects (Latour, 1996b). For instance, within a network constituted by driving a car, petrol is an example of a token. When it is successfully transmitted in a network, the action of driving is successfully performed. When this token or quasi-object fails to be transmitted (running out of fuel, the car's engine breaks down or the driver forgets to fill the tank), a failure occurs and relations cannot be performed in this network.

When a network failure occurs, for example the engine breaking down, such an actor becomes visible in the network. It also becomes evident that the engine – an actor in the larger network of driving – is itself part of a network of smaller elements. Hence, ANT utilises the notion of *actor-network*, which can be defined as follows:

[something that is] reducible neither to an actor alone nor to a network ... An actor-network is simultaneously an actor whose activity is networking heterogeneous elements and a network that is able to redefine and transform what it is made of. (Callon, 1987, p. 93)

ANT also conceives of the main feature of objects in another way: *actors, constituting networks, are themselves networks of smaller entities*. This feature becomes visible when a certain failure occurs (Law, 1992). The concept of actor-network is analysed using ANT with the help of the notions of punctualisation and the black box. Once a network is constituted, an object, a fact or an artefact becomes a black box and its inner structure stops being visible. Most of the time the driver of a car is unaware of the inner workings of the engine until it breaks down. This 'opening of a black box' is known in ANT as the punctualisation effect. Once an element of a network fails to act, the whole network breaks down.

The impact of all actors, both human and nonhuman, is required for a heterogeneous network to perform a collective act, for example driving. This idea helps to answer the third theoretical question — ***What is the analytical potential of objects?*** The analytical potential of objects in ANT has to do with *analysing the assembling and functioning of a heterogeneous or socio-technical network, where*

*all the possible actors — both humans and non-humans — are taken into account.* With the help of such an analysis, the role behind objects and material entities in the construction of heterogeneous networks becomes visible.

I begin by exploring the notion of a network using ANT. I have already introduced the notion of an actor-network. Different scholars conceptualise networks using different terms: collectives of humans and nonhumans (Latour, 1991, 1996a); heterogeneous networks, socio-technical networks and techno-economical networks (Callon, 1991); or, networks of heterogeneous materials (Law, 1992). The emphasis in each case depends on the focus of analysis adopted by the scholar in question, but the core idea behind a network is always its hybrid nature: a network is constituted by heterogeneous elements, humans and nonhumans, both on material and semiotic levels. The crucial characteristic behind the conceptualisation of networks when using ANT is that relations in a network must be constantly performed, otherwise the network breaks down (Callon, 1987; Law, 1992). A network acts as a whole, although it is constantly in the process of being made and re-made. Heterogeneous networks are constituted equally of humans and nonhumans, with the relationship structure in a network appearing to be flat. Analysis of this flat structure brings the material into the social, though the intentionality of human actions appears to be missing in this unstructured unity.

In the example of the act of driving a car, the driver does not merely start the engine. Instead, the driver triggers a collective action and the whole network starts working (Law, 1987). This network of driving a car depends on the contribution of each element, which has been progressively framed during the assembling of a heterogeneous network, for example a road infrastructure consisting of maintenance services, motorway operating companies, the automobile manufacturing industry, a network of garages and fuel distributors, specific taxes, driving schools, traffic rules, traffic police, laws, etc. (Callon et al., 1986).

This network is active. Each of the human and nonhuman elements comprising it participates in a collective action, although a car in this case plays a central and an assembling role. This type of analysis surely emphasises the role of objects in constructing networks, but it does not provide any specific criteria regarding what kinds of elements and unities must be included in the analysis. Including driving schools, a network of garages and taxes in the act of driving may be beneficial from the standpoint of including all the possible actors into the analysis of networks. Including too many elements, though, makes the analysis somewhat incomprehensible and challenging to perform.

The collective action of driving determines the driver, and the driver starts or initiates the collective action. Agency in ANT is distributed throughout a network and ‘what counts as a person is an effect generated by a network of heterogeneous, interacting, materials’ (Law, 1992, p. 383). In this case, it is almost impossible to distinguish humans from nonhumans; human agency, motivation and intentionality are diminished in many ways.



In the view of ANT, communities and networks are replacing the notion of society (Latour, 2005; Law, 1992, 1999). The social is seen as combination of networks of heterogeneous entities, and material objects play a significant role in performing the social relationship:

Look at the material world in this way. It isn't simply that we eat, find shelter in our houses, and produce objects with machines. It is also that almost all of our interactions with other people are mediated through objects... (Law, 1992, pp. 381–382)

The objects are specific entities, providing frames for human interaction and ensuring that such interactions transcend the present moment (Latour, 1996b).

## 2.3 The Concept of the Object in the Epistemic Approach of Knorr Cetina

Karin Knorr Cetina is a sociologist, known for her work in the fields of social constructionism and epistemology (Cetina, 1997, 2009, 2013). Her specific interests include the sociology of science, markets, information, and post-social theory in general. The notion of object plays a significant role in Knorr Cetina's works, as her post-social theoretical interpretations specifically attempt to understand the role of different types of objects in social life. One of her main points of interest in her earlier works was how science creates and constructs knowledge (Knorr Cetina, 2013); later, her analysis of knowledge settings expanded to other fields of expert work, such as markets (Knorr Cetina & Bruegger, 2000, 2002).

The core concept underpinning Knorr Cetina's epistemic approach is the notion of *knowledge or epistemic object*. Knorr Cetina utilises this concept in order to analyse the emergence of post-social relations in epistemic cultures, which are features of a knowledge society. Before introducing the concept of a knowledge object and answering the questions posed in the introduction to this chapter, I will first briefly introduce other core concepts of this approach: knowledge society, epistemic cultures and post-social relationships as well as elaborate on the duality this approach is trying to overcome.

Following a trend that began in the 1970s, Knorr Cetina (1997) claims that Western societies have become *knowledge societies* — societies based on knowledge. Knowledge societies are based on the expert processes and expert systems embodied in science, but they are also structured based on other areas of social life. One structural feature of knowledge societies involves *epistemic cultures* — cultures of knowledge settings, cultures where knowledge is created. Epistemic cultures emerge in knowledge settings, therefore they are widely present in societies based on knowledge (Knorr Cetina, 2007). According to Knorr Cetina, epistemic cultures are cultures that 'make up *how we know what we know*' (Knorr

Cetina, 2013, p. 1). The notion of epistemic cultures aims to capture processes of knowledge creation. Knorr Cetina analyses knowledge not as it is believed, but knowledge as it is practiced (Knorr Cetina, 2007, 2009).

The setting for knowledge societies and epistemic cultures leads to dualism, which Knorr Cetina's approach addresses. She (1997) discusses two processes: individualisation and objectualisation. The extreme of *individualisation* — an orientation towards other people as a source of self and an alienation from other people based on the collapse of community and traditions in modern capitalist society. The opposite extreme of *objectualisation* is an increased orientation towards objects as sources of the self, relational intimacy and social integration. Human relationships in post-industrial societies become mediated by objects to such an extent when human relationships become dependent on objects.

In order to overcome the presented dualism, Knorr Cetina suggests the notion of *post-social relationships*, which she defines as follows:

new kinds of bonds such as those constructed between humans and objects. Nonhuman objects have an increased presence and relevance in contemporary life. Such forms of binding self and other are what we call 'postsocial'. (Knorr Cetina & Bruegger, 2002, p. 162–163)

Post-social relationships are not a-social or non-social in Knorr Cetina's analysis. They signify the importance not only of other persons in the environment, but also of objects in the environment (Knorr Cetina & Bruegger, 2000). The notion of post-social relationships stems from the idea that:

individuals in some areas relate to (some) objects not only as 'doers' and 'accomplishers' of things within an agency framework but as ... bearers of the sort of experiences we tend to reserve for the sphere of intersubjective relationship. (Knorr Cetina & Bruegger, 2002, p. 163)

With the help of the notion of post-social relationships, Knorr Cetina emphasises the relevance of objects in the social world. After discussing these core concepts of Knorr Cetina's approach, I will now introduce Knorr Cetina's understanding of the notion of object and answer the three questions from the introduction to this chapter.

***What kinds of objects are under analysis?*** Knorr Cetina introduces the concept of *knowledge or epistemic object* in order to describe the emergence of post-social relationships in epistemic cultures (Knorr Cetina, 1997). During the course of her work, Knorr Cetina (1997, 2001) has expanded upon the sociological term of epistemic object, traditionally understood as an object of scientific inquiry. She applies this term to different forms of expert work in modern societies beyond the field of science, saying

objects of knowledge are characteristically open, question generating and complex. They are processes and projections rather than definitive things. (Knorr Cetina, 2001, p. 181)

Knowledge objects are different from everyday things, commodities and instruments. According to Knorr Cetina (1997), all things have either an intrinsic value or an extrinsic usefulness for a subject. Knorr Cetina (2001) argues that instruments and commodities merely have an extrinsic, external value and use for the subject, whereas knowledge objects have an intrinsic, internal value for the subject. In her conceptualisation of instruments, Knorr Cetina (2001) is following Heidegger's (see Knorr Cetina, 2001) ideas about equipment: instruments, even highly technological ones, are seen as present, ready-to-be-used and transparent. Transparency has a tendency to appear when we use an instrument and disappear when we do not; instruments become problematic only when they are unavailable or broken. As for commodities, they are regarded here as things valued not for their intrinsic properties, but for their exchange status and relationship with other objects; commodities answer a desire to possess.

Knowledge or epistemic objects, on the contrary, have intrinsic value for subjects. They are entities, largely unknown, constantly changing and unfolding (Knorr Cetina, 1997). Knowledge objects lack objectivity and completeness of being. They are constantly being materially defined and exist in a variety of forms and representations: material, semiotic, and so forth. Knorr Cetina (2001) claims that these instantiations are partial, and they do not fully contain the whole object.

After defining the notion of knowledge or epistemic objects, which are at the core of the Knorr Cetina's work, I will move on to the features of epistemic objects and answer the second theoretical question: *What are the main features of the objects under analysis?*

The main characteristic of epistemic objects in Knorr Cetina's (1997, 2001) approach is open-endedness, or *a lack of completeness of being*. This lack of completeness of being corresponds to *the structure of wanting* on the subject's part:

[the] guiding metaphor here is that binding (being-in-relation, mutuality) results from a match between a sequence of wantings and an unfolding object that provides for these wants through the lacks it displays. (Knorr Cetina & Bruegger, 2000, p. 155)

Knorr Cetina moves the focus of her analysis of the features of an object to the side of the subject, elaborating in detail on the notion of the structure of wanting. The structure of wanting as a characteristic of the self matches the open, unfolding character of epistemic objects (Knorr Cetina & Bruegger, 2002). Knorr Cetina (2001) roots the idea of the structure of wanting in Lacan's (see Knorr Cetina,

2001) ideas on child development, specifically that of a mirror stage. The structure of wanting can be seen as a striving for perfection and completeness; this desire is born in the mirror stage when a child envies a perfect image in the mirror.

At first glance, it may seem that relationships with epistemic objects are positive, symmetrical and non-appropriate relationships. Indeed, binding occurs when the sequence of wantings and the unfolding object match one another. The process loops through the changing character of the object in question; the lack of said object is then experienced once again. The wantings are never truly fulfilled; the subject never truly grasps the object (Knorr Cetina, 2001). The wantings are driven by a continually renewed lack of an object. The subject just reiterates the lack and exchanges it for something else rather than eliminating it. For Knorr Cetina (2001), the reciprocity between a lack and wantings does not occur easily; it is produced laboriously.

After defining what kinds of objects are the focus of analysis and the main features of these particular objects, I will further move on to the *analytical potential* of the concept of knowledge object and answer the third question from the introduction to this chapter: ***What is the analytical potential of objects?***

The analytical potential of Knorr Cetina's conceptualisation of objects lies in the notion of *sociality with objects*, which helps us to understand the role of objects in social life. What is sociality? In Knorr Cetina's understanding, sociality is a permanent feature of human life, one that can be defined as follows:

generally speaking ... forms of grouping, binding, and mutuality or reflexivity among humans. (Knorr Cetina & Bruegger, 2000, p. 152)

What is sociality with objects? This notion refers to a situation when objects act as centres of sociality (Knorr Cetina, 1997). In Knorr Cetina's analysis, objects serve as centring and integrating entities for groups of experts, making up embedding environments in which the experts' work is carried out. Epistemic objects, being complex and manifested in different forms, answer the structure of wanting not only for single experts, but also for whole collectives and generations of experts who assemble around particular objects.<sup>8</sup> Knowledge objects bring and bind people together, mediating their relationships. Objects act here as the centres of intentionality towards which the subjects' efforts are directed, while the relationships between subjects are not thoroughly defined in the analysis.

In case of analysing a foreign exchange market, Knorr Cetina argues that the market appears as a knowledge object for those persons who want to participate

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<sup>8</sup> In Knorr Cetina's analysis, examples of such objects include fruit flies for scientists (1997) and foreign exchange markets for traders (2000).

in it. This claim emphasises the core idea of a sociality with objects in Knorr Cetina's understanding — the idea of mutuality or reciprocity:

Sociality occurs when the self as a structure of wanting loops its desire through the object and back. In this movement, the self is endorsed and extended by the object ... which also provides for the continuation of the structure of wanting through its lacks. Sociality here consists in the phenomenon that the subject takes over the object's wants — as a structure of wanting, the subject becomes defined by the object. Conversely, the articulation of the object, the market, is looped through the subject: as a structure of lacks, of the questions it poses and the things that 'it' needs, the market receives the kind of extension that the subject determines. In the present case, market continuation literally depends, we said, on market makers' readiness to provide liquidity for the market and to deal, even if they stand to lose money. But the market also becomes substantively defined by the way market makers decide to engage in market continuation. (Knorr Cetina & Bruegger, 2000, p. 157)

The main areas of Knorr Cetina's of analysis of *sociality with objects* are science and trade (Knorr Cetina & Bruegger, 2000; Knorr Cetina, 2009). She also points out that the concept is not limited to science and may be expanded to other areas of social life, including work and leisure, as many occupations and hobbies nowadays have a significant knowledge base (Knorr Cetina, 2001). Still, a question remains as to the extent to which the notion of 'sociality with objects', embedded as it is in post-social relationships in epistemic cultures, may be expanded to other types of expert cultures, including, for example, physical labour or leisure activities such as sports.

## 2.4 The Concept of the Object in Cultural-Historical Activity Theory

Cultural-historical activity theory (CHAT) is a theoretical framework stemming from a variety of backgrounds: Karl Marx's (1964, 1983) dialectical philosophy, the cultural-historical psychology of L. S. Vygotsky (1978), the activity theory of A. N. Leontiev<sup>9</sup> (1981) and the works of other Soviet psychologists and philosophers, such as A. R. Luria, V. V. Davydov and E. V. Ilyenkov. The approach

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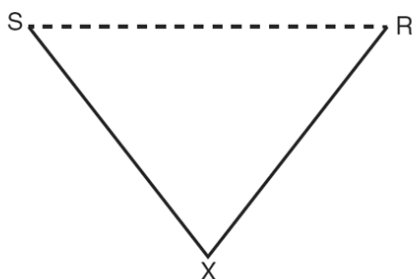
<sup>9</sup> The surname of the founder of activity theory has been translated from Russian into English in several different ways: Leont'ev, Leontiev, and Leontyev. Almost every English translation of his works includes its own version of the name. To avoid confusion, I will use the version 'Leontiev' in this monograph.

developed around the notion of activity, understood as a system of human ‘doing’ where a subject acts upon an object to obtain a desired outcome by employing external and internal tools. Activity is analysed as an object-oriented, culturally and socially mediated system with division of labour and rules regulating interaction between participants (Engeström, 2015b). The notion of activity in CHAT is both an explanatory principle and a unit of analysis.

First, I will introduce a dualism that the approach aims to overcome and the main concepts of CHAT. According to Engeström (2015b), the approach of CHAT has been modified over several generations, each dealing with the core concepts in a somewhat different way. Therefore, the introducing of the main concepts will incorporate a short account on their development.<sup>10</sup>

### First generation of activity theory

The first generation emerged based on Vygotsky’s (1974, 1978) idea of mediation. The unit of analysis — a mediated act — included the subject, object and mediating means. Vygotsky (1978) created an approach called cultural-historical psychology, based on Marx’s dialectics, as a response to the dualism between *subject* and *object* existing at that time in psychology. Earlier, Marx (1983) had already formulated the idea of object-oriented, material, practical activity as a solution to the opposition between traditional materialism and idealism. Vygotsky (1978) suggested a concept of *mediated action* to describe the *dialectical relationship* between a subject and an object. The idea of mediation was introduced in order to combat behaviouristic stimulus-response model prevalent in the field of psychology at that time. The main point of mediation was that a human act is not a direct response (R) to a stimulus (S), but is mediated by a cultural component (X). The structure of a mediated act in the form of a triangular model is shown in Figure 1.



**Figure 1.** The structure of mediated act Vygotsky, 1978 , p. 40

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<sup>10</sup> For a more elaborate description of the development of the core ideas of CHAT, see, e.g. Engeström (2015b), Miettinen (1999).

The introduction of cultural mediating means into the unit of analysis was a revolutionary way to transcend the simplistic behaviouristic model common at that time. Vygotsky's cultural-historical approach was grounded in Karl Marx's dialectical materialism. The idea of mediation overcame the traditional Cartesian split between an individual and the objective world, a split between the social and natural. This triangular unit of analysis meant that an individual could not be understood without cultural means and that society could not be analysed without knowing the impact of individuals, those producing artefacts. Objects in this approach became cultural entities, not just simply raw natural material (Engeström, 2015b).

Vygotsky (1978) distinguished between two interrelated types of mediating means in human activity: tools and signs. In general, artefacts may be understood as man-made objects (Miettinen, 2001). Cole (1996) defines an artefact as 'an aspect of the material world that has been modified over the history of its incorporation into goal-directed human action' (p. 117). The crucial feature of an artefact is that it is both material and ideal: for instance, a pen is a material object and an embodied idea of a pen's functionality. The word 'pen' as well cannot exist without the material carrier behind.

Vygotsky (1998a, 1998b) analysed mediation according to the principle of exteriorisation-interiorisation. These are two inseparable, simultaneous sides of mediation. Interiorisation is understood as an appropriation and internal reconstruction of external operations, tools and processes. Exteriorisation is understood as a transfer of internal processes to the external, including the creation of signs, means and tools, all of which change objective reality. An individual internalises the objective world with the help of cultural signs, while he/she externalises the subjective reality of the objective world and transforms it with the help of tools. The human mind and consciousness therefore exist only in interaction with the world. This interaction is called activity. The creation of new signs for an individual is a way to master one's own behaviour. For Vygotsky (1978), all intentional actions are mediated.

Although the principle of interiorisation-exteriorisation presumes the simultaneity and inseparability of both processes, the focus of Vygotsky's theoretical and experimental endeavours had to do more with the process of internalisation, mainly on the formation of higher psychic functions. The unit of analysis in the first generation was focused on individuals.

### **Second generation of activity theory**

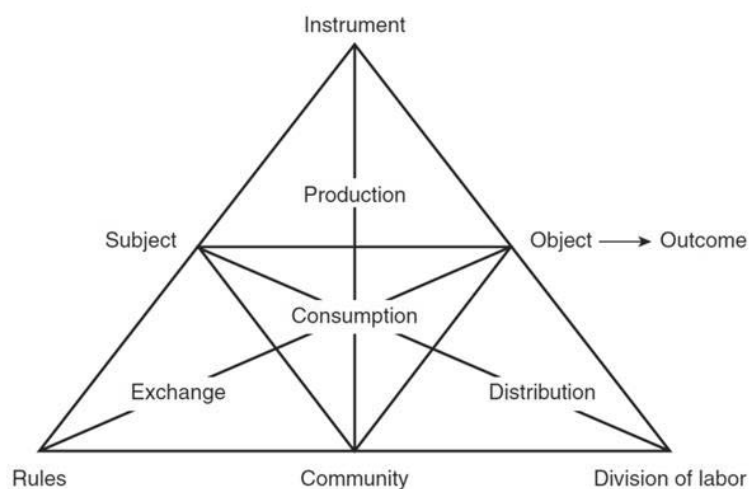
The second generation of cultural-historical activity theory overcame the individual focus with the introduction of a concept of activity, which became the unit of analysis. This generation was based on the works of Leontiev (1978, 1981), who developed the notion of activity and introduced activity theory into psychology. Leontiev (1981) illustrated how a historically evolving division of labour had

produced the distinction between activity and action (see the example of a primeval hunt earlier in this chapter).

Leontiev's (1978) activity theory was developed in the field of psychology with a focus on the activities of individuals. Nevertheless, he regarded all activities as collective processes, since activity, even that of a single individual, can exist only in relation with society:

Human psychology is concerned with the activity of concrete individuals that takes place either in conditions of open association, in the midst of people, or eye to eye with the surrounding object world — before the potter's wheel or behind the writing desk. Under whatever kind of conditions and forms human activity takes place, whatever kind of structure it assumes, it must not be considered as isolated from social relations, from the life of society. In all of its distinctness, the activity of the human individual represents a system included in the system of relationships of society. Outside these relationships human activity simply does not exist. (pp. 84–85)

Engeström (2015b) further developed the concept of activity by introducing the notion of an activity system, which takes into account a subject, an object, instruments, rules, community and division of labour (Figure 2).



**Figure 2.** The structure of human activity (Engeström, 2015b, p. 63).

Subject here refers to an individual or a group whose point of view is chosen as the perspective for analysis. The object is the 'raw material' or 'problem space' towards which an activity is directed and which is transformed into an outcome with the help of mediating instruments (tools and signs). The activity does not



occur in a vacuum: the community represents individuals and groups who share the same general object with the subject. Division of labour includes the horizontal and vertical division of tasks in a community; rules refer to implicit and explicit regulations, norms, standards and conventions that regulate actions and interactions within the activity system. Although an analytical tool, the triangle of activity tends not so much to study separate relations, but to understand the complexity of relations and grasp activity as a whole.

**Third generation of activity theory**

The third generation of activity theory, according to Engeström (2015b), needs to develop conceptual and analytical tools to understand networks of interacting activity systems. This challenge emerged when activity theory became international and focused on studies of complex activities and interconnected activity systems (Engeström, 2015b). The unit of analysis has expanded to include, at minimum, two interacting activity systems (Figure 3).

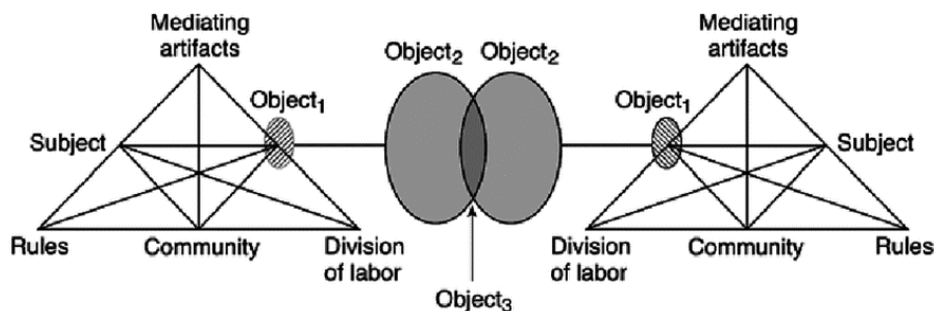


Figure 3. Two interacting activity systems (Engeström, 2001, p. 136).

Originally developed in the Soviet Union, activity theory was a relatively uniform approach, much bounded by Soviet ideology in terms of its theoretical ideas and areas of application. The distribution to and re-contextualisation of the approach in multiple countries in different fields created both new challenges and new opportunities. Questions of incorporating diversity, dialogue and multiple voices into the theory became of crucial importance.

Leontiev (1978) claimed object-orientedness to be the key principle of activity theory. Activity is always oriented towards an object, and the object defines an activity. In the process of interaction between a subject and object, the actions of a subject are not just merely directed by objects; the subject actively selects and transforms objects:

the subject actively interacts with the object; it ‘meets’ the object with partiality and selectivity. (Davydov, Zinchenko & Talyzina, 1983, p. 33)

Objective determination is possible due to the fact that the activity becomes assimilated with the objective world, which is transformed into activity (Davydov, 2008). The subject and object enter into a dialectical relationship through activity. The unity of opposite entities, subject and object, exists through activity and must be studied through activity (Leontiev, 1978).

After discussing the basic concepts of CHAT, I now move forward to an analysis of the notion of object in CHAT and answer the three questions posed in the introduction to this chapter.

***What kinds of objects are under analysis?*** CHAT conceptualises objects with the help of the notion of *the object of activity* (Lektorsky, 1984; Leontiev, 1978). The object of activity is different from mere objects. The distinction between a thing and an object of activity is crucial for activity theory. Leontiev (1981) defined the object of activity in this way:

as something toward which an act is directed, i.e., something to which a living being relates. (p. 49)

The notion of the object of activity was originally developed within Soviet psychology in the Russian language, which makes accurate translation into the English language challenging.<sup>11</sup> The Russian language has two words that can be translated into English as ‘object’, namely *objekt* [объект] and *predmet* [предмет]. In modern everyday use, these two words appear as synonyms.<sup>12</sup> In scientific use, however, these terms convey different meanings. The term *objekt* has a connotation of something given, standing in opposition to a subject, whereas *predmet* refers to a constructive selective process through which specific phenomena become a comprehensive unity of focus for human beings in their activities and thinking.<sup>13</sup> This difference between *objekt* and *predmet* was crucial to Leontiev’s (1978, 1981) analysis of activity, in which he respectively followed Marx’s distinction between the German terms *Objekt* and *Gegenstand*:

We shall also, accordingly, limit the concept of object. It is normally used in a dual sense: in the broadest one as a thing standing in some kind of relation to other things, i.e. as ‘a thing having existence’; and in a narrower sense — as something withstanding (German *Gegenstand*), resistant (Latin *objectum*), that to which an act is directed, i.e. as something to which precisely a living creature relates itself as the object of its activity

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<sup>11</sup>See Kaptelinin (2005) for extensive analysis of the issue of translation and the rules of translation.

<sup>12</sup>S. I. Ozhegov, (2012) [*The Dictionary of the Russian Language*], 28<sup>th</sup> edition, in Russian.

<sup>13</sup>The new philosophical encyclopedia (2010). 2d edition. Moscow, Misl.

— indifferently as outward or inward activity (e. g. object of nutrition, object of labor, object of meditation, etc.). From now on we shall employ the term object precisely in this narrower, special sense. (Leontiev, 1981, p. 36)

This distinction between the terms was developed by Leontiev in his earlier works, and later he used both words *objekt* and *predmet*, carefully utilising them depending on the meaning: *objekt* to describe a unity at one end of the opposition of subject and object, and *predmet* as specifically the object of activity, indicating the objective orientation of activity.

How does a mere object (*objekt*) become an object of activity (*predmet*)? Leontiev (1978) defined activity as a type of activeness, driven by a need. An object, an entity in a given environment, becomes an object of activity when it meets a need, in the process of objectifying this need. In the search process, activeness is not yet directed towards any object, but then the need encounters an object, which is able to satisfy this need. Further, the activity is driven not directly by the object, but by the image of the object — a reflection of this object. A reflection of an object is not just the simple influence of an object upon a subject; it requires the active engagement of a subject (Davydov, Zinchenko, & Talyzina, 1983).

The objectification process reflects the twofold nature of the object of activity. It is something existing independently, directing and transforming the activity of a subject. The object of activity also exists as an image of the object. This image is constructed by a subject in the course of activity by reflecting the properties of an object (Davydov, Zinchenko, & Talyzina, 1983, p. 32). This twofold nature of the object of activity provides the grounds for contextualising subjective phenomena in the objective world.

Leontiev's (1978, 1981) analysis of activity had a psychological focus: while he analysed all activities as social, he concentrated on individuals engaged in activity. Engeström (2015b) developed and applied Leontiev's ideas on the object of activity to collective activities by analysing activity systems. For Engeström, the object first emerges as raw material or a problem space to be worked on; then it is gradually shaped and transformed into a product or an outcome. A subject works on the object with the help of instruments. The object in activity systems appears to be complex, as it exists as part of an historical activity system and as a specific object in a given time and space:

When we talk about the object, we need to distinguish between the generalized object of the historically evolving activity system .... and the specific object as it appears to a particular subject, at a given moment, in a given action...The particular, situationally constructed objects are unstable mixtures and partial manifestations of the generalized objects. (Engeström et al., 2003, p. 181)

This later conceptualisation of the concept of object of activity is focused on the processes of transformation and construction of an object, on the exteriorisation of subjective reality into the objective world, one engaging multiple actors. Leontiev's (1978) original understanding of the notion of object is more focused on the process of objectification, or the interiorisation of the objective world into subjective reality.

After introducing the kinds of objects that inform the analysis done using CHAT, I will elaborate on their characteristics and move on to the second theoretical question: *What are the main features of the objects under analysis?* I build my discussion in a similar manner to the first question by starting from the origins of CHAT and moving to contemporary works on activity theory.

The primary feature of the object of activity in CHAT is that objects are *carriers of motives*; they *motivate, drive and direct* activities. The object of activity is understood as a carrier of motivation, direction and a sense of activity, as something 'toward which an act is directed, i.e., something to which a living being relates' (Leontiev, 1981, p. 49). The motive 'may be either material or ideal, either present in perception or exclusively in the imagination or in thought' (Leontiev, 1978, p. 62). According to Leontiev (1978), needs are able to regulate activity only after they are objectified, when activity finds its object. Somewhat following the Lewinian (see Leontiev, 1978) ideas on the motivating force of objects, Leontiev (1978) defined the object of activity as

its true motive ... and the motive can be either material or ideal, either present in perception or exclusively in the imagination or in thought. (p. 98)

A mere object becomes an object of activity and obtains motivational power in the process objectifying a need. According to Leontiev (1978), there is a need, a desire behind any object, a need to which the object answers. First, it is experienced as a 'need state' (Bratus & Lishin, 1983, p. 43), which triggers a search activity. During the search process, a subject encounters an object, which corresponds to this need state, to this discrepancy in the subject. During the process of objectifying the need, an object become an object of activity, and only then is it able to motivate and direct activity. Correspondingly, needs are produced through activity and socially constructed:

in particular, new needs are themselves formed because of social production of the objects and needs. (Davydov, 1981, p. 13)

Vasilyk (1991) regarded the 'object-true motive' formula as a pure abstraction, from which one needs to ascend to concrete activities and an analysis of a variety

of motives informing the activity in question. However, if this formula is applied merely as a way of deducting all types of motivation informing an activity, then failure is inevitable. Leontiev (1978, 1981) developed the concept of object of activity theoretically from the materialist viewpoint on human nature. The concept was primarily developed to stress the importance of the fact that human activities are driven by phenomena objectively existing in the world, rather than by some hidden mental processes or the human soul. The object of activity in this conceptualisation is a socio-material phenomenon.

Further studies on activity theory developed Leontiev's rather abstract 'object-true motive formula in order to describe a variety of motives informing concrete activities through the notion of object of activity. The objects are presented as carriers of motives — complex and contradictory assemblies embedded in social and economic relationships, with various individual motives attached to a single object (Engeström & Escalante, 1996; Engeström & Blackler, 2005; Miettinen, 2005; Nardi, 2005; Sannino, 2013). Relations between the object and subject in activities, carried out both individually and collectively, are described as personal and even intimate, using such terms as 'object of affection' (Engeström & Escalante, 1996), 'object of desire' (Nardi, 2005) and 'drivenness' (Sannino, 2013).

Activity is driven and shaped by objects, i.e. humans shape and construct objects through activity. Objects are in the process of constant transformation and transition — *objects have histories*. An historical approach originally formed the basis of the cultural-historical psychology of Vygotsky (1978). For Engeström (1990), the very contradictory relations between an object and a subject essentially carry the idea of historicity:

The object is both something given and something projected or anticipated. This very duality of the meaning of the term indicates that the concept of object carries in it the processual, temporal, historical nature of all objects. Objects are objects by virtue of being constructed in time by human subjects. This in no way diminishes their reality and materiality. But despite its materiality, an unknown particle or a mineral is not an object for us before we somehow make it our object — by imagining, by hypothesizing, by perceiving or by acting on it. (p. 107)

The subject is not constructing an object simply here and now:

objects are constructed by actors as they make sense, name, stabilize, represent and enact foci for their actions and activities ... objects have histories and built-in affordances, they resist and 'bite back'. (Engeström & Blackler, 2005, p. 310)

Objects are constantly in a state of transition and construction, while a subject constructs an object, ‘singles out those properties that prove to be essential for developing social practice’ (Lektorsky, 1984, p. 137). The historical dimension of the object of activity not only has a past and present, but also a future orientation: the object gains a motivating force that gives shape and direction to an activity. The object provides a ‘horizon of possible actions’ (Engeström, 1995, p. 397). For Engeström (2015b), an object first emerges as raw material or a problem space to be worked on, and only then is it gradually shaped and transformed into a product or outcome.

The notion of object of activity helps us to understand why people engage in certain types of activities and engage in pursuits beyond satisfying immediate goals (Engeström, 1995). The specific analytical potential of the notion of object of activity is that it helps us to understand *why people engage in certain kinds of activities*. In order to answer the third question posed in the introduction to the chapter, ***what is the analytical potential of objects?***, I will further elaborate on the role of an object in activity and the concept of activity itself.

Marx (1983) suggested the idea of object-oriented, material, practical activity as a solution to an opposition between traditional materialism and idealism and the duality of subject and object. In Marx’s understanding, subject and object are produced in the process of performing labour, and they exist only through practical activity. Humans produce themselves in the process of production by transforming nature.

Leontiev (1978) applied the notion of activity to psychology and used it to explain human behaviour. He defined activity as a process of active interaction and the relation of a subject with the objective world, whereby the subject satisfies certain needs. Activity, according to Leontiev, is object-related, and even if carried out alone, it is always collective because it is embedded in the system of social relations and conditions. Activity is always oriented towards an object; identifying the object of activity is crucial to the analysis of activities:

the expression ‘objectless activity’ is devoid of any meaning. Activity may seem objectless, but scientific investigation of activity necessarily requires discovering its object. (Leontiev, 1978, p. 86)

Leontiev (1978, 1981) analysed the hierarchical structure of any given activity: an activity consists of conscious actions, determined by a goal (Figure 4). Activity corresponds to a motive, action to a goal, and unconscious operations to conditions. Studying motives and motivation thus goes hand in hand with studying activity, as looking just at the level of actions only provides an understanding of the goals.

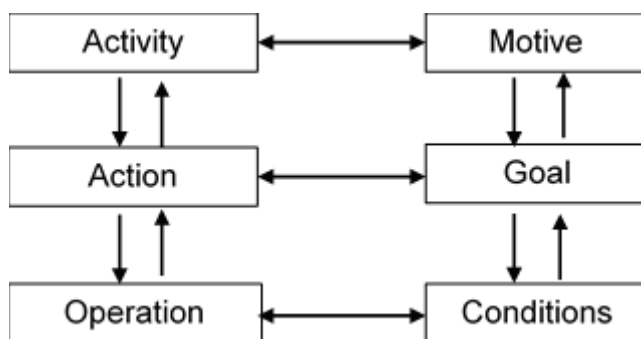


Figure 4. Leontiev's hierarchical structure of activity.

Building on Leontiev's ideas, Engeström (2015b) further applied the notion of activity to the analysis of collective activity systems, where a subject works on an object with certain tools to achieve a desired outcome. This system includes an object, a subject, mediating artefacts (signs and tools), rules, community, a division of labour and the outcome. The depiction of an activity system was presented earlier in Figure 2. The subject's intentions are directed towards the object; they are mediated by tools. Relations with other humans are reflected by the community, rules and division of labour.

In the analysis of activity systems, studying objects reveals motives, and therefore, the long-term 'why?' of actions (Engeström, 1995, p. 411). Focusing on mere actions does not have the potential to reveal 'what makes people strive for something beyond the immediately obvious goal or situation' (Engeström, 1995, p. 411). This requires looking at the level of activity.

The concept of object of activity in CHAT has the potential to be used for analysing not only what people are doing, but why they are doing certain things. The object constitutes activity, as the actions of a particular subject are oriented towards the object. The object of activity is not just a mere object existing on its own and as something affecting the subject; rather, it is the thing towards which the actions of a subject are directed, that to which the subject relates (Lektorsky, 1984). The relation between them is dialectical:

Human activity is characterized not only by its objectiveness but also by its subjectiveness: the activity of the subject is always directed toward the transformation of an object that is able to satisfy some specific need. (Davydov, Zinchenko & Talyzina, 1983, p. 32)

While the object directs the actions of a subject, the subject acts upon the object and is able to transform it. Contemporary views on the notion of object in activity theory demonstrate its usefulness in a socio-material understanding of human conduct and in understanding the 'why' behind the activities of humans, collectives and organisations.

## 2.5 A Discussion between the Three Views on the Object

In this chapter, I have introduced three perspectives on the notion of object: actor-network theory, the epistemic approach of Knorr Cetina and cultural-historical activity theory. Although these three theoretical approaches have different backgrounds, each of them is trying in its own way to overcome a classical opposition between materialism and idealism and to introduce the objective world into the analysis of social and subjective phenomena. These common aspects provide sufficient grounds for further discussion of the three views on an object.<sup>14</sup>

Here, I will bring three conceptualisations of object from different approaches into the discussion and point out their relevant similarities and differences. I will critically evaluate the concept of object using ANT and the epistemic approach from the standpoint of CHAT as well as draw on what insights ANT and the epistemic approach can provide to CHAT's understanding of an object. Finally, I will outline a theoretical conceptualisation of an object for the purposes of this monograph based on the discussion of the approaches.

I will start by presenting the views on an object when using the three approaches, condensed in Table 1.

**Table 1.** Three conceptualisations of an object

	<b>ANT (Latour, 1996, 2005; Law, 1999)</b>	<b>Epistemic approach (Knorr Cetina, 1997; Knorr Cetina &amp; Bruegger, 2000)</b>	<b>CHAT (Leontiev, 1978; Engeström, 2015b)</b>
<b>Duality in focus</b>	Dualism between nature and society	Dualism of individualisation and objectualisation	Dualism of subject and object, idealism and materialism
<b>Responses to the duality</b>	Generalised symmetry and the production of nature and society	Post-social relationship and object-oriented sociality	Dialectical, mediated relations between subject and object via activity
<b>1. What kinds of objects are under analysis?</b>	Hon-humans (objects) can be <i>actors</i> — something that acts. Objects as <i>mediators</i> — entities making a difference, unlike intermediaries, which simply transfer force.	<i>Knowledge or epistemic objects</i> — objects of scientific, expert or knowledge inquiry, having intrinsic value for a subject.	'Object of activity' vs. mere objects: — something towards which an act is directed, something that a human being can relate to. — raw material or problem space to be worked on, gradually

<sup>14</sup>For a more extensive discussion of the relationship between activity theory and actor-network theory, see Miettinen (1999). The approach of Knorr Cetina and CHAT were not thoroughly brought into dialogue, although certain points of intersection were discussed in the wide number of papers on activity theory (e.g. Engeström et al., 2003).



			shaped into a product or outcome.
<b>2. What are the main features of the objects under analysis?</b>	Objects are capable of <i>acting — making or multiplying difference</i> in a network. <i>Actor-network</i> — actors, constituting networks, are themselves networks of smaller entities.	Epistemic objects are open-ended; they have a <i>lack of completeness of being</i> , which corresponds to <i>the structure of wanting</i> on the subject's side.	Object of the activity as a <i>true motive of activity</i> — drives, directs and motivates activity. — <i>Objects have histories</i> : they are something given and something anticipated; objects provide a horizon of actions.
<b>3. Analytical potential (what for)?</b>	Analysis of the <i>assembling and functioning of a heterogeneous or socio-technical network</i> , where all the possible actors — both humans and non-humans — are taken into account.	<i>Sociality with objects</i> : objects act as centres of sociality; objects serve as centring and integrating entities for groups of experts.	Understand <i>why people engage in activities</i> and see <i>the long-term why of actions</i> . — <i>Objects define activities</i> .

The three approaches are trying to overcome a certain duality, in general the duality between the subjective and objective, manifested in different ways for each of the approaches. In order to overcome the duality, they establish new kinds of relationships between the phenomena in question. With ANT, the dualism of nature and society is addressed via the notion of symmetrical relationships. Knorr Cetina overcomes the dualism of individualisation and objectualisation by analysing post-social relationships. CHAT responds to the opposition between subject and object by introducing the idea of dialectical relationships.

In all three of the cases duality is addressed by introducing objects from the material world into the analysis of subjective and social phenomena. Objects are analysed as socio-material phenomena. The approaches focus on certain types of objects: mediators for ANT (Latour, 1996b), epistemic objects for Knorr Cetina (1997, 2001) and objects of activities for CHAT (Leontiev, 1978; Engeström, 2015b). These specific objects play a crucial role in constructing, constituting and directing the pursuits of humans and collectives: networks with ANT (Latour, 1991, 1996a; Callon, 1991; Law, 1992), the sociality of objects (collectives of experts) with the epistemic approach (Knorr Cetina, 1997) and activity with CHAT (Leontiev, 1978; Engeström, 2015b). Moreover, CHAT and ANT focus on studying transitions and transformations: ANT focuses on how networks are assembled (Latour, 1991, 1993), whereas CHAT focuses on changes and transformations of objects in activity (Engeström & Blackler, 2005; Engeström, 2015b; Miettinen, 2005). Both CHAT and Knorr Cetina, in their turn, focus on the direction of human intentions towards objects and discuss how objects drive and motivate human pursuits with respect to objects. Knorr Cetina (1997) looks at the lack of completeness of being in objects, which corresponds to the structure of wanting

on the subject's side, while CHAT analyses the process of objectification of needs, resulting in the object of activity becoming a motive of activity (Leontiev, 1971, 1978). Altogether, these three approaches are trying to provide multi-causal explanations for the cultural and subjective phenomena under investigation, and each stresses the significance of material entities in constructing the social and subjective by studying concrete networks, communities and activities.

Regardless of the similarities, these three views on objects have certain differences as well. I see these differences not as an obstacle, but as a way to enrich discussion of the approaches. I will explore the differences in the following manner: first, I will pose critical questions regarding how an object is conceived when using ANT and the epistemic approach from the standpoint of CHAT; second, I will draw on insights that ANT and Knorr Cetina's approach can provide for an understanding of object when using CHAT.

*Actor-network theory's conceptualisation of an object from CHAT's perspective<sup>15</sup>*

*Is there a distinction between objects and tools?*

ANT aims at analysing all actors constituting to a network, including nonhumans (Latour, 1996a, 2005). In their turn, nonhuman entities can be seen as mediators, making differences, and as intermediaries, making no difference. From CHAT's perspective (Engeström, 2015b), there are objects that a subject works on with the help of instruments.<sup>16</sup> This division between something worked on and something worked with is missing from ANT's conceptualisation: an entity, something that makes a difference — a mediator — can be an object or a tool.

*Is there something beyond actions?*

Latour (2005) replaces the 'almighty' society with real networks of local actants. His analysis of networks occurs only on the level of actions; networks appear to be flat and non-hierarchical. According to Leontiev (1978), activity is hierarchically organised: operations-actions-activity.<sup>17</sup> When the unit of analysis is focused only on actions, it only provides an understanding of short-term goals. Motives and the long-term why of actions can be analysed only while looking at the level of activity (Leontiev, 1978; Engeström, 2015b).

*General symmetry or asymmetry?*

ANT conceptualises the relationships in a network between subject and object using two different notions: the notion of translation (Callon, 1986a) and the idea

<sup>15</sup> For a thorough theoretical analysis of activity using ANT, see Engeström (1996) and Mietinen (1999). For more general critiques of actor-network theory in the field of sociology, see Bloor (1999).

<sup>16</sup> Knorr Cetina (1997, 2001) also makes a clear distinction between objects, instruments and commodities.

<sup>17</sup> The hierarchical structure of activity is discussed in detail in Chapter 3.

of generalised symmetry (Callon, 1986a, 1986b; Latour, 1991, 1993), which were explained earlier in this chapter. In reality, any analysis of symmetrical relationships in a network turns out to be asymmetrical (Miettinen, 1999). Empirical analysis of how networks are assembled is generally carried out through the voices of the most salient actors, like managers, leading scientists, and so forth. This goes against the principle of generalised symmetry, where humans and non-humans are supposed to be treated equally and given a voice. An attempt to make unequal entities equivalent in a network via the notion of translation does not make empirical analysis any different, since nonhuman objects are often not represented on the same level as humans (ibid.).

CHAT overcomes the differences between object and subject by analysing dialectical relationships: the activity of a subject is shaped and directed by an object, and a subject transforms an object through the process of activity (Leontiev, 1978, 1981; Engeström, 2005).

*Where are agency, intentionality and motivation?*

The principle of generalised symmetry, together with the idea of treating humans and non-humans in the same way, brings about another question: Where do such phenomena as agency, intentionality and motivation come from? According to ANT, agency is distributed among the participants of a network, and a human being is determined by the network (Latour, 1990). Any action is always a collective action. Objects are described with the same vocabulary as subjects, with traces of anthropomorphism. This kind of theorisation causes humans and non-humans alike to lose their essential nature, as there is supposedly no difference between them at all. It becomes unclear who is actually the agent of an action and where intentionality and motivation come from.

With activity theory, where human intentions and efforts are directed towards the object of activity, such phenomena as agency, intentionality, cognition and consciousness are all distributed throughout the network. They are distributed in the sense that they are mediated by artefacts and exist through activity (Miettinen, 1999). Motivation is conceptualised through the notion of object of activity: an object is able to direct and motivate activity, but only after the process of objectifying a human need (Leontiev, 1978).

*Where does a network end? What should be included in the analysis?*

ANT analyses heterogeneous networks comprised of both human and non-human actors (Latour, 2005). In a network that involves driving a car, the number of potential elements is almost unlimited (Latour, 1987). The criteria for identifying crucial elements remain unclear and situational, so in empirical analysis only the most prominent and loudest actors are selected, while many others, especially non-human actors, remain 'silent' (Miettinen, 1999). CHAT (Engeström, 2015b) analyses historically shaped, local activity systems, where a subject works on an object with certain tools to achieve a desired outcome. This system includes object, subject, mediating artefacts (signs and tools), rules, community, division of

labour and the outcome. Objects are taken into account as objects of activity or mediating tools.

***Knorr Cetina's conceptualisation of object from CHAT's perspective***

*Do knowledge objects describe objectual relationships only in the work of experts in science?*

Knorr Cetina (1997) analyses objectual relationships using the notion of knowledge objects, which form expert societies around them. Expert work in her analysis is limited mostly to the work of scientists and brokers. She only discusses the possibility of expanding the analysis to include the relationships of humans with nature, leisure and physical activity. This remains only on the level of discussion in her work, as if the objects of physical labour are not complex enough and do not require experts around them. With activity theory, the object of activity is seen as something towards which an activity is directed, a raw material and a problem space (Leontiev, 1978; Engeström, 2015b). An object requires a mastery of tools on the part of a subject, as only with the help of tools can a subject grasp an object (Engeström et al., 2003). Empirical studies on activity theory have applied the notion of object to a variety of settings in the work of cleaning specialists (Engeström & Engeström, 1986), scientists (Miettinen, 199, 2005), home care givers (Engeström et al., 2015) and farmers (Engeström et al., 2003), to name a few.

*Where are the features of objects situated?*

The main characteristic of knowledge objects, according to Knorr Cetina (2001), is the lack of completeness of being. This lack corresponds to the structure of wanting on the part of the subject. Further, Knorr Cetina (ibid.) rigorously develops the notion of the structure of wanting, seemingly putting the features of an object into a subject. With CHAT, the object of activity is usually defined as a true motive of activity (Leontiev, 1978, 1981). This theoretical abstraction was specifically developed to show that human activities are driven by phenomena objectively existing in the world rather than by some hidden mental processes or the human soul.

*Where is history?*

The notion of an epistemic culture aims at capturing the process of knowledge creation. Knorr Cetina (2007, 2009) analyses knowledge not as it is believed, but as it is practiced. Objects serve as centring entities for groups of experts; they comprise the embedded environments in which expert work is carried out. Though she treats the relationships between an object and experts as dynamic through a process of constantly matching the lack of completeness of being with the structure of wanting, this type of thinking lacks concrete analysis of the history of objects; it is in a sense taken for granted. Historicity is crucial to CHAT's conceptualisation of an object, as the historical dimension is one of the main features defining objects (Engeström, 1990; Engeström & Blackler, 2005).

*What is the role of instruments?*

Knorr Cetina (1997) differentiates knowledge objects from everyday things, commodities and instruments. Instruments, even highly technological ones, are seen as present, ready to be used and transparent: they appear when we use them and disappear when we do not (Knorr Cetina, 2000). Instruments and instrumentalities are given little attention in the analysis of epistemic objects. In the framework of CHAT, objects do not appear and take shape without instruments and instrumentalities (Engeström et al., 2003).

*Sociality with objects — expansion or compression?*

The notion of sociality with objects (Knorr Cetina, 1997) describes the relationship between objects and subjects, which binds subjects to knowledge objects. The relationship between subject and object seems to be compressed in one spot, with no option for expansion and freedom. According to CHAT, the object of activity has more than just a driving and directing role to play in activity. Objects, according to Engeström et al. (2003), have expansive driving potential: objects not only compress, but also expand. New expanding and complex objects call for new instrumentalities and expertise.

***Insights from ANT and Knorr Cetina's approach to CHAT's conceptualisation of objects***

After critically evaluating ANT and the epistemic approach of Knorr Cetina from the standpoints of CHAT, I will further link possible insights derived from ANT and Knorr Cetina's views on the object to CHAT in order to move the discussion between the three approaches further.

Activity theory, while conceptualising objects, takes them into account as objects of activity, tools and artefacts, while often disregarding the entities framing actions (Engeström, 1996). ANT assigns a specific importance to such material frames: infrastructures, walls, furniture, garments, clothes, and so forth. Latour (1996b) sees their specific importance in framing, reducing and portioning human interaction, making it different from the interaction of animals and going beyond the present moment and current situation. Acknowledging the significance of these material frames is one possible way of bringing environment into the analysis, what CHAT often overlooks.<sup>18</sup>

With activity theory, an object of activity is defined as something towards which activity is directed, a raw material or a problem space (Leontiev, 1978; Engeström, 2015b). The object of activity satisfies a certain need, and it is always in the process of transition and transformation. The idea of the transitional nature of an object and the objectification of a need have not been studied much simultaneously. Knorr Cetina (1997) claims that the lack of completeness of being of a

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<sup>18</sup> A more extensive discussion of the movement of objects in an environment (walls) across multiple roles and meanings and interaction between ANT and CHAT can be found in Engeström (1996).

knowledge object specifically corresponds to the subject's structure of wanting. Specifically, the unfinished and incomplete nature of an object is what drives the subject towards an object in order to transform and complete it.

When dealing with the complexity of objects, CHAT makes a distinction between a generalised object within an historical activity system and a specific object for a particular subject in a given action (Engeström et al., 2003). In the works of Knorr Cetina (2001), the complexity of objects is more thoroughly tackled with the idea of the incompleteness and open-endedness of objects, which have a variety of instantiations. The instantiations are the partial reflections of objects; they do not fully contain the whole object. The idea of complexity and the inner workings of objects are even further developed by ANT with the idea of the black box (Law, 1992) and notion of an actor network (Latour, 1996b). Objects, as actor networks, themselves constitute a network — they consist of smaller elements. The network of elements, forming an object, becomes specifically visible when certain tensions and conflicts appear in practice.

***Conceptualisation of the notion of object for the purposes of the current study***

Lastly, I will outline a theoretical understanding of an object for the purposes of this monograph, grounded in the three approaches and the discussion of the differences between them. In this study, I mostly conceptualise an object in craft with the help of the notion of 'object of activity', bringing in insights and features from two other approaches to better understand the potential of an object in craft to serve as an intercultural and intertemporal unifying factor.

The three theoretical approaches discussed above analyse the role of the objective world in the construction of social and subjective phenomena by stressing the significant contribution of material artefacts and objects to activities, practices and sociality. Although this study focuses on the notion of object, objects cannot be analysed on their own, without their relations to an activity. From the activity-theoretical perspective, an object and a subject, as opposing entities, enter into a dialectical relationship through activity; they exist only through activity, and therefore, they must be studied as part of concrete activity (Leontiev, 1978; Engeström, 2015b). Similar attitudes can be found in the other two approaches. With ANT, each object, as an actor, actively contributes to the construction of a concrete network, hence, the relationships in a network must be constantly constructed and performed (Latour, 2005). In Knorr Cetina's (2007, 2013) understanding, social relationships between humans in modern societies become mediated by objects to the extent that objects become centres of socialities. In epistemic cultures, 'socialities' as she puts it, knowledge is regarded as it is practiced, but not as it is believed.

The three approaches study complex objects, the relations between objects and multiple actors, and the collectives surrounding the objects. This understanding is fruitful for understanding the potential of an object in craft, specifically wooden

boat building, where boats — complex objects — are centring entities for multiple actors and the communities surrounding them.

Objects in the three approaches are conceptualised as socio-material phenomena. The approaches focus on certain types of objects: mediators for ANT (Latour, 1996b), epistemic objects for Knorr Cetina (1997, 2001) and objects of activity for CHAT (Leontiev, 1978; Engeström, 2015b). An object of activity differs from mere objects of the world. It is a concrete entity, one towards which an activity is directed, something to which humans can relate (Leontiev, 1978). There is always a need behind an object of activity. The object first emerges as raw material or as a problem space to be worked on, and then it is gradually shaped and transformed into a product or an outcome (Engeström, 2015b). A generalised object of an historical activity system appears as a specific object for a particular subject engaged in a given action (Engeström et al., 2003). Knowledge objects in Knorr Cetina's (2001) understanding are also complex and open-ended objects, having a variety of instantiations. Epistemic objects possess intrinsic value for the subject; their lack of completeness of being answers the subject's structure of wantings. With ANT (Latour, 1996b), objects are either actor networks or else they themselves are constituted by smaller elements.

The object of activity has two main features: the capability of directing and driving activity as its true motive and historicity (Leontiev, 1978; Engeström, 2015b). The primary feature of the object of activity in CHAT is that objects are carriers of motives: they motivate, drive and direct activities. Knorr Cetina (1997) claims that the lack of completeness of being is what specifically answers the structure of wanting of the subject; therefore, objects direct the efforts of human beings.

The driving forces of objects are not only about compressing efforts at one single point, but also about expanding the efforts across multiple dimensions, including time and space (Engeström et al., 2003). The object of activity is also something given and constructed through activity (Engeström, 1990). The relationships existing between a subject and object are dynamic: the subject never truly grasps the object (Knorr Cetina, 1997). Latour (1996b) notes the importance of objects in framing human interactions, as they bring the temporal component into interactions, transcending the present moment and current situation. In practice, the two features of the object of activity go hand in hand: by introducing an historical perspective to any activity and by providing a horizon of possible actions for an activity, objects drive and direct activities.

In this monograph, an object is conceptualised as a concrete, complex, socio-material entity, one with a variety of instantiations as a generalised object of a historically developed activity and a specific object in a given action taken by a subject. An object is an entity towards which an activity is directed. It is part of an activity system, where a subject works on an object to achieve a certain outcome. There is always a need behind an object.

Activity is defined, directed and shaped by objects, while humans shape and construct objects through activity. As a part of activity, object is studied within a concrete historical activity system and as a specific object in a given time and space. Objects can act as centres of communities of professionals, driving and directing human efforts. Objects are capable of driving and expanding activities across time and space:

— across the temporal dimension because they have histories and provide a horizon of possible actions. The movement occurs across history: a timeline of past, present and future;

— across the cultural dimension because they have the potential to bring together a variety of actors, communities and networks of communities to work on a particular object. The movement occurs across space: including individual subjects, communities, networks and their interactions.

This broad definition reflects the complex nature of the notion of object of activity, which can appear both as a general object — a problem space, directing activity, and a specific object in a given action — and as the materiality of a certain artefact.

This understanding of the object — a theoretical hypothesis — provides us with the possibility to understand the potential of craft objects as an intercultural and intertemporal unifying factor, taking into account concrete historical and cultural perspectives. Conceptualising an object in craft with the help of the notion of object of activity provides us with the potential to understand why people engage in traditional craft activities, transcending immediate goals and desires. Objects of craft, having strong roots in human culture and history, possess great power over subjects to drive and expand activities across time and space. In this case, the object in question not only directs the activities of individual subjects, it also links the subjects working on the same object into networks and socialities to generate collective efforts for working on the object.

The theoretical hypothesis of the object as an intercultural and intertemporal unifying factor will be grounded and refined in the empirical analysis of the three settings of traditional craftwork in Finland, India and Russia across historical and cultural dimensions.





## 3 DATA AND METHODOLOGY

### 3.1 Methodological Framework

Cultural-historical activity theory constitutes the methodological framework of the study. The methodology employed in CHAT is understood as building a ‘bridge between theory and data’ (Engeström, 2015a, p. viii). This type of framework does not require the application of specific techniques, but rather implementing a set of theory-driven principles,<sup>19</sup> which guide the choice of specific methods. The methodology employed in this framework is both theory driven and grounded in the data. The design of a study using the CHAT framework is depicted in Figure 5 (Engeström, 2015a).

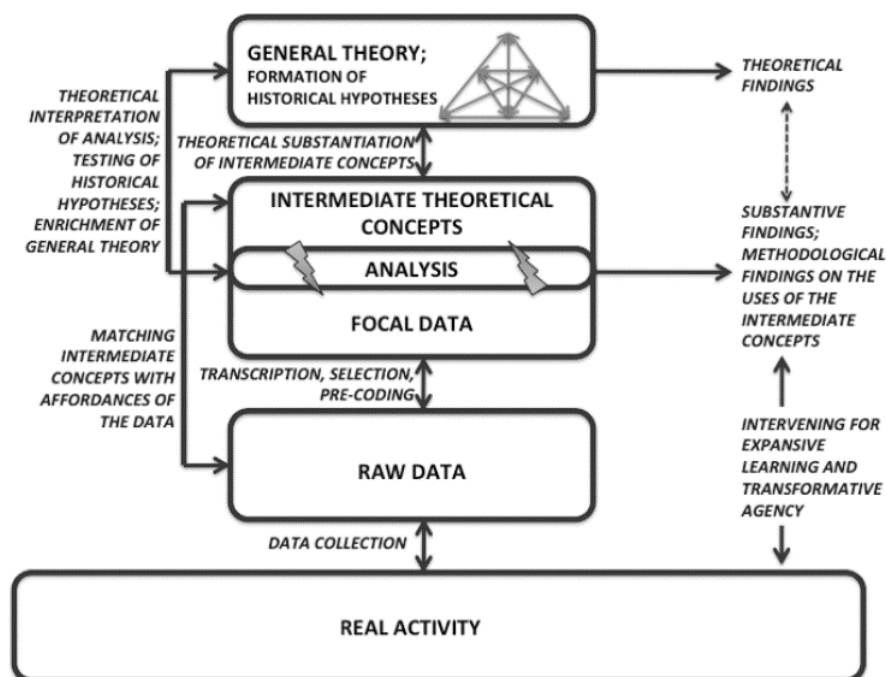


Figure 5. Design of an activity-theoretical study (Engeström, 2015a, p. vii).

The theory helps in formulating an historical hypothesis and in understanding the unit of analysis. Raw data, coming from real activities, is converted into focal data by means of data management techniques: transcription, selection and pre-

<sup>19</sup> See also the discussion of Vygotsky’s (1998) metaphor of skeletal and shell methodology later in the chapter.

coding. A serious analysis typically requires intermediate theoretical concepts that go between the data and general model of an activity system. The focal data used during the analysis produces these intermediate concepts, which are then further theoretically substantiated. Further intermediate concepts are matched with the affordances of the data. The analysis itself is theoretically interpreted, and the hypotheses are tested. The main objective of this type of design is to create a constant communication between all levels of data, intermediate concepts and general theory. The whole process provides insights informing the substantive findings.

Engeström (2001, 2015b) defined the basic principles of CHAT methodology as follows:

*1. A collective, artefact-mediated and object-oriented activity system, with its network relations to other activity systems, is the primary unit of analysis.*

The first principle states that the unit of analysis is a collective, object-oriented and artefact-mediated activity system, seen in its networked relations to other activity systems. The goal-directed actions of individuals and groups are analysed against the entire activity system. Actions and operations may act as relatively independent, yet subordinate, units of analysis. Eventually they are always interpreted against the background of the entire activity system. Activity systems themselves are realised and reproduced through actions and operations. In this study, I will analyse communities of craftsmen as activity systems. Following the second generation of activity theory,<sup>20</sup> activity system constitutes the primary unit of analysis in this study. By focus on the level of situated activity systems, the study moves beyond the actions of a single individual, while also giving meaning to specific actions (Engeström, 1999). One of the empirical sections also utilises instruments from the third generation of activity theory, analysing the interactions between two activity systems. According to Engeström (2015b), the third generation of activity theory takes into account multiple possible directions of development, which serves as a path towards expanding the analysis in the following manner:

both up and down, outward and inward. Moving up and outward, it tackles multiple interconnected activity systems with their partially shared and often fragmented objects. Moving down and inward, it tackles issues of subjectivity, experiencing, personal sense, emotion, embodiment, identity, and moral commitment ... [the] two directions may seem incompatible. Indeed, there is a risk that activity theory is split into the study of activity systems, organizations, and history, on the one hand, and subjects, actions, and situations, on the other hand. (pp. xiv–xv)

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<sup>20</sup> The generations of CHAT are described in Chapter 2.

This kind of expansion makes it more challenging to give voice to the actual participants in each activity system, which leads to the next methodological principle of CHAT.

### *2. Multivoicedness of activity systems.*

The second methodological principle has to do with the multivoicedness of activity systems. The principle of multivoicedness stems from Mikhail Bakhtin's (1981) idea of dialogicality and heteroglossia (multivoicedness). The ideas of Russian philosophers were combined with the notion of activity in the works of R. Engeström (1995). An activity system is always a community of multiple participants with a variety of viewpoints. This variety is created by the division of labour. Multivoicedness in an activity system is historical, as it is created in a particular temporal dimension by participants and is embodied in rules, artefacts, and traditions. Multivoicedness also has a spatial dimension, as it multiplies throughout the networks of activity systems. Multivoicedness as a part of activity creates challenges and opportunities for innovation. Methodologically, the challenge of this principle has to do with giving voice to all of the actors. At the same time, this methodological principle promotes more rigorous and reliable analysis. In this study, I give voice to all possible members engaged in the activities under investigation. One way to give a voice to craftsmen is through an extensive use of excerpts from the interviews when presenting the results of the analysis.

### *3. Historicity.*

The principle of historicity means that each activity system has taken shape and undergone transformations over a significant period of time. Considering historical developments and temporal transformations makes it possible to tackle current problems and understand the developmental potential of an activity system. While the current challenges for an activity can be fully understood only when situating them within history, history itself may be studied on multiple levels. The timeline of activity is different from the one of action. The action timeline is relatively linear and has a finite beginning and end. The activity timeline is recurrent and cyclical and contains multiple threads (Engeström, 1999). History therefore needs to be studied as the local history of activity and its objects, and as a history of the ideas and tools that have shaped the activity in question (Engeström, 1999). According to Virkkunen and Kuutti (2000), in order to fully understand activities and their problems we need to take into account the history in which the activities are embedded. The principle of historicity is implemented in this study as a concrete historical analysis of the activities under investigation. The historical analysis in the monograph appears as an analysis of the historical development of each craft activity under investigation and comprises a significant part of one of the empirical sections.

### *4. Contradictions are the source of change and development.*

The fourth principle consists of acknowledging contradictions as a source of change and development. A dialectical understanding of contradictions differs from the one used in formal logic. In formal logic, contradictions are viewed as the incompatibility of two or more propositions and are generally avoided and eliminated rather than understood and treated as something essential. In the dialectical tradition, which became one of the premises of CHAT, phenomena are seen in the constant process of movement and change, therefore as essentially contradictory. Contradictions are conceptualised as the unity of opposing forces existing within one realm and object, as historically accumulating structural tensions within and between activity systems and a driving force for transformations (Engeström, 2015b; Ilyenkov, 1977, 1982). Specifically, objects of activity are inherently contradictory, possessing essential conflicts and opposing forces in and of themselves (Miettinen, 2005). According to Marx (1867), with capitalism all things, objects, activities and relations become commodified. All the commodities possess a use value and exchange value. Marx (1867) claimed that the contradiction between the use value and exchange value constituted the primarily contradiction of capitalism. Understanding concrete cases of the revival or marginalisation of traditional crafts requires identifying the pressing contradictions in the activities under investigation. Both of the empirical sections will elaborate on the tensions and contradictions involved in the boat building activities in the three countries.

##### *5. Possibility for expansive transformation.*

The fifth principle of CHAT claims the possibility of expansive transformation in activity systems. Expansive transformations require a significant re-conceptualisation of the object of activity in a qualitative way. The principle of expansive transformation is a logical continuation of previous principles of historicity and contradictions. Activity systems pass through lengthy cycles of transformation. An expansive transformation occurs when the object of activity is re-conceptualised and a new object provides a wider horizon of possible actions than the old one. The idea of expansive transformation is utilised in this study as a way to understand craft not as stagnant, static and past-oriented, but as constantly transforming and developing practices, simultaneously oriented towards the past, present and future.

These five principles guided the choice of specific methods for data collection and data analysis. Vygotsky (1998a) metaphorically identified two types of methodologies for scientific analysis, comparing them to different types of skeletal organisations in animals: a 'shell' and a 'skeletal' methodology. The *shell methodology* is similar to a snail's shell, which it can discard as it continues to move forward. The *skeletal methodology* penetrates the whole approach, and it cannot be simply disregarded. For Vygotsky (ibid.), the skeletal methodology of the cultural-historical approach included the following planes of analysis: genetic or historic-genetic, structural and functional. Though he primarily used this metaphor

for distinguishing between scientific approaches with a higher or lower methodological organisation, I find this metaphor useful for depicting the methodological framework of this study. CHAT specifically constitutes the skeletal methodology of the study, penetrating and supporting the whole research process. This skeleton determined the specific methods of data collection and data analysis utilised for certain purposes, or the adaptively used shells. Specifically, data collection was primarily carried out via the method of multi-sited ethnography (Marcus, 1995), while the data were managed and analysed using a variety of qualitative methods (Ritchie et al., 2013; Ravitch & Carl, 2015).

## 3.2 Data Collection: Multi-sited Ethnography

### 3.2.1 Case Selection

This thesis started as part of an international research project, *Concept Formation and Volition in Collaborative Work* (project no. 253804, funded by the Academy of Finland, 01.09.2011–31.08.2015). The aim of the research project was to generate and test an integrative theoretical framework for studying concept formation in different collaborative work settings. The settings included: (1) traditional wooden boat building (2) greenhouse tomato growers dealing with whitefly pests and (3) delivering home care services to elderly patients.

The essential method for tracing concept formation and volition in collaborative work was longitudinal cognitive ethnography (Hutchins, 1995, 2003, 2005; Williams, 2006). Cognitive ethnography employs the methods of traditional ethnography, although the aims of cognitive ethnography differ from the aims of traditional ethnography. In general, traditional ethnography aims at understanding the meanings created by a certain group, while cognitive ethnography aims at understanding how these meanings are created (Williams, 2006). The aim of cognitive ethnography is to show how cognitive processes and activities unfold in real-world settings (Hutchins, 1995, 2003). In the *Concept Formation and Volition in Collaborative Work* project, using cognitive ethnography meant extensive on-site observations and recordings of events that required conceptualisation and volitional actions from practitioners.

The initial interest of the project in the case of wooden boat building was to understand how complex wooden vessels are built in conditions where blueprints are imprecise or unavailable. The *Concept Formation and Volition in Collaborative Work* project focused on the case of traditional boat building in India, originally utilising the Suomenlinna shipyard for expertise and making comparisons between the two sites. Ethnographic data did indeed illuminate the complexity of the concept formation process and the characteristics of the required skills, but other aspects of pursuing this craft also became visible. The following topics be-

came explicit in the interviews: motivation for engaging in traditional crafts, experiencing a great deal of economic and social pressure, specific cultural and historical aspects of the craft, and, most of all, and the significance of one particular craft object — wooden boats.

These aspects of craftwork constituted the focus of this thesis. In order to expand possible perspectives on the craft of wooden boat building, a third shipyard was included in the data collection process. The rationale for choosing these specific shipyards was as follows:

- boat-building activity is part of an economic relationship: the boat/boats under construction are actually used for sailing and have a paying customer. The activity is a source of income for boat builders; it is their job (even temporary), not just a hobby.
- availability of a research site: primarily, shared language with at least one of the researchers involved in the data collection.
- openness of the shipyards to communication and permission to collaborate with the researchers.

Therefore, the three shipyards constituted the three research sites for the thesis. The data were collected by means of multi-sited, longitudinal ethnography (Marcus, 1995; Emerson, 2001; Gupta & Ferguson, 2001; Coleman & von Hellermann, 2011). The interviews were an essential part of ethnographical fieldwork as an extension of present-focused ethnography into the past and future, bringing into focus the subjective and historical perspectives of the participants (Holstein & Gubrium, 2002; Warren, 2002).

### **3.2.2 Data Collection Methods**

#### ***Multi-sited ethnography***

Traditional ethnography generally focuses on the in-depth study of one community or one settings. Working with several research sites calls for employing the methods of multi-sited ethnography (Coleman & von Hellermann, 2012; Falzon, 2016; Marcus, 1995). It is a method of data collection that follows a certain topic or phenomenon through different research sites (geographically, socially or virtually). Multi-sited ethnography generally utilises traditional ethnographic field research methods, employing a set of additional methods, such as semi-structured and structured interviews, when needed.

The approach of multi-cited ethnography emphasises movement and the contrasts between multiple sites, focusing on the relationships between the local and the global. In contrast with traditional descriptive variants of ethnography, this approach follows a research topic across numerous spaces for shorter periods of time (Marcus, 1995). Following the movement of a ‘thing’, such as a commodity, across different spaces is a common practice with multi-sited ethnography. It also often focuses on following metaphors and concepts. In the current study, multi-

sited ethnography was utilised to trace the concept of a craft object in culturally different settings. The different ways in which work is organised in the shipyards illuminates various aspects of the craft of wooden boat building.

Fieldwork in this study was conducted as a way of providing complex understandings and explanations of various places, people and social and historical creations through the construction of different forms of knowledge, not merely as a way of understanding culture (Gupta & Ferguson, 1997, 2001). This way of understanding fieldwork makes it possible to apply it to a variety of settings, including even political studies (Schatz, 2013). Ethnographic techniques, especially shadowing, have also been applied in studies on work and organisations, providing a novel way of describing everyday life, cultural norms and the values of a workplace, social relations and the structures of the working community (Shwartzman, 1993; Toiviainen, 2003; Czarniawska-Joerges, 2007; Vásquez et al., 2012).

Following Emerson (2002), I have regarded fieldwork not as a mere set of specific techniques or methods, but mostly as ‘engaged, multi-phased process of going out, mixing with people and encountering moments and pieces of their lives’ (ibid., p. x). Field research requires establishing certain relationships with others, on a continuum ranging from complete observation to complete participation. In practice, though, researchers usually adopt a situational approach: they shift and change roles throughout the course of fieldwork. Establishing a relationship of non-violation and research ethics<sup>21</sup> is especially important when conducting ethnography, as fieldwork is, in a sense, an intrusion into people’s everyday lives:

In its most inclusive sense, field research is simply research conducted in natural social settings, in the actual contexts in which people pursue their daily lives. The fieldworker ventures into the worlds of other in order to learn first-hand on they live, how they talk and behave, what captivates and distresses them. (Emerson, 2002, p. 1)

The use of multi-sited ethnography potentially allows for an understanding of a variety of perspectives involved with a specific phenomenon. Tracing a topic or concept across multiple sites reveals more details and layers, which may not be visible while focusing only on one research site (Coleman & von Hellermann, 2012). The approach of multi-sited ethnography is not a mere comparison between research sites, but a way to examine global processes. Though having the potential to go beyond traditional ethnography, conducting fieldwork at multiple research sites may present certain challenges for researchers. Focusing on multiple sites

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<sup>21</sup> The issue of research ethics is covered in detail later in this chapter.



prevents researchers from getting to know sites in-depth, which may affect the quality of the data. Finding a balance between different research sites becomes of great importance: it may be problematic to distribute time and resources equally among the sites as well as to collect comparable data in the different research settings. The number of potential research sites may also be endless, so the principles behind choosing specific sites must be clear (Marcus, 1995; Falzon, 2016; Coleman & von Hellermann, 2012).

### ***Interviewing***

Interviews were an essential component of the fieldwork process, serving as an extension of the present-focused participant observation into the past and future by bringing into focus the subjective and historical perspectives of the participants (Gubrium & Holstein, 2005; Ravitch & Carl, 2015; Warren, 2002). The interviews were designed as informal, conversational interviews with no predetermined questions, just a certain set of topics. The non-structured, adaptable and open-ended nature of the interviews provided participants with possibilities to discuss topics and issues relevant to them (Emerson, 2001; Gubrium & Holstein, 2005; Warren, 2002).

The interviews in this study were seen as an active process (Gubrium & Holstein, 2005). The traditional interviewing process is often a one-way question-and-answer process. Active interviewing, in contrast, is a two-way, meaning-making conversation, one in which all of the participants are active. During the flow of an active interview, a researcher does not search for the best response, but rather tries to activate the respondent to think aloud.

Along with open, non-structured interviews, a more specified type of interview was employed in the data collection process. We<sup>22</sup> used a method called photo-elicitation interview (Hurworth, 2003) to establish a dialogue between the different research sites. Photo elicitation is based on the idea of inserting a photograph into a research interview in order to bring out a more diverse variety of responses (Harper, 2002). I will discuss the characteristics of this method as well as the concrete procedures for it in Chapter 5, where photo-elicitation interviews constituted the primary dataset.

### **3.2.3 Data Collection Process**

In ethnographic studies, researchers generally use a wide range of methods and sources of data to gain a deeper understanding of the field. In this study, data were collected during field visits, which varied in length for the different research sites.

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<sup>22</sup> Whenever I use ‘we’ to describe the research process, I refer to the research group to acknowledge the collective work behind a certain event or task.

The duration and number of visits were primarily determined by the availability of the research sites. The Russian and Indian research sites were located far from my home base (Helsinki). Therefore, a small number of lengthy field trips were made (Table 2). Suomenlinna shipyard is located in Helsinki, which made it possible to make a fair number of short-term visits to the shipyard (Table 2). This close location made it possible to observe a variety of events over a longer period of time. At the other two research sites, a longitudinal perspective was achieved by assuring a sufficient gap between visits and sustaining communication after the fieldwork had been completed.

**Table 2.** Field visits <sup>23</sup>

Indian research site		Russian research site		Finnish research site	
Time	Length	Time	Length	Time	Length
Jan-March 2012 (secondary data)	2 month	17-25.06.2012	8 days	09.12.2011 (secondary data)	1 day
17-20.01.2013	4 days	05-09.06.2013	5 days	12.03.12	1 day
				27.03.2012	1 day
				04.09.2012	1 day
				06.03.2013	1 day
				08.03.2103	1 day
				31.05.2013	1 day
				27.08.2013	1 day
				13.6.2014	1 day
<b>Total</b>	<b>4 days (2 month's worth of secondary data)</b>	<b>Total</b>	<b>13 days</b>	<b>Total</b>	<b>8 days (1 day of secondary data)</b>

The total time span of data collection was three years. The data were collected primarily by me, but also together and in close collaboration with the members of the *Concept Formation and Volition in Collaborative Work* research group. In the Finnish case, one short field visit and, in the Indian case, one longer field visit were carried out by other researchers from the research group. I have used recorded data from those visits (interviews, field notes and pictures).

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<sup>23</sup> Field visits are described in detail in Appendix 2.

The fieldwork at the Finnish site was conducted during the period between December 2011 and June 2014, and it consisted of nine short-term visits. Two longer fieldtrips to the Russian site took place in June 2012 and June 2013. The first fieldtrip to the Indian research site, carried out by another member of the research group, took place in January–March of 2012. The second field visit took place in January 2013.

I was introduced to the Finnish research site by members of the *Concept Formation and Volition in Collaborative Work* research group. In the Finnish shipyard, we collected part of the data together with a post-doctoral researcher and a master's degree student, though the major part of the data were collected solely by me. The boat builders and shipwrights at the Suomenlinna shipyard were fluent in English, and so the language of the interviews was English.<sup>24</sup>

Contact with the Indian research site was established through a member of the research group, who is a native Bengali and comes from that particular region. She had been doing an ethnographic study on ethnomathematics with local boat builders before joining the *Concept Formation and Volition in Collaborative Work* project. During field visits, the data were collected together with her assistance. The boat builders spoke only Bengali, so during the fieldtrip I communicated with them through the Indian researcher. The interview data were also translated into English by her.

I found the Russian research site via the Internet and contacted the site via e-mail. After exchanging e-mails, we agreed on a time for the first visit. The data were collected solely by me, although major decisions and ideas were discussed with my supervisors and members of the research group. The data collection process in the Russian shipyard was carried out in Russian; interviews were translated into English when needed.<sup>25</sup>

The fieldwork was not strictly organised in advance in order to remain flexible and adaptable to the nature of each research site as well as to the needs and priorities of the boat building community members. The aim of the fieldwork was to follow activities as they unfolded. Wooden boat-building activity is not strictly predetermined,<sup>26</sup> and neither are boat building communities strictly defined. Decisions of who to interview, what to observe and what to record were often situational, taken on the spot.

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<sup>24</sup> The research group, Concept Formation, was international, uniting researchers from different countries. English was the language that both researchers and members of the local community were fluent in. The author herself was not very fluent in Finnish during the data collection process.

<sup>25</sup> The author is a native Russian.

<sup>26</sup> This does not mean that there is no order. There is a relatively determined consequence of actions in the process of building a wooden boat; it is the duration of each event that is

Compared to the exact planning of fieldwork, significant considerations were given to the issue of establishing relationships with members of the communities. Field research requires establishing a certain relationship with others. The aim was ‘to achieve the distance necessary to observe while physically and socially present to those who are the objects of such observations’ (Emerson & Pollner, p. 241). I was neither trying to become a member of the community nor trying to remain a distant stranger. Establishing a relationship with boat builders, collecting somewhat personal data on them and spending a significant amount of time in their work places required being present as a researcher and as a person.<sup>27</sup>

The data were collected specifically by:

*Conducting interviews with the actors* (Gubrium & Holstein, 2005). The interviews were conducted during working hours in the shipyards. Some of the shorter conversational interviews were conducted right at the work sites during the observation process or shadowing. These interviews included numerous interruptions due to the ongoing building process or moving around the construction area. Longer semi-structured interviews were done on the premises of the shipyards (for instance, in break rooms).

*Observing working processes, including elements of shadowing* (Vásquez et al., 2012). Shadowing basically means following key participants for a certain period of time. In this study, this part of the fieldwork aimed at better understanding the contents and context of craftwork as well as establishing a connection with the participants. These aims, as well as the time limits required for the field visits and stages of construction, determined that the observations and shadowing followed small to medium tasks for up to one day. For instance, in the Indian case it involved installing ribs, while in the Finnish case it involved caulking and repairing works and in the Russian case it involved small decorative woodworks, different phases of the colour selection process, caulking, metal works and preparing a base for the mast.

*Collecting and documenting mediating artefacts* (templates, models, pictures, etc.) used by the actors. Recording data is often considered to be challenging during the fieldwork phase, as researchers need to decide what to record (Emerson,

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hard to determine. The woodwork itself, as well as the work of apprentices (Finnish shipyard) and non-professionals (Russian shipyard) and the demand (Indian shipyard) makes it hard to plan strict deadlines for the building process, and hence, data collection phase.

<sup>27</sup> This did not mean sharing personal information, but being open not only about the nature of the research, research aims and data usage, but also providing certain basic information about myself. For instance, Indian boat builders were interested in where I live, where the country is located, what the weather is like there. I once drew a map to both show the places where I am from and where I live now. The topic of establishing relationships in the field is also covered also in the research ethics section of the current chapter.

2002). Opinions range from the extremes of recording everything during the fieldwork to recording everything afterwards. In this study, the decision of whether to record or not to record (by different means: making field notes, audiotaping, videotaping, etc.) was often made on the spot. Each time the decision was made with regard to a variety of factors: the importance of a piece of data (e.g. semi-structured interviews were always audio- or video-taped), the appropriateness or possibility of recording or videotaping what was seen or heard, and so forth.

The recordings made during the fieldwork were handled via a variety of means:

*Making field notes* (Emerson et al., 2011). Making field notes is a classical way of recording ethnographic data. In this case, I made field notes generally ‘off’ the spot: in the shipyard during breaks or in the evenings after fieldwork. I preferred not to make notes during observations or interviews so as not to disturb the participants and lose the contact with them.

*Audiotaping*. The semi-structured interviews and part of the informal interviews were usually audiotaped.

*Videotaping*. Videotaping was primarily utilised to record the work processes during observations and shadowing. Some of the interviews were also videotaped, for example the photo-elicitation interviews. Generally speaking, videotaping was rather challenging in the shipyards’ environment due to noises and a lack of light and space. A specific challenge encountered at the Indian site was that the Indian builders are not used to being videotaped.

*Photographing*. Taking pictures was primarily used to document mediating artefacts, for instance models. Another crucial role played by the photographs was to support and, to an extent, substitute for the field notes. The craft of wooden boat building is largely material and tacit. It proved challenging to write down the work processes in a systematic form, especially for a non-professional, due to the lack of professional vocabulary. Both the work of the craftsmen and the work of the ethnographer were seen in this case as a socio-material and embodied phenomenon (Hopwood, 2013, 2015). Videotaping everything would have been impossible and would have produced too much irrelevant data. Taking a photo of a relevant process was a fast and effective way of capturing the embodied work processes of wooden boat building. Having a sufficient and structured set of photographs made the field notes more detailed and, to some extent, substituted for them. Photographs were used as a means of connecting with the research sites during the photo-elicitation interviews. Photographs were also crucial in presenting and writing about this materially grounded activity.

Recordings were always done only with the permission of the actors. After the fieldwork was finished, I maintained connection with the shipyards to obtain follow-up information on their work and projects. In the Russian and Finnish case, I kept in touch with the actors personally (primarily via e-mail), while in the Indian case the follow up was handled by the Indian researcher.

### 3.2.4 Data Corpus

The *data corpus* included audio- and/or video-recorded interviews with key actors, video-recorded working processes, field notes, photographs of working processes, the shipyard surroundings, and mediating artefacts such as templates, blueprints, models and pictures.

Table 3 provides a detailed account of the data, giving an overview of the data from the three research sites. The aim of data collection was not to collect the same amount of data from each site in terms of numbers. The fieldwork followed the research site, with the aim of collecting an amount of data sufficient for reliable analysis and representation of a specific site.

**Table 3.** Overview of the data from the three research sites

Indian research site		Russian research site		Finnish research site	
Content	Quantity	Content	Quantity	Content	Quantity
<b>Video data</b>					
Working processes	59 min	Working processes	2 h	Working processes	4h 48 min
		Documentary about the boat and maritime museum	39 min	Interviews	2 h 55 min
		Tour of the maritime museum, telling the history of the place and its construction	26 min		
<b>Visual data</b>					
Photographs	648	Photographs	358	Photographs	403
<b>Audio data</b>					
Interviews	2 h 18 min	Interviews	9h 05 min	Interviews	4 h 07 mins
<b>Text</b>					
Field notes	36 pages	Fieldnotes	21 pages	Fieldnotes	10 pages
Report on the fieldtrips from a research group member	9 pages	Journal, published by the museum	6 volumes	Newspaper articles about the gunboat project	14
Interview translation	19 pages	Shipyard webpage	1	Web page (gunboat project and gunboat tours)	2

The interviews constituted the core data for detailed analysis. The rest of the data comprised the auxiliary sets of data, which made analysis of the interview data feasible. Additionally, the historical perspective of the study, including the history of wooden boat building in each of the countries, required working with historical and technical literature on wooden boat building and its development. The literature sources are considered to be *supporting data* (not included in the main datasets and Table 3) and were used to describe the research sites and make sense of the interviews (for instance, historical events). The sources are mentioned in the reference list.

### 3.3 Data Analysis

#### 3.3.1 Data Organisation and Data Management

Data organisation and data management are integral parts of data analysis. Organising a dataset is crucial for qualitative research, primarily because of the massive amount of data and variety of data produced. Structuring the entire dataset was especially crucial for the purposes of this study since the data collection process was carried out by a variety of means at multiple research sites across a lengthy period of time.

Mainly raw data were handled at this stage of the project. Files were stored in folders, organised according to the research site, time of collection and type of data. Information on each data piece was registered in a content log. The content log (Ravitch & Carl, 2015) contained basic information on each piece of data to make it easily available for further analysis:<sup>28</sup>

- name of the file and name of the containing folder;
- type of data (for instance, video, audio, etc.);
- amount (pages, minutes);
- contents and participants (for instance, ‘C1 is showing his personal tools’);
- comments — possible interesting points and ideas from the first site of data.

The interviews conducted at the shipyards in Russia and India were transcribed verbatim and translated into English: translations from Russian into English were done by author, while translations from Bengali into English were done by a member of our research group. Transcriptions were not regarded as a mere mechanical

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<sup>28</sup> Details on data management are also described in the research ethics section of this chapter.

item, but as an active process and part of data analysis (Gibson & Brown, 2009; Ravitch & Carl, 2015). Transcription is not an objective process: it is a form of data representation and interpretation. Transcription is a situated act (Green et al., 1997). It is impossible to transcribe speech directly. For example, it is difficult to write down all the speech patterns like ‘um’, ‘uh’, pauses and intonations. Transcription is an interpretative process of the choices made on several levels. The act of transcription generally reflects a discipline’s conventions, the researcher’s conceptualisations of the phenomena under investigation, the purposes of the research and the theoretical framework (Green et al., 1997). Translation is another level of representing and interpreting the data, as some information is inevitably lost during the translation process.

Revealing the choices made during the transcription and translation process is important to conducting good qualitative research analysis. These parts of data representation are a crucial analytical tool, as they construct a solid basis for the next steps in data analysis.

### **3.3.2 Data Analysis Methods**

Qualitative data analysis in general may be defined as intentional scrutiny of datasets in order to identify and construct meaningful analytical themes, which may be transformed into findings that answer the research questions. Qualitative analysis is often described as a process of making sense of the data, lying on the border between art and science (Ritchie et al., 2013; Ravitch & Carl, 2015).

One of the main challenges of performing qualitative research analysis is making a compact representation of a significant amount of data by identifying significant patterns in the data. Qualitative analysis includes a variety of structured processes: data organisation and management, immersive engagement with the data and writing and representation (Ravitch & Carl, 2015). Robust qualitative analysis is an iterative and recursive process.

The core method of qualitative data analysis in this study was thematic analysis (Braun & Clarke, 2006, 2012, 2013; Clarke et al., 2015; Terry et al., 2017). Thematic analysis may be seen as a foundational method for engaging in quantitative analysis — a generic skill for conducting qualitative research. It is extensively used in the social sciences, as it an accessible and extremely flexible method. The generalisation potential and flexibility determine the fact that thematic analysis is not always explicitly identified as a separate method (Braun & Clarke, 2006, 2015; Clarke et al., 2015).

Thematic analysis may be defined as a method for identifying, analysing and reporting patterns (themes) in the data. It minimally organises the dataset and describes it in detail, which is crucial for combining it with ethnography. The core notion of thematic analysis is the idea of a theme, a theme that captures something



important about the data in relation to the research question, a theme that represents a pattern of response or meaning (Braun & Clarke, 2012; Clarke & Brown, 2014).

Clarke et al. (2015) define several types of thematic analysis:

- *inductive*, which is primarily grounded in the data. It still requires theoretical assumptions and knowledge, as pure deduction is impossible.
- *deductive*, which looks at data through a theoretical lens. In this case, analysis moves beyond obvious meanings in the data.
- *semantic*, which focuses on the surface meaning of the data. The focus is on what is explicitly stated, and the researcher aims at remaining close to participants' meanings.
- *latent*, which focuses on meanings beyond the data's surface. It focuses on the assumptions and frameworks that highlight the underlying semantic meanings.
- *descriptive*, which aims at summarising and describing patterns in the data.
- *interpretative*, which aims at going beyond the data to search for deeper meanings and interpret their significance.

While thematic analysis is widely used, there is no general agreement about the correct procedures of analysis (Clarke et al., 2015). Braun and Clark (2006) suggest using the following six-step procedure for conducting thematic analysis:

1. *Familiarising* oneself with the data, which includes reading, re-reading and transcriptions. Notes of initial ideas are important at this stage.
2. *Generating initial codes* includes coding interesting features of the data in a systematic way across the whole data set.
3. *Searching for themes* includes collating codes into potential themes by gathering together all relevant data for each theme.
4. *Reviewing themes* includes both checking if the themes work in relation to the extracted codes and the entire data set.
5. *Defining and naming themes* includes generating clear definitions and names for each theme.
6. *Producing the report* includes selecting vivid examples, returning to the

research question and literature and producing a report of the analysis.

Thematic analysis may be used together with or as an alternative for other qualitative research methods. For instance, there are many similarities with content analysis, which has a slightly better potential for quantification (Vaismoradi et al., 2013).

Thematic analysis is considered to be a relatively easy procedure, one suitable even for novice researchers. There are, however, several potential pitfalls when using the method. First, it is relatively easy to stay at the level of a mere collection

of extracts tied together without any analytical basis. Second, there is the temptation to use data collection questions as themes. Third, the themes may simply not work (Braun & Clarke, 2006).

Subjectivity may be seen as another challenge of thematic analysis. In fact, though, it is integral to thematic analysis (Terry et al., 2017). Researchers usually have an active role in the analysis, as themes do not simply emerge from the data. They emerge through a process of constant interaction between the researcher and the data. Therefore, the use of thematic analysis should be reported each time in detail to avoid bias. It is crucial to acknowledge theoretical and methodological positions. The main advantage of thematic analysis is its flexibility. This flexibility may also be a pitfall, as this type of analysis requires a strong theoretical and methodological grounding (Vaismoradi et al., 2013).

### **3.3.3 Writing and Representation**

The final and crucial stage of qualitative analysis is writing up and presenting the results. The aim of this phase was to strike a balance between simple description and a simple reporting of the analysis (Ravitch & Carl, 2015). In conducting ethnography, writing up the results has always been one of the essential parts of the research process, as well as one of its noticeable challenges. Ethnographic description as a description of social life and activities often exists in the form of ‘thick description’ — a very detailed type of description (Emerson, 2002). Thick description does not just explain a phenomenon, but the context as well, so that the phenomenon becomes meaningful to an outsider (Geertz, 1994).

The writing up of ethnographic data is as often seen as a pragmatic craft. Analysis and its description may be carried out in a variety of ways, but the crucial part of making it robust is explicating the research process (Emerson, 2002). I have tried to combine the results from the structured qualitative analysis of the interviews with a detailed description of the contexts in which the activities took place. This balance made it possible to ground the results in a formal analysis of the structured data and provided a rich account of craft activities that require a detailed explanation for outsiders.

## **3.4 Ethical Concerns**

In Finland, and indeed throughout the world, research ethics have recently become an increasingly important issue both in academic communities and in society in

general. Discussions in the Finnish press<sup>29</sup> and the publication of ethical guidelines by the Finnish Advisory Board on Research Integrity (*Responsible conduct of research and procedures for handling allegations of misconduct in Finland*)<sup>30</sup> emphasise professional and societal demand for high ethical standards and control of misconduct in the field of scientific research. The increasing importance of ethical conduct in the academic world reflects the increasing orientation towards producing results in the form of acquired grants and published papers (Cerulo, 2016; Resnik, 2005; Smith, 2012).

The main objective of the specific attention given to ethics during all phases of this study is that it is based on ethnographical data from work settings in unique, open and accessible communities. Striking a balance between providing enough information, with a thorough description of the research sites, and providing participants with anonymity and reducing possible harm requires a strong ethical foundation.

I will focus mostly on the premises of ethical conduct in this research, specifically on general features of the research with regard to codes guiding the research process, site-specific ethical issues, ethical principles and the means of their implementation. The reflections on ethical conduct and evaluation of how the guiding principles were implemented will be presented in the discussion part of the monograph.

Before elaborating on the ethical concerns of the study, I will briefly describe the nature of research ethics and why it is important to follow ethical guidelines while conducting research. Ethics has multiple meanings, both generally and

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<sup>29</sup> A case of research misconduct at VTT Technical Research Center of Finland awakened discussion in the Finnish press on research ethics during the spring of 2016.

K. Kuokkanen. (2016, February 7, updated February 8). Valtion suurin tutkimuslaitos pimitti vakavat vilppiepäilyt – ‘Olen huolissani VTT:n asenteesta’, sanoo Kari Raivio [The largest state research institution hides serious suspicions of fraud – ‘I am worried about the VTT’s attitude’, says Kari Raivio]. *Helsingin Sanomat*. Retrieved from <http://www.hs.fi/sunnuntai/art-2000002884494.html> (accessed 12 September 2017).

<sup>30</sup> The Finnish Advisory Board on Research Integrity was founded in the 1990s. Responsible conduct of research and procedures for handling allegations of misconduct in Finland, or the ‘RCR guidelines’, are consistent with equivalent international guidelines, such as the European Code of Conduct for Research Integrity (European Science Foundation ESF & ALL European Academies ALLEA 2017) and Singapore Statement on Research Integrity (World Conference on Research Integrity 2010, Singapore). Retrieved from <http://www.tenk.fi/en/responsible-conduct-research-guidelines> (accessed 12 September 2017).

within the academic community. In general, ethics is understood as rules of behaviour based on ideas about what is morally good and bad.<sup>31</sup> In the field of scientific research, the basic level of ethics involves the ethical rules defining research conduct and misconduct (Resnik, 2005). Nowadays, in addition to this basic level of understanding, ethics is also seen as an integral part of good research practice and more like a set of skills and values (Resnik, 2011; Ritchie et al., 2013). I will incorporate this approach throughout the next sections. I will not only define the basic ethical rules and principles behind this research, but also describe the values, challenges and specific decisions behind the ethical choices. Openness about the research process and the decisions taken during the course of completing the research project are the foundation of good research and research integrity.

This study relies on data acquired by means of ethnography — longitudinal participant observation in unique work settings — and on qualitative methods of data analysis. The nature of ethnographical fieldwork brings to the fore certain ethical issues specific to this method, including a certain kind of dissembling, exploitation and intrusion, as fieldwork is usually based on establishing a specific kind of relationship when a researcher in a sense intrudes into the daily lives of other people (Emerson, 2002; Ravitch & Carl, 2015). Even the simple presence of a researcher may affect the everyday lives of participants. Leaving the field and the level of detail provided when writing up the results are also among the ethical problems faced by ethnography in general (Emerson, 2002; Ritchie et al., 2013).

This thesis started as part of an international research project called *Concept Formation and Volition in Collaborative Work*. The whole study relied on ethnographical and intervention methods in various work settings, and it may be categorised as a cultural-anthropological research. During all of the stages of the project, researchers followed the ethical rules best suited for this type of research design, namely the *Code of Ethics of the American Anthropological Association*.<sup>32</sup>

My thesis, as a part of this research project, follows the Code of Ethics of the American Anthropological Association as well as the above-mentioned guidelines of the Finnish Advisory Board on Research Integrity (*Responsible conduct of research and procedures for handling allegations of misconduct in Finland*). Both of them pay close attention to rules of openness, anonymity, informed consent, non-exploitation and avoiding harm. The overall type of research — ethnography — determined the codes and rules guiding the study, while the peculiarities of the research sites and the research process determined specific actions, all of which ensured that general rules were implemented at all stages of the research process.

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<sup>31</sup> Definition of ethics, Merriam-Webster.com. Retrieved from <http://www.merriam-webster.com/dictionary/ethics> (accessed 12 September 2017).

<sup>32</sup> American Anthropological Association, Code of Ethics. 2012 Statement. Retrieved from <http://ethics.americananthro.org/category/statement/> (accessed 12 September 2017).

The overall challenge, as already mentioned earlier, in all of three research sites was that they are all unique, accessible communities with easily identifiable members. The site-specific challenges, mostly arising from specific cultural settings and the researcher's role in these settings, were the following:

*Site 1. India*

Challenges at the Indian research site arose mostly from my position as a white foreigner, an educated and unmarried young woman who does not speak the local language, Bengali. The builders themselves belong to the lower class of a highly structured society (remains of the caste system are still strong in India, but less present in the Bengal region). Nevertheless, the builders were able to communicate openly with researchers, even share food and beverages, which was an indicator of trust and mutual respect. The craftsmen were not used to formal interviews and being videotaped. Data collection was carried out in collaboration with a local researcher who is fluent in Bengali (although working in the USA). The researcher had a long relationship with this particular community, which gave me a certain credibility as a person who is related to her. Nevertheless, certain doubts about sharing information with 'Westerners' were expressed at times.

*Site 2. Finland*

The community of Finnish craftsmen was open and accessible. I also was a foreigner at this site, but we had a shared language of communication (first, English, and later Finnish). I was introduced to the community by senior members of our research group, who had already established contact with the members of the community and conducted fieldwork for a certain period of time there. The boat builders were used to being interviewed and videotaped. They were also familiar with academic research: different groups of researchers are in contact with the boat building community, although primarily from the fields of history and maritime studies. This made it extremely important to clarify what type of research our group was conducting and how we planned to use the collected data.

*Site 3. Russia*

At the Russian research site, a shared language and nationality gave me a certain primary level of credibility. They facilitated the process of initial contact and helped me establish a relationship with the workers relatively smoothly. At the same time, my working for a foreign research institution caused a certain amount of trepidation in the beginning, expressed in jokes about 'spying' and 'being a CIA agent'. This tension disappeared during the course of the fieldwork. The local community also proved open and accessible, as the historical community maintains a web page and social media pages in Russian. Like the Finnish boat builders, Russian carpenters are used to being observed (the shipyard is a functioning museum) and to the presence of researchers from the field of history. It was also extremely important to be open and honest about the research aims and on the ways the data would be used in the study.

These specific challenges, as well as the general features of this study, determined specific ethical actions and solutions for data management. Before beginning the data collection process, I obtained verbal informed consent from the participants. The informed consent included details on the purpose of the study, background information on the research and research project, the source of funding and how the data would be handled for research purposes by a research group — how it will be analysed and reported. It was also mentioned that a supervised doctoral thesis would be written on the basis of the research project. Before conducting the interviews and observations, issues of anonymity and confidentiality were discussed and verbal permission obtained for the recordings. Informed consent also included the providing of information on how the study would be carried out and what it would require from the participants as well as making it clear to the participants that they had the right to withdraw from the study at any time. Relationships of openness and honesty were sustained throughout all stages of the research project; more details on the study and its background were provided when needed. The relationships of trust and non-exploitation were supported by continuous communication after the fieldwork had been finished.

The data were collected by means of multi-sited ethnography, with an attempt to establish communication between two research sites with the help of photo-elicitation interviews. Conducting this type of research required telling participants about the other communities. The knowledge provided to them was all publicly available, mostly covering questions on construction techniques. In the case of the photo-elicitation interviews, permission to show pictures to craftsmen from another site was negotiated separately.

Data protection and the creation of backup files were carried out with the help of experts from the University of Helsinki. The members of the research group had access to the data. The transcriptions and translations of the data were carried out by members of the research group. The original data in the form of video recordings were stored on an external hard drive in a locked storage space. Transcriptions were stored separately from the raw data and identifications of the participants. During supervisory meetings, transcribed and anonymised data were discussed; the head of the research group is one of the supervisors, so he had extended access to the data. Reporting on the project and thesis in the form of publications and conference presentations required showing photographs in order to provide the necessary context for this rather unusual type of research activity. The photos used in the presentations mostly focused on the construction processes and vessels, with person's faces and other de-anonymising features being covered.

At the same time, a complete anonymisation of the communities was nearly impossible compared to, for example, schools, where changing the names may be enough, precisely because wooden shipyards are relatively unique. The level of

detail on the cultural and historical context required for this kind of study promoted a conscious choice on reporting the real locations and names of the communities.

In summary, in this part of the methodological chapter I discussed how research ethics were handled during the course of the study. I did more than just adhere to a mere basic level of ethics in the form of the rules and guidelines one must follow. I presented on a deeper level what ethical choices were made, what actions were taken and why. Responsible research conduct requires seeing beyond ethical codes and understanding the reasons and effects for implementing particular ethical research principles in each specific study and each research project. Research ethics are especially important for this type of research, conducted in unique, open and accessible communities. In the discussion chapter, I will again review ethical concerns mostly from the point of view of the researcher's position and the limitations of the study from an ethical standpoint.

## 4 DESCRIPTION OF THE RESEARCH SITES

### 4.1 The Craft of Wooden Boat Building

Wooden boat building is a traditional type of craftsmanship concerned with the construction of a variety of vessels made of wood (including boats, sailboats and ships).<sup>33</sup> Watercrafts have had a crucial role in human societies since at least the Stone Age. Vessels, mainly used for fishing and transportation, were generally expressions of the most sophisticated technologies of the time. Before wood took over, boats were constructed from a variety of materials ranging from animal skins to reed (Phillips-Birt, 1979; Adams, 2003; Greenhill, 1976).

The Golden Age for the craft of wooden boat building started in the Middle Ages. Merchant fleets and navies were core parts of the economies and defences of states and societies. The occupation of shipwright<sup>34</sup> became part of the guild system, where they often had their own guild. Guilds were means of protecting the trade from competition and transferring knowledge from masters to apprentices (Epstein, 1991; Spectre & Larkin, 1991).

Before the first part of the 19th century, construction of wooden vessels predominated worldwide, and with the introduction of blueprints, ships became more sophisticated and larger in size. Strong and durable iron and steel gradually displaced wood as the material of choice. Starting from the mid-19<sup>th</sup> century, the highly skilled craft-based activity of wooden boat building was promptly replaced by the complex engineering industry of constructing vessels out of iron and steel (Harley, 1973; Slaven, 2013; Spectre & Larkin, 1991).

<sup>33</sup> The construction of wooden vessels may be referred to as wooden boatbuilding or wooden shipbuilding; the terms are often used interchangeably. The difference between wooden ships and boats can be explained as follows. A ship is a large seagoing vessel, while a boat is a small vessel for travel on water. They differ in size and purpose, but the distinction between them is rather vague and relatable. For instance, at the Indian research sites the vessels are referred to as boats, although they are seagoing. In the Finnish shipyard, the gunboat is referred to as a ship ('laiva' in Finnish, not 'vene' — boat), although the Finnish shipwright himself noted that in the 19<sup>th</sup> century, the original gun sloop was listed in the category of 'boats' (interview from 04.09.2012). With regard to this distinction, I will use the terms wooden shipbuilding and wooden boatbuilding interchangeably, as they describe the same set of craft skills. With the words 'boat' and 'ship', I will follow the words the boat builders themselves used.

Definition of ship, *Merriam-Webster.com*. Retrieved from <https://www.merriam-webster.com/dictionary/ship> (accessed 14 September 2017).

Definition of boat, *Merriam-Webster.com*. Retrieved from <https://www.merriam-webster.com/dictionary/boat> (accessed 14 September 2017).

<sup>34</sup> A shipwright is a skilled specialist who builds and designs boats (Merriam-Wester, 2017). A shipwright, unlike a boat builder, also takes part in the design process, which requires a certain knowledge of boat design and blueprints.



Nowadays, the craft of wooden boat building exists both as an economic activity and as a hobby, with workers facing great, primarily economic, difficulties when choosing to turn professional (Chapelle, 1994). The main challenges of wooden boat building, which distinguish it both from handicrafts as hobbies and other types of artisan work (e.g. pottery, blacksmithing, wooden furniture construction), are as follows: the size and costs of producing boats, the level of required skills as well as the demand level for the products. The target group in both professional and amateur boat building is rather limited: not everyone can afford to build a wooden boat in their free time or to buy one, unlike, for instance, a wooden chair or a clay pot.

The hobbyist tradition is especially strong in the United States.<sup>35</sup> Historical wooden boat replication — both the replication of a certain historical vessel and/or traditional techniques — is also gaining in popularity. In the case of historical replication, boats and ships are often replicated for research purposes and in order to become a part of museum expositions, not for their actual use (Lurier, 1998).<sup>36</sup>

The craft of wooden boat building embodies a long-standing traditions of craftsmanship, but it has significantly changed with the introduction of a variety of electrical instruments, new methods of woodwork and digital technologies. In addition to these general trends, the position of this type of artisan work has its own peculiarities in different places and countries due to the environmental, cultural, economic and historical characteristics of the surroundings (Adams, 2003).

The data for this study comes from three wooden shipyards in Finland, Russia and India. I have already discussed the objectives behind the selection of the cases in the previous chapter. Another, albeit perhaps superficial, similarity between these sites was their somewhat remote location. Travelling there for data collection purposes was challenging.

Travelling to Solovetsky Islands, where the Russian research site is located, involved going by train from Helsinki to St. Petersburg, then taking an over-night

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<sup>35</sup> The main journal for wooden boat builders and owners, *WoodenBoat* magazine is published in the USA: <http://www.woodenboat.com/> (accessed 14.09.2017).

<sup>36</sup> Several notable examples include:

- the Viking Ship Museum in Denmark: <http://www.vikingskibsmuseet.dk/en/> (accessed 14.09.2017), with reconstructions of five Viking longships, including Havhingsten fra Glendalough, 'the Sea Stallion' — a replica of Skuldelev 2, one of the Skuldelev ships and the second-largest Viking longship ever to be found. The vessels are used for sailing courses and short trips as part of the museum's activities.
- Olympias — a replica of an ancient Athenian trireme, constructed in 1987. Olympias is an important example of experimental archaeology. The ship underwent only four sea trials between 1987 and 1994, and once was used to carry the Olympic torch in 2004. Subsequently, it was put into an exhibition in a dry dock in Palaio Faliro, in Athens: see <http://www.triremetrust.org.uk/index.asp> (accessed 14.09.2017).

train to Kem', then catching a ferry to the islands. On my first trip there, in 2012, I remember sleeping on metal benches in the Kem' railway station and a two-hour journey on a ferry in a storm, after which I felt dizzy for the whole day. It was also the fear of the unknown: How would the carpenters react to me and would they accept me? What I encountered there was simplicity, hospitality, honesty and kindness. On my way back on the ferry, fortunately the weather was sunny and I was returning to Helsinki with confidence in my data, while enjoying astonishing views of the White Sea.

Travelling to West Bengal in 2013 was even more challenging: it involved taking a plane via Delhi to Calcutta, where I had a short stay, experiencing the culture shock of a Western visiting India for the first time: I was the centre of attention wherever I went, from public transport to a local European-style mall to a small village. The next part of the trip was done partly by car (the trains were not working due to a local festival), boat and rickshaw. The travel took several days, and again, a fear of the unknown: How would the builders react to me and would they accept me? Again, what I encountered there was simplicity, hospitality, honesty and kindness. A four-hour trip by bus back to Calcutta on crazy Indian roads was saved by my confidence in the data I had collected and the beauty of the Indian landscapes.

Travelling to the Suomenlinna shipyard was in a way the easiest: I just needed to make a 15-minute ferry trip to the Suomenlinna fortress, which is located near Helsinki. Most of the time I went there either with senior colleagues or alone. The two trips made in March 2013 had a different tone: I was taking along a master's degree student who had joined our research group to collect data at the Suomenlinna shipyard. I felt responsible for and somewhat uncertain as to whether the student would be motivated to write a thesis on the topic and how the boat builders would accept yet another ethnographer. The weather was harsh that day: minus 20 degrees and lots of snow. We were freezing. What we encountered there was simplicity, hospitality, honesty and kindness. When we were returning to our office through the snowy and magnificent Helsinki city centre, the student reported being positively impressed with the site and motivated to work with the data.

All of the craftsmen showed their readiness to share information about their daily lives and expressed surprise as to why a researcher of work, not a historian, was interested in their craft. I strongly hope that my interest in their work added to their feeling of worthiness in this world.

Later in this chapter, I will describe the three research sites in detail.<sup>37</sup> For each site, I will also briefly illustrate the historical outline of development of the craft

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<sup>37</sup> A list of the main actors at each of the sites can be found in Appendix 1.

in the region. In the conclusion to this chapter, I will provide a comparative analytical description of the three research sites together, utilising tools from cultural-historical activity theory.

## **4.2 Finnish Research Site**

### **4.2.1 Historical Background of the Wooden Boat Building in Finland**

In Finland, where there is an abundance of wood, boats and ships have historically been an important part of society. The availability of water passages, like lakes and seas, made it possible to utilise vessels as a core component of local transport systems. Boating was not only an important economic activity in Finland; it has always been one of the most important leisure activities in Finland as well (Aartomaa & Matikka, 2006).

Traditions of wooden boat construction in Finland date back hundreds of years. For a long period of time, local boat-building traditions existed in the form of small-scale craft, where knowledge and expertise were transferred orally. The focus of this small-scale craft was mostly on the construction of small boats and vessels for private use. The construction of vessels for the navy and merchant fleet was primarily handled by the state, first by Sweden and later by the Russian Empire, before Finland gained its independence in 1917. Wooden boat building was an important part of Finnish post-WWII industry in the late 1940s, as most of the metal produced was used for paying reparations to the Soviet Union. Gradually, construction of wooden vessels decreased and came under threat in the 1960s with the introduction of cheaper and more durable materials, like aluminium, plastic and fiberglass. Although largely modified with modern technologies (e.g. electrical tools, etc.), this traditional craft became unprofitable. Many boat builders faced challenges in adopting new material apart from wood in order to become competitive in the market. The production of wooden boats almost stopped, and many workshops were closed at that time (Kivilakso, 2006; Myllykoski, 1989).

By the 1990s, the wooden boat culture was deteriorating: most of the experienced craftsmen had retired; training was primarily organised in the form of an apprenticeship, with the transfer of 'know-how' from one generation to the next being primarily done orally (Myllykoski, 1989). The occupation of wooden boat builder was close to becoming extinct. Understanding of the threat came on many levels, including at the level of government. In the 1990s, attempts were made to preserve and standardise education in this area and to develop professional associations of wooden boat builders (Kivilakso, 2006; Pihlajaniemi, 2000). These attempts resulted in a significant increase in the construction of wooden boats during the 1990s. This growth was also a late response to a worldwide revival of wooden boat building of the 1970s and 1980s, itself a reaction to the danger of the occupation becoming extinct (Elovirta, 2002; Hytönen, 2004).

One of the ways to support wooden boat building was the establishment of Puuveneveistäjät ry (Wooden Boat Sculptors Association)<sup>38</sup> in 1990, a trade union for wooden boat builders. The goal of the union is to promote wooden boat building and to improve conditions for practicing the trade. The association began publishing the journal *VeneenVeistäjä*<sup>39</sup> (Boat Sculptor) in 2002, which offers articles on maintenance and renovation of wooden boats and provides information on new products and boatyards. Nowadays, the organisation brings together almost 50 private boat manufacturers.

Today, wooden boat building in Finland is not classified as a small-scale industry, but considered to be a type of artisan work, a hobby and a way of life (Elovirta, 2002). Wooden boat manufacturers in Finland are primarily engaged in the construction of new boats for everyday use as well as restoring, repairing and conserving old boats and ships (Jalas, 2006). The main materials are wood and plywood. Some wooden boat manufacturers also provide other kinds of wood-working services (for instance, cabinet making). Replicating wooden vessels became popular in the 1970s, and recently, there has been individual construction project aimed at replicating historical vessels or constructing traditional ship models, sometimes using traditional techniques.<sup>40</sup> Historical vessels, both restored and replicated vessels, have become an important part of cultural tourism in Finland (Hytönen, 2004).

Craftsmen generally work as private entrepreneurs, which partly limits the employment of workers and collaboration between boat builders; sub-contractor work is also not common among the independent and highly skilled masters. The small number of shipyards work as stock companies, cooperatives, and so forth. Wooden boat building is a steadily aging profession: in 1994, the average age of a worker was 45, while in 2000 it was 48 years. About half of all builders have a formal education in wooden boat building, with the majority of them being from the younger generations (Elovirta, 2002).<sup>41</sup>

The skills of wooden boat building have been taught in a number of educational institutions and courses across Finland. The first professional boat building educational programme started in Savonlinna in 1960; a programme specialising only

<sup>38</sup> See <http://www.puuveneveistajat.fi/> (accessed 14.09.2017).

<sup>39</sup> There are also web pages for wooden boat enthusiasts, for instance Puuvene (Wooden boat) – a successor to the *Puuvene* magazine, which is no longer published: <http://puuvene.fi/> (accessed 14.09.2017).

<sup>40</sup> One of the notable examples is Galleass Ihana, launched in 2010 in Luvia: <http://ihana.fi/> (accessed 14.09.2017). Another large project, replicating an 18<sup>th</sup>-century gunboat, is the focus of the research project.

<sup>41</sup> The numbers come from a questionnaire-based study by the Finnish Forest Research Institute. The participants were members of Puuveneveistäjät ry (P. Elovirta. (2002) Puuveneveisto yritystoimintana (Commercial Wooden Boat Building, in Finnish). Finnish Forest Research Institute, publication 870. Helsinki.

in wood started in Hamina in 1985 (Elovirta, 2002). The Finnish National Agency of Education started reorganising and developing formal education in the field of wooden boat construction in the 1990s through a variety of research and developmental projects (Skorgström, 1994; Pihlajaniemi, 2000), and it later began issuing official guidelines on the basics of undergraduate and vocational qualifications for boat builders.<sup>42</sup>

The professional qualification of boat constructor includes working with different materials, including wood, aluminium and plastics. In the beginning of 2017, two schools provided undergraduate and vocational qualifications in boat construction.<sup>43</sup> Currently, no formal programmes specifically aimed at the construction of wooden boats are being offered; schools that used to offer studies only in wooden boat building have ended the programmes. Schooling for the occupation of a shipwright is marginal and non-formal: the only actions taken recently were the organisation of occasional courses on ship construction and the publication of a manual on repairing wooden ships (Holmström & Asunta, 1998; Hytönen, 2004).

After graduation, students seldom pursue a career in wooden boat building due to the challenges of establishing a business and working as an entrepreneur, difficulties with employment and low wages in connection with hard manual work (Kivilakso, 2006; Myllykoski, 1989; Pihlajaniemi, 2000). Schools are producing more students than the field can actually employ (Elovirta, 2002).

#### 4.2.2 Research Site Description

The Finnish research site is situated in a shipyard in Suomenlinna fortress.<sup>44</sup> Suomenlinna (*fin.* Swedish Fortress) is an inhabited sea fortress built on a group of islands in the Helsinki coastal area in the 18<sup>th</sup> century. Originally built as a Swedish naval base for protection from Russian expansion, nowadays Suomenlinna is a major tourist attraction and a UNESCO World Heritage Site (ref. 583).<sup>45</sup>

The history of Suomenlinna involves a strong tradition of constructing and repairing wooden vessels, with the first shipyard and dry dock being established there in 1751. Currently, boat-building traditions are sustained by Viaporin

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<sup>42</sup> Veneenrakennuksen perustutkinto, veneenrakentaja, 2009. Opetushallitus. Veneenrakentajan ammattitutkinnon ja venemestarin erikoisammattitutkinnon perusteet, 2001. See <http://www.oph.fi> [in Finnish] (accessed 14.09.2017).

<sup>43</sup> Turun Ammattiopistosäätiö (Turku Vocational College Foundation), Savonlinnan ammatti- ja aikuisopisto SAMI (Savonlinna Vocational College SAMI); see <https://opintopolku.fi/wp/fi/> (accessed 19.01.2017).

<sup>44</sup> The description of the research sites is primarily based on the data from the fieldwork, namely the interviews.

<sup>45</sup> See <http://whc.unesco.org/en/list/583> (accessed 14.09.2017).

telakka ry (Viapori Shipyard Association).<sup>46</sup> Viapori Shipyard Association is a non-profit organisation, created in 1987 with the aim of preserving, developing and supporting the conservation of old and the construction of new wooden vessels as well as transmitting the knowledge and skills important to the field. The primary focus of the Viapori Shipyard Association is the repair and maintenance of old wooden sailing ships.

The association is in charge of one of the world's oldest functioning dry dock and a dockyard area in Suomenlinna. Professionals working on the premises of the dockyard, which the association rents, include a shipwright, several skilled boat builders and a number of apprentices. Boat builders generally run their own registered companies in the form of sole entrepreneurship in order to be able to work with customers.

Different kinds of vessels are repaired, restored and constructed on the premises of Suomenlinna shipyard. The most common types of newly built vessels are small rowing and motor boats for private customers. The most common types of repaired vessels are small trade ships called galleass (*fin.* kaljaasi), built primarily during and after WWII and nowadays used mostly for recreation. Originally, these were cargo ships used to transport bulk materials, such as sand and stone, for the reconstruction of Helsinki after the war.

One of the recent major construction projects of Viaporin telakka, working together with the Ehresvärd Society,<sup>47</sup> was the construction of a replica of an 18<sup>th</sup>-century rowing gunboat (*fin.* tykkisluoppi), based on the models of a Swedish naval architect and naval officer named Fredrik Henrik af Chapman (Figure 6). The aim of the gunboat project, which started in 2010, was to train the younger generation of boat builders and to preserve traditional wooden ship building skills as well to revive the history of Suomenlinna and to support tourism.<sup>48</sup> The replica was christened *Diana* in the summer of 2014, after the first sea trials (see Figure 4.1). Since the summer of 2015, she has taken tourists around the coastal area on historical cruises. The project received funding from the Finnish Ministry of Education and Culture and private and corporate donors.

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<sup>46</sup> See <http://www.viaporintelakka.fi/> [in Finnish] (accessed 14.09.2017).

<sup>47</sup> The Suomenlinna historical society aimed at promoting the history of Suomenlinna and supporting tourism. The field marshal Count Augustin Ehresvärd (1710–1772) was a Swedish officer and military architect who constructed Suomenlinna and the Swedish archipelago fleet. See <http://www.suomenlinnatours.com/english/the-society/> (accessed 14.09.2017).

<sup>48</sup> See <http://www.suomenlinnatours.com/tykkisluoppi/> [in Finnish] (accessed 14.09.2017).



**Figure 6.** Gunboat during construction (left). The final product: the gunboat Diana at the naming ceremony (right).

F. H. of Chapman, the creator of the gunboat model, is considered the first naval architect and one of the first to use scientific methods in shipbuilding (Harris, 1989). Originally, Chapman's gunboats were low draught, sea-going and heavily armed oak warships, which were constructed for sailing as well as rowing. The first vessels were built from oak. Later, cheaper pine, abundant in Finland, was used as material for the sloops. The gunboats used to have two guns (one in the front, and one in the back). The original boats had a body length of 20 metres and a width of 4.5 metres, and they were about 3 metres high. The crew consisted of 60 men, including 56 for rowing. The sails were used mainly for transport to the battlefield, when mast was usually lowered before actual battle. Controlled by 15 pairs of oars, these small sloops were exceptionally manoeuvrable in battle in the shallow waters of the Gulf of Finland. In these conditions, agile vessels were extremely effective versus massive and hulking warships. The gunboats were primarily used in the Russo-Swedish War of 1788–90, contributing to the victory of Sweden over Russia. The successful model of this gunboat was later modified and copied by other countries. None of the 200 Finnish gunboats have survived.

Blueprints for a replica of the gunboat were produced by a local marine designer based on the remaining old drawings and writings, which contained partial measurements. The blueprints and calculations needed to meet government requirements. In addition to sails and oars, the sloop was equipped with two electric motors. The second gun was eliminated to provide more space on the deck for passengers.

Woodwork for the gunboat was done by an experienced Finnish wooden boat builder and a shipwright. He had a formal education in wooden boatbuilding, supported by 40 years of experience in building and repairing wooden boats and ships. The shipwright lives and works in Suomenlinna, where he has run his own business since 1986. In his workshop, he builds small wooden boats for private customers, and in the dry dock area he repairs old ships, such as galleass. The gunboat

is the fourth ship that the shipwright has constructed. Most probably, he is the only person in Finland capable of executing such a project, as the other Finnish shipwrights are no longer active.

Teaching and supervising during caulking of the gunboat were carried out by a local caulking specialist; the work on oars was also supervised by a trained master. Since one of the aims of the project is to train young people interested in wooden boat building, an ever-changing group of apprentices (overall, up to seven apprentices) took part in the building process. The apprentices were from several boat building schools hoping to receive practical experience before graduation. The apprentices mostly did auxiliary work on specific tasks assigned by the shipwright or other specialists (Figure 7).



**Figure 7.** Working on the gunboat. Left: division of labour between the shipwright and an apprentice: the shipwright is conducting the measurements, while the apprentice is fixing/placing the clamps in place. Right: the shipwright is showing his instruments to the apprentices.

The major part of the woodwork was carried out in a former welding workshop of the shipyard near the dry dock. The construction process was open for visitors to Suomenlinna: they could freely come to the building during working hours and take a look at the construction process. The final phases of the woodwork were undertaken in the dry dock



**Figure 8.** Traditional caulking process: preparing oakum (left); putting oakum into the seams with a sleek (centre); pressing oakum with a caulking iron and caulking mallet to seal the seam.



Though the project had the stated intention of preserving the traditional skills of wooden boat building, the builders used a variety of electric tools and machines and modern manual tools due to limited time and financial resources (Figure 7). Nevertheless, the caulking<sup>49</sup> of the gunboat was done via a traditional technique using oakum<sup>50</sup> and traditional caulking tools: mallets and irons (see Figure 8). Nowadays, wooden vessels are often sealed with silicone and rubber caulk using a caulking gun. Traditional caulking methods were chosen not only to help preserve skills and the historical accuracy and overall appearance of the gunboat. Traditional caulking, though more time consuming and demanding of expert skills, is more durable and effective.

*Diana* was built mostly from pine, while oak was used for key parts of the ship, such as the keel. The sloop was built using a skeleton-based technique: the shipwright and apprentices assembled a pre-sawn skeleton (the keel and ribs) with a crane. Then, the builders installed a transom as well as some parts of the hull and deck. The planks, softened by steam, were put on the ready skeleton.

The project of constructing a modern version of the gunboat required skills from other areas apart from wooden boat building. Other different specialists participated in the construction of the gunboat as well, for instance blacksmiths, sailing and rigging specialists, and electricians. Students from the Metropolia University of Applied Science were responsible for communication (e.g. setting up a website) and making a short movie about the construction process.

## 4.3 Russian Research Site

### 4.3.1 Historical Background of Wooden Boat Building in Russia

In Russia, wooden boats and ships were also at the core of many local societies and an important part of their culture. Different regions had different models of boats, depending on the use (cargo, transportation, fishing, etc.) and the conditions of use (rivers, lakes, seas). Wooden boat building skills were traditionally developed locally and transferred orally (Dubrovin et al., 2001).

At the end of the 17<sup>th</sup> century and beginning of the 18<sup>th</sup> century, a major qualitative and quantitative change took place in boat and shipbuilding in Russia. The occupation shifted from small local workshops to huge state shipyards, as Tsar Peter I the Great started creating a competitive fleet, both navy and merchant. Due to a lack of local specialists able to perform these tasks, skills and knowledge were

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<sup>49</sup> The process of sealing joints and seams on a vessel. It also makes the hull of a ship a complete structure, which makes a ship more manoeuvrable.

<sup>50</sup> Hemp fibre soaked in pine tar.

borrowed from Europe. A completely new group of shipwrights emerged at that time: most of them had studied in the Dutch Republic or in England. Even Peter I himself travelled to both of the countries to study the basics of shipbuilding. Foreign specialists went to Russia in significant numbers.

Russian shipwrights developed their own ideas and technologies in shipbuilding based on the knowledge learned in other countries, with the aim of standardising and consolidating the industry. Regardless of these aims and the existence of formal documents, until the end of the 17<sup>th</sup> century attempts at regulating boat and ship construction in the industry were still subject to practical experience and the traditional apprenticeship model, where apprentices generally gained a narrow specialisation. Only later did big state-owned shipyards become centres for a relatively standardised education in wooden ship and boat construction. During the 18<sup>th</sup> and first part of the 19<sup>th</sup> centuries, wooden shipbuilding became a major industry, as the navy and merchant fleet played an increasingly crucial role in the international politics of the Russian Empire (Spasskii, 1994a).

Prioritising the interests of the navy and trade also meant that at the end of 19<sup>th</sup> century, wooden sailing ships were promptly replaced with metal ones once the technology for metal and steam ships was introduced. State shipyards were completely rebuilt. Wooden vessels were built for small-scale trade, fishing or leisure only. Any formal education in the area stopped.

Throughout the 20<sup>th</sup> century, the craft of wooden boat building gradually declined, with wood only marginally being used only for the construction of small boats, primarily for fishing. Skills and knowledge were transferred locally and orally. The introduction of five-year development plans for the national economy of the Soviet Union in the 1920s and 1930s meant that all goods had to be produced on an industrial scale. Wooden boat-building skills had almost been lost by the 1980s and 1990s, when a revival in wooden boat construction arose among a circle of enthusiasts (Spasskii, 1994b, 1994c).

Today, wooden boat building is a marginal occupation in Russia. No formal educational programmes exist in the field. The occupation of ‘boat builder’ (Rus. судостроитель, sudostroitel) focuses only on the construction of ships from metal, while the occupation of ‘ship joiner’ (Rus. судовой плотник, sudovoj plotnik) focuses on decoration or furniture for metal and plastic vessels. The actual construction of large sailing boats and wooden ships is practically impossible in Russia, as they do not match the requirements of river and sea registers (Filin, 2009).

Regardless of all the challenges, the craft of wooden boat building survives through the efforts of enthusiasts and hobbyists. Several shipyards produce boats and ship replicas on a permanent commercial basis in Petrozavodsk, namely the

maritime centre *Polar Odyssey* and *Varyag*.<sup>51</sup> Small modern wooden boats (sailing and rowing) as well as replicas of historical vessels are constructed in both shipyards (Filin & Falomeeva-Vdovina, 2013).

In addition to these commercial shipyards, three historical organisations have been actively engaged in projects aimed at replicating specific historical vessels: *The Standart* project, the Solovetsky Maritime Museum and the Maritime Historical Society *Poltava*.<sup>52</sup>

Recent government attempts to preserve the maritime heritage of the country consisted of establishing the Maritime Heritage Association in 2009 and the Interdepartmental Commission on the Maritime Heritage of the Marine Board under the Government of the Russian Federation in 2010.<sup>53</sup> The aims of the association include conservation, research and the promotion of Russian maritime heritage, providing institutional grounds for organisations and individuals interested in conservation, research and the promotion of Russian maritime heritage.

According to the programme *Conservation of maritime cultural and natural heritage* for 2014–2018, historic and traditional shipbuilding and shipping are considered to be a part of maritime heritage, with their support reported to be one of the key developmental areas. The support of traditional shipbuilding is present mostly in the form of aid to single replication projects, not as a systemic enterprise. Wooden boat building and shipbuilding are not distinguished from historical and traditional shipbuilding. Any kind of formal education or other transfer of wood-working skills is not explicitly mentioned in the programme. A lack of financing is one of the major challenges (Filin & Falomeeva-Vdovina, 2013).

#### 4.3.2 Research Site Description

The Russian research site is situated in the Solovetsky Islands, or Solovki (Rus. Соловецкие Острова, Соловки), in Onega Bay, in the White Sea.<sup>54</sup> The Solovetsky archipelago comprises six islands, which are nowadays a huge tourist and pilgrimage attraction. Solovki's unique nature and history were behind the objective of listing it as a UNESCO World Heritage Site (ref. 632)<sup>55</sup>.

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<sup>51</sup> Polar Odyssey: <http://polar-odyssey.org>; Varyag <http://www.varyag.onego.ru> [in Russian] (accessed 14.09.2017).

<sup>52</sup> See <https://www.shtandart.ru/en/>, <http://www.solovki.info/index.php?lang=en>, <http://poltava1712.ru/node/73> (accessed 15.09.2017).

<sup>53</sup> Conservation of maritime cultural and natural heritage (2014–2018). See <http://www.maritime-heritage.ru/> [in Russian] (accessed 10.09.2017).

<sup>54</sup> The description of the research site is based on the interviews and publicly available information obtained from the shipyard's website: <http://svpetr.solovki.info/> [in Russian] (accessed 14.09.2017).

<sup>55</sup> See <http://whc.unesco.org/en/list/632> (accessed 14.09.2017).

The islands are famous for the Solovetsky Monastery, built on the islands in the 15<sup>th</sup> century. During the time of the Russian Empire, the monastery was not only an important Orthodox shrine, it was also a political, economic and commercial centre of the Russian North, as well as an important frontier fortress with a strong garrison. The insular location of the monastery gave rise to strong shipping and shipbuilding traditions. During the Soviet period, all religious activities stopped, and in the 1920s and 1930s Solovki became the site of one of the largest prison camps in the history of the Gulag system. Before the Second World War, a naval cadet school was established on the islands. Only in the 1950s did officials begin focusing on the importance of the natural and cultural heritage of the archipelago: the buildings of the former monastery became part of newly established Solovetsky Museum-Reserve.<sup>56</sup> During Perestroika, the monastery was opened again and became an important part of the Russian Orthodox Church.<sup>57</sup>

Nowadays, Solovki is a site where diverse communities and activities co-exist: a monastery with a substantial number of pilgrims; a museum-reserve with historical monuments; a small settlement and its administration; the local forest administration; local entrepreneurs; and a large number of tourists and tourist infrastructure. The interests and aims of these parties are rarely compatible, often disconnected and sometimes contradictory. On the one hand, tourists are a source of income for the Solovetsky settlement, while on the other hand a large number of tourists and development of the tourist infrastructure pose a threat to the ecosystem, culture and traditions (Kuleshova et al., 2007).

As already mentioned, the monastery used to have strong traditions of wooden boat construction. Also the Pomory,<sup>58</sup> who lived in the area around the White Sea, were known as skilled boat builders and seafarers (Dubrovin et al., 2001). Unfortunately, those skills, especially on Solovki itself, were almost totally lost during the Soviet era. Wooden boats were constructed occasionally by individuals, but not as a primary occupation.

Interestingly, today traditions of wooden boat building on the islands are supported by ‘outsiders’. The shipyard in Solovki was established by the Northern Seafaring Fellowship, NSF (Rus. Товарищество Северного Мореходства, TCM; Tovarishchestvo Severnogo Morehodstva, TSM). It is a non-governmental organisation, created in the 1990s, which brings together people, mostly scholars from different fields, with an interest in the history of the Russian North and maritime history.<sup>59</sup> Studying and reviving local Pomor maritime history and traditions

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<sup>56</sup> See <http://www.solovky.ru/> [in Russian] (accessed 14.09.2017).

<sup>57</sup> See <http://solovki-monastyr.ru/> [in Russian] (accessed 14.09.2017).

<sup>58</sup> The Pomors, or Pomory, are a religious and cultural group, Russian settlers, primarily from Novgorod, and their descendants living along the coast of the White Sea.

<sup>59</sup> See <http://solovki.info/index.php?lang=en> (accessed 14.09.2017).

of shipbuilding and seafaring are among the main objectives of the organisation. The scholarly members of NSF actively conduct ethnographical expeditions around the White Sea area, collecting stories and artefacts. The artefacts comprise an exhibition on display in the Maritime Museum, which NSF opened in a reconstructed warehouse for rowing vessels in 2007. The museum has free admission and is quite popular among tourists. NSF and a number of private donors also fund the museum's publishing activities.

The central exhibit of the Maritime Museum is a replica of the historic vessel *St. Peter* (Figure 9). The original *St. Peter* was one of the pioneering ships in the Russian navy fleet. It was the first emperor's yacht and the first ship to sail under the new marine standard. The original *St. Peter* was built in Archangelsk in 1693 by Dutch shipbuilders following a Dutch model, while decoration was done by local craftsmen. *St. Peter* was a one-mast sailing ship, armed with 12 guns (Spasskii, 1994b). The first *St. Peter's* sea trials to the Kola Peninsula in 1693 and to the Solovetsky Islands in 1694 are considered to constitute the birth of the Russian navy. *St. Peter* was part of the navy for more than 30 years, and later it became a museum exhibit in Archangelsk on the decree of Tsar Peter, who ordered that the yacht be preserved. Regardless of the attempts, after seven years the ship decayed due to the harsh weather conditions (Spasskii, 1994b). No drawings of this particular ship remained, though a sufficient number of drawings and blueprints of the model, popular at the time, survived.



**Figure 9.** *St. Peter's* construction inside the Solovetsky Maritime Museum (*left*). Partly ready ship outside the warehouse (*centre*). The sea trials of the *St. Peter* in 2015 (*right*).<sup>60</sup>

The remaining documents became the basis for blueprints of the replica. The blueprints were made at a wooden shipyard named *Varyag* in Petrozavodsk. A lack of space in the workshop meant reducing the length of the yacht from 18 to 13 metres, with a proportional reduction in all of the other measurements. The replica was designed as a ship for NSF's ethnographical expeditions around the

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<sup>60</sup> The source of the picture on the right is <http://svpetr.solovki.info/> [in Russian] (accessed 14.09.2017). All of the other pictures used in this monograph were taken by the author.

White Sea and North Sea. The ship is able accommodate up to 15 people. The conditions of use determined that certain changes be made to the original model already during the planning stage as well as later in the process of construction. Apart from size, the most crucial changes included use of a diesel engine (including a sizable fuel tank), the absence of guns to provide space for cabins and other equipment, three layers of laths for withstanding the harsh conditions of the northern seas and easy-to-handle modern sailing and rigging systems for the mostly amateur crew.<sup>61</sup>

The construction was started in 2003 by a professional shipbuilder. After a two-year break in construction, in 2006 the project got a new crew leader with little experience in wooden boat building. The new head managed to gather together a relatively stable construction crew, though. The work was carried out mostly during the summer periods (from April to October — the time when the museum is open) due to harsh weather conditions the rest of the year. In 2014, the *St. Peter* was taken for its first sea trials, while 2015 was dedicated to installing the sailing and rigging. In 2016, the decorative work inside of the ship was completed (see Figure 4.4).

All of the work, including wooden, metal and electrical work, was carried out by the group of mostly amateur carpenters.<sup>62</sup> During the lengthy period of construction, many people from different parts of the country participated, coming for agreed periods. The crew was generally around 4 to 7 people. After some time, a more or less stable core crew of carpenters formed. The carpenters lived together in a rented apartment; a couple of them moved to Solovki. The carpenters had no formal boat-building education, though some of them had work experience in wooden shipyards or in carpentry. Some of the carpenters even had no carpentry skills before joining the project. All of the tools and consumables were often ordered via the Internet and brought in large batches once or twice a year to the island, as the island does not have even a proper hardware store.

The head of construction determined the general course of the construction work process, purchased the consumables, made key decisions on the construction of the ship (collectively with the crew), recruited new carpenters and mapped the divisions of labour among the carpenters. The division of labour was largely dependent on the stage of the construction process. For instance, there were almost no division of labour during the planking stage, as there was for the most part only one task to do — put the planks in place. When the tasks became more diverse (woodwork, decoration, metalwork, installation of equipment), each of the carpenters became specialised in one of the areas, depending on their skills, expertise and interests. Regardless of their specialisations, everyone engaged in the tasks

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<sup>61</sup> See <http://svpetr.solovki.info/> [in Russian] (accessed 14.09.2017).

<sup>62</sup> Boat builders in this shipyard refer to themselves as ‘carpenters’.

requiring collective efforts. Hierarchy among the carpenters was minimal. At times, there were some workers at the apprentice level, and then they were working under the supervision of one the more experienced carpenters. Some of the tasks required external expertise: the installation of sailing and rigging was supervised by a specialist from St. Petersburg.



**Figure 10.** Decorative woodworks. Left: a carpenter decorating the quarterdeck. Right: caulking of the hatch; a carpenter explains the task to an apprentice.

The ship was constructed using a skeleton-based technique. The same shipyard that had made the blueprint also prepared a pine skeleton for the ship, including the keel, frames, posts and beams. Then, this skeleton was assembled in the warehouse, after which the major woodwork operations and planking were carried out: the first layer of lath was made out of larch, the other two from pine. After the hull was ready, the carpenters installed the equipment and started on the decorative work (Figure 10). The sailing and rigging work as well as part of the decorative work inside of the ship were carried out after the ship had been removed from the museum building. Before the ship was launched, it was sanctified and blessed by monastery priests (other significant stages of construction also included a religious worship ceremony). Sanctification is overall a common procedure for modern ship building in Russia and connected with the revival of maritime traditions eliminated during Soviet times. In the Solovki shipyard, such a practice may be more important due to the proximity of the Solovetsky monastery.

The builders used modern tools and modern techniques, as the goal was to construct a comfortable, modern wooden boat with an historical appearance. For instance, caulking was done with the use of modern caulking guns and silicon-based caulk (Figure 10). The sailing and rigging were also fully modern, made only to resemble their historical appearance. One of the notable processes during construction was the painting of the ship, which lasted for several years after the planning stage (Figure 11). No exact descriptions of the colour of the original *St. Peter* were available, but it needed to follow traditions of the time, though carried out with modern marine paints. The painting was especially crucial to creating the impression of an historic vessel. The distant location of the islands presented a

challenge during the final stage of painting. The carpenters had to work with available paints, ordered in advance over the Internet. The actual colours of the paints differed from the way they had looked on the computer monitor.



**Figure 11.** Paint selection process. Left: matching colour plates in daylight. Center and right: matching colour plates on the side of the ship.

The future of the shipyard and the carpenters remains rather unclear. Though construction of the *St. Peter* was originally planned as a single project, a certain level of expertise was gathered during the project. NSF has been considering options for maintaining the shipyard inside the museum in one way or another.

## 4.4 Indian Research Site

### 4.4.1 Historical Background of Wooden Boat Building in India

The Indian subcontinent has one of the oldest boat-building traditions in the world, starting already in the Bronze Age with the Indus Valley Civilization (Kumar, 2012). The first known dockyard was built in Lothal in 2400 BC (Rao, 1993). Different regions in India used to have their own hull designs, originally determined by the coastline and sea characteristics, available materials, winds and currents (Hornell, 1920; Ray, 2000). Already beginning in the Bronze Age, all the states and countries existing on the Indian subcontinent were using boats for commerce with Mesopotamia and Egypt, and later, with Greeks, Romans and Europeans (Kumar, 2012; Behera, 1999). Trade was not only a means of exchanging goods; a great exchange of shipbuilding skills occurred at the time. Indian shipbuilders borrowed effective techniques and incorporated them with their own techniques and traditions: for instance, they began to use skeleton-based technologies from Byzantium and nails from the Mediterranean region. These innovations allowed the use of planks, which were crucial for the further development of shipbuilding skills (Singh, 2006; Varadarajan, 1993). Indian hull designs were also largely affected by foreign hull designs: while the west coast was influenced



by the Arabic and African dhow tradition of boat building,<sup>63</sup> the east coast models were influenced by the Chinese jong tradition<sup>64</sup> (Varadarajan, 1993).

By the end of the Middle Ages, Indian shipbuilders were able to construct huge and durable merchant ships weighing up to 1000 tons. Trade and commerce overseas contributed greatly to the economic and cultural prosperity of the Indian states: they traded spices and other local goods with Europeans and were a significant hub on trading routes between Europe and East Asia. Smaller vessels were also extensively used for fishing and transportation, while states also developed standing navies (Kumar, 2012).

Colonisation of the Indian subcontinent by the Portuguese, Dutch, English and French dramatically changed Indian shipping, and consequently, the shipbuilding industry starting from the 15<sup>th</sup> century. In the beginning, there was a mutual exchange of shipbuilding technologies. Indian shipbuilders employed European technologies and European engineers and shipwrights were also invited as specialists to shipyards during the time of the Mughal Empire. India had reigned supreme on the Indian Ocean for nearly 4200 years, from 2500 B.C. to 1700 A.D., until Europeans began monopolising Indian shipping and shipbuilding (Rao, 1993; Singh, 2006).

The British East India Company, which dominated and ruled over major parts of the Indian subcontinent, prevented locals from constructing large ships and took total control of the shipbuilding industry. Large navy and merchant vessels were constructed by Indian artisans at the company's shipyards under the guidance of English shipwrights and engineers using durable Indian teak. The naval architecture of that period was based on English tradition: the use of blueprints, geometry and calculations (Singh, 2006). During the period of company rule, Indian shipbuilding declined dramatically: local shipbuilding traditions were mostly destroyed as part of the indigenous educational system. The competitiveness of Indian-built vessels with the English-built vessels consequently changed the regulations of shipbuilding and shipping industry in favour of the British ships (Behera, 1999).

Before the 1850s, the primary material for shipbuilding was wood (Singh, 2006). The proto-industrialisation period slowly started during Crown rule in India, and the shipbuilding industry turned to steam and metal. These processes resulted in the closure of traditional boatbuilding yards. Wooden vessels were still

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<sup>63</sup> The dhow is an Arab lateen-rigged boat usually having a long overhang forward, a high poop deck and a low waist: <https://www.merriam-webster.com/dictionary/dhow> (accessed 05.04.2018).

<sup>64</sup> Jonk or jung is a classic seagoing Chinese sailing vessel of ancient unknown origin, still in wide use. It has square sails and a flat bottom: <https://www.britannica.com/technology/junk-ship> (accessed 05.04.2018).

constructed for small-scale fisheries and transportation, though, but this part of the shipbuilding industry was poorly regulated (Hornell, 1920; Ray, 2000).

In modern India, wooden boats are still widely produced for small-scale fisheries and transportation. Wooden boats are usually constructed following traditional designs and traditional techniques, common to certain regions along the coast of the Indian Ocean (Ray, 2000). Wooden shipbuilding is a loosely organised industry. During the first five-year plans in India, the mechanisation of fishing vessels started: for instance, ships and boats were equipped with engines (Bapat & Kurian, 1981). The recent changes in regulations have made some of the drawings and safety arrangements mandatory for the registration of vessels, though government control is often formal in nature (Bose & Vijith, 2012). There is no formal education available in wooden boat building; skills and knowledge transfer are based on a traditional apprenticeship model. Hierarchical structures are still strong among the building crews (Bose & Vijith, 2012; Simpson, 2006, 2007).

It is not just the traditional techniques and models that are strong in wooden boat construction. A variety of rituals still constitute the core of wooden boat building in India. Most of the traditions and rituals, for instance a ceremony for the laying of the keel, date back as far as the Vedic period. Vedas are also the source for the Sanskrit names for the parts of boats (Kumar, 2012; Singh, 2006). Earlier rituals were spiritual and meant to control the forces of nature; nowadays, the rituals mostly have a symbolic meaning (Varadarajan, 2013).

Although wooden shipbuilding is still relatively common in India, starting from in the 1970s and 1980s other materials like steel, aluminium, ferrocement, fibre-reinforced plastics and laminated timber began to displace wood as the main materials for the construction of fishing vessels ('Boat building', 1980; Bose & Vijith, 2012). The construction of larger wooden vessels requires wooden boat engineering, but structured training for wooden boatbuilding does not exist. There is also a lack of a skilled workforce in the field of wooden boat building. Wooden boat construction is often a seasonal job; many of the carpenters have two or even three occupations. A large number of them are leaving for less heavy and well-paid jobs (Singh, 2012; Bose & Vijith, 2012).

#### **4.4.2 Research Site Description**

The Indian research site is situated in the village of Frasergunj, located on one of the many deltaic islands along the estuary of the Hooghly River in the South 24

Parganas district of the state of West Bengal.<sup>65</sup> West Bengal, together with Bangladesh, form the ethno-linguistic Bengal region. The region was divided along religious lines after Indian independence in 1947: predominantly Hindu West Bengal became part of India, while predominantly Muslim East Bengal became a province of Pakistan (later, in 1971, independent Bangladesh). The population transfer after partition caused a massive refugee crisis (Chatterjee, 1997).

The written history of Frasergunj and the Bakkhali<sup>66</sup> area dates back to the early 20<sup>th</sup> century, when it was ‘discovered’ by Sir Andrew Fraser, lieutenant governor of Bengal. The actual settlement of the area dates back much further, though. Fishing is the primary occupation in Frasergunj. The fishermen set out on deep-sea fishing trips that typically last ten to twelve days. Frasergunj has a prominent fishing harbour with a fish auction centre (Figure 4.7), where the fish are sorted and some sold to markets in neighbouring Diamond Harbor and Kolkata. Some of the fish (a fraction) is kept for the fishermen’s own consumption.

West Bengal is the largest fish-producing state in India, with small-scale fishing being the primary source of livelihood for over 14 million people throughout India (Handbook on Fisheries Statistics, 2014). Local small-scale fishing is currently experiencing a number of threats, the most significant of which is overfishing (Kanthiah, 2008). International fishing companies involved in large-scale industrial fishing and their unsustainable methods pose a threat to traditional small-scale fishing. In West Bengal, the population of hilsa — a herring fish species popular in Bengali cuisine — is declining (Dutta et al., 2012). When the yield is low, boat owners can neither support their fishing crews nor can they afford to have new boats built. The decline in small-scale fishing also contains an environmental threat: compared to the practices of industrial fisheries, small-scale fisheries are more sustainable and environmentally friendly and they discard less fish (Handbook of Fisheries Statistics, 2014).

The boats used by fishermen are built locally by small crews of carpenters using traditional techniques and designs (Figure 4.7). The Bengal region has strong boat building traditions: it used to be a shipbuilding hub for the Mughals in Medieval times and later for the East India Company and British Royal Navy (Singh, 2006; Varadarajan, 1993). Local boat-building traditions have been influenced by Arab, Chinese, and later, European traditions. The mixture of these traditions can be seen in the contemporary wooden ship and boat designs (Varadarajan, 1993).

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<sup>65</sup> The description of the Indian research site is primarily based on the interviews and the ethnographical field notes, both those of the author and the Indian researcher.

<sup>66</sup> Frasergunj and Bakkali are twin settlements, forming a continuous locality, with an 8 km beach stretching between them. Bakkhali is known as a resort village. Both settlements are located on an island, which is part of the Sunderbans forests — the largest mangrove forests on Earth.

There are an extensive number of traditional wooden boat types in the Bengal region: river boats, coasters, deep-sea boats, and so forth. Boats are built not only for fishing; traditional country boats are still a popular means of transportation along the extensive inland waterways (Singh, 2006). Due to severe competition with large-scale fishing, the wooden boat building and shipbuilding craft is under pressure to constantly introduce technological changes and transform the ways of working (Handbook of Fisheries Statistics, 2014).



**Figure 12.** The Indian research site. Left: a boat under construction. Center: fishing boats at the Frasergunj fishing harbour. Right: fishing boats.

The current study followed one of the building crews, which was constructing primarily fishing and occasionally cargo boats, following traditional techniques and design (Figure 12). The characteristics of boats depend on their function: for instance, the type of fishing net determines whether the boat needs a transom. Fishing boats are sizable vessels, up to 18 metres in length, a length which cannot be exceeded due to vessel taxation rules. The crew does not follow any plans or blueprints. Fishing boats have a cabin for the crew (fishing crews consist of about eight to ten people), storage for expendables (water, ice, food, etc.) and fishing tools and nets. The boats are also equipped with motors.

All of the fishing boats must undergo government inspection to ensure they meet basic safety requirements and in order to obtain license numbers. Safety requirements, but primarily growing competition from large-scale fishing companies, has influenced the emergence and use of modern technologies, such as GPS and sonars. Boat owners take care of the licensing process by making an application to the Fisheries Department, wherein is stated the name of the owner, details on the construction crew (the head of the crew signs the application), the amount of wood used, the price of the boat and its measurements. The government inspector checks the equipment and records the actual measurements to see if they match the declared measurements.

A fishing boat is a major purchase, costing up to 4,500,000 rupees.<sup>67</sup> Boat owners may own from one to several boats, while the lifetime of one boat may be up to 25 years with sufficient maintenance. The boat owner employs crews of fishermen for the fishing season.

The boats are not only equipped with modern technologies, but are also decorated and painted in bright colours following local maritime traditions. For example, an eye adorns the prow and a red sari is wrapped around the bow. In the local tradition, a boat signifies a woman (hence, a sari), and the eye means that the boat is ‘alive’.

Boat building is a seasonal activity, starting in December and ending in the middle of April. The crew consists of eight to ten people: a highly experienced crew leader, workers and apprentice(s). The members of the crew are usually illiterate. The crew leader is an experienced craftsman. He supervises the construction process, allocates the tasks, maintains the accounts and takes care of paying workers and ensuring a proper amount of raw material and supplies. He is not involved in the physically demanding groundwork, only in more significant processes, such as the laying of the keel. The crew members come from poor families; most of them are descendants of refugees or immigrants from Bangladesh. They live in the same village and travel to Frasergunj only for the boat building season. They live in a temporary shelter and work long hours seven days a week, with occasional short breaks for visiting their own homes. There is a strong idea of collective identity and community among the crew, reminiscent of family ties back home.

The boat builders call themselves *karigar* (artisan in Hindu) — artisans are people who work with their hands. The signs of the caste, or varna, system still remain in India. The builders are members of the lowly *Nama Shudra* caste — a caste consisting of labourers and service providers. The builders are illiterate in the conventional way, but they are able to do engineering work and use mobile phones. Though their work is low paying and belongs to one of the lower castes, there is a sense of importance in their work: people’s lives and well-being depend on the efficiency and quality of the boats produced by them.

The skills and knowledge of the crew is transferred within the model of informal apprenticeship. The exact source of the craft is difficult to identify within this informal model, as there is no written record of their expertise. Since the process of learning (and teaching) is intricately interwoven with everyday life, it necessitates no clear boundaries. Workers learn from each other: some people joining the crew have carpentry and boat building experience from elsewhere. Young and un-

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<sup>67</sup> 4,500,000 rupees is worth almost 60,000 euros.

experienced apprentices start as helping hands, and they learn the craft by following the experienced workers. The crew is hierarchical. The hierarchy is based on experience, not the position of power.

The construction site is usually situated near a river, in a field. The boat is built in the open air during the dry period of the year. The builders live in temporary huts built near the construction site. The raw materials — planks of wood, etc. — are stacked for easy access. The boat owner provides the land for construction. He is often present at the site and monitors the construction process, constantly negotiating practicalities with the head of the crew. The boat owner also provides a cook for the crew throughout the construction process as a part of the contract.



**Figure 13.** Installation of planks. Left: cutting the planks with an axe. Right: cutting the planks with an electric saw.

The crew does not follow any written plans, as in blueprints or set calculations. Nautical engineering information is shared orally. The builders use formal and informal measuring tools: while they use tape measures, they do not hesitate to use home-made measuring devices, such as a mentally calibrated lengths of string, an axe or the tip of their own finger to measure sizes. The workers mostly use a small set of manual planer tools. Recently, they purchased a couple of electric tools, such as a chainsaw, which has significantly improved the speed of their work and made the manual labor less hard (Figure 13).

The construction process starts with the laying the keel. The keel is usually made of hardwood, such as teak, while the planks are made from softwood. After laying the keel, the planks are installed using the lapstrake or clinker method (Figures 13 and 14). The planks are bent to achieve the desired shape of the hull by softening the wood with a controlled heating. Once the hull has been built, the ribs are made and fitted inside the hull. The ribs are also made of hardwood and are individually shaped by templates created for temporary use only. The template serves as a crude guide in ascertaining the shape of a rib, while the rib is then finalised and chipped precisely to fit a specific spot within the hull (Figure 14). After the hull has been completed, the builders construct the deck and cabins and install the needed equipment (motor, etc.).



**Figure 14.** Working on the ribs. Left: cutting ribs outside of the hull. Right: installing the ribs.

Rituals and traditions still play an important role in the process of boat building. Certain ceremonies are related to specific stages of the construction process. One of the most important religious rituals is connected to the laying of the keel: the workers request blessings from supreme powers so that the boat being constructed will be safe and efficient. The process of connecting the keel to the stern is carried out by the head of the building crew. Local priests are generally responsible for the religious part, but the head of the crew also sometimes performs this part of the process himself. The workers then decorate the front part of the keel and the stern using prayer items common to the worshipping a woman: a red vermillion smear, water from the holy Ganges River, coconut water or milk.

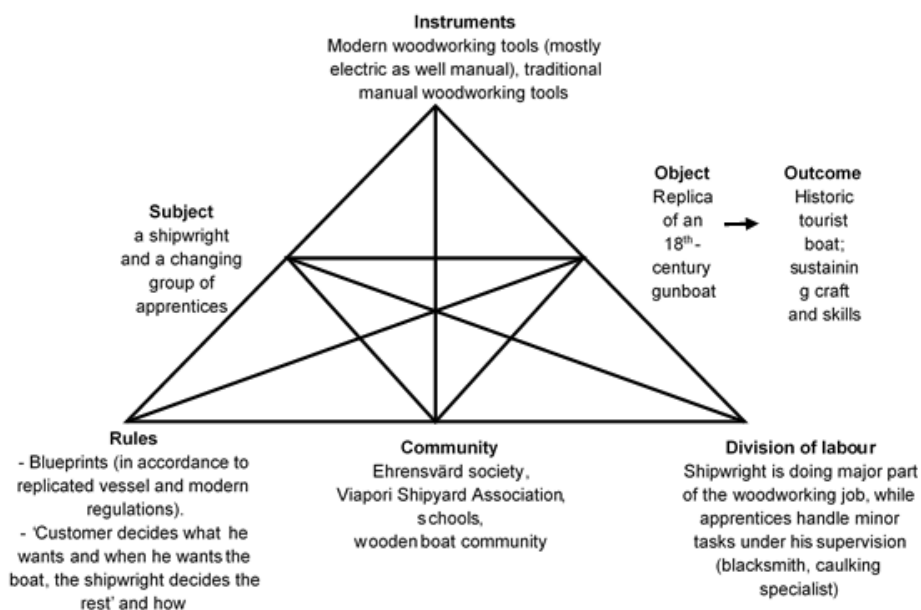
Together with the low salaries, the seasonality of boat building forces workers to search for alternative sources of income, often other seasonal jobs in the construction industry. They also leave to work abroad, recently often in the Middle East on road construction projects. Builders naturally discourage their sons from entering the profession and are not strongly bothered by the possible extinction of their craft tradition. The declining fish population, competition from large-scale fishing and the growing popularity of metal boats all pose a significant threat to this traditional craft.

#### **4.5 Comparative Description of the Research Sites**

Earlier in this chapter, I outlined the historical development of wooden boat building in each of the countries, providing a detailed description of each of the research sites and their histories. Following the ideas of multi-sited ethnography (Coleman & von Hellermann, 2012; Falzon, 2016; Marcus, 1995), I will now compare the research sites. The aim of this analytical comparison is to identify the differences between them, and through such differences, find complementarity. The complementarity of the multiple research sites is a way of establishing a relatively comprehensive picture of the situation in the craft of wooden boat building. Analytic description of the three sites requires certain groundwork and analytic

tools. Triangular representation of the activity system (Engeström, 2015) will be used as a tool to compare the three research sites.<sup>68</sup> First, I will provide a triangular representation of each of the boat-building activity systems separately with a short description. Second, I will compare the sites following the elements of an activity system.

**Finnish Research Site** (Figure 15). The *subject* of the wooden boat-building activity in the Suomenlinna shipyard is the shipwright working with a changing group of apprentices. They are working on an *object* — a replica of an 18<sup>th</sup>-century gunboat. The *outcome* of the activity is to construct a historical tourist boat as well as to sustain the craft of wooden boat building and the needed skills. To achieve the outcome, boat builders employ various kinds of techniques and *instruments*: both modern and traditional. They use a wide range of modern woodworking tools to carry out the job: electric tools for heavy woodwork and manual tools for fine-detail work. They use traditional caulking tools according to traditional methods.



**Figure 15.** Activity system of wooden boat building at the Finnish research site

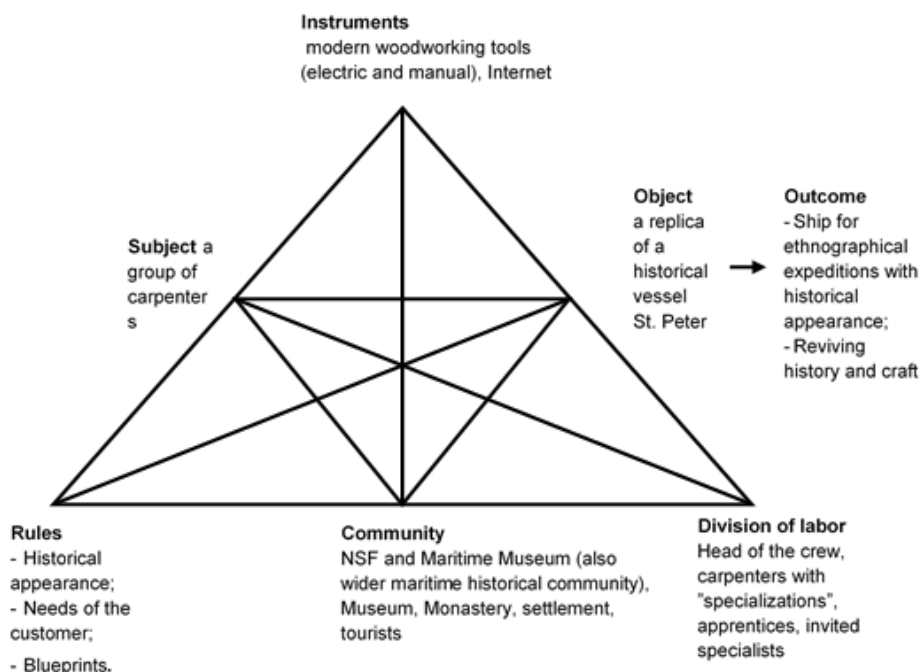
The main *rules* of the activity system include blueprints made in accordance with old drawings and modern seafaring requirements. Another crucial rule is to meet the customer's needs (a replica of a historical vessel). The *division of labour* is rather strict: the shipwright handles the major projects, while apprentices are

<sup>68</sup> A detailed description of the triangular representation of the activity system can be found in Chapter 3.



‘helping hands’ who do minor tasks under the supervision of experienced specialists (shipwrights, caulking specialists). The wooden boat-building activity occurs within the *community*, which includes the historic Ehrensvärd Society, the Viapori Shipyard Association, boat-building schools and the local wooden boat-building community in general.

**Russian Research Site** (Figure 16). The *subject* of the boatbuilding activity in the Solovetsky shipyard is a group of carpenters. Their efforts are directed towards an *object* — a replica of the historic vessel *St. Peter*. The efforts of the carpenters are aimed at achieving the following *outcome*: to build a ship for ethnographical expeditions with an historical appearance, and to revive history and the craft of wooden boat building. Carpenters employ a variety of *instruments* in their work: not only do they utilise a variety of modern woodworking tools (both electric and manual), but they also use the Internet as a tool. It is a source of information on wooden boat building and a means to obtain supplies and expendables. The main *rules* of the wooden boat-building activity are building the ship with an historical appearance, which will answer the needs of customers (ethnographical expeditions). The construction process also follows the blueprints.



**Figure 16.** Activity system of wooden boat building at the Russian research site

The *division of labour* is rather flexible and depends on the stage of construction and the crew in place. There is a head of the crew, who organises the process, carpenters and apprentices. Everyone was involved during the planking stage.

Later, each of the carpenters became more specialised in a certain area (woodwork, metalwork) according to his/her own skills and interests. Still, most of the tasks are carried out collaboratively. Certain tasks, for instance sailing and rigging, required inviting external specialists to the site. The *community* surrounding the boat-building activity is large and includes the NSF and Maritime Museum (also the wider maritime historical community), the state museum, monastery, local citizens and officials, and tourists.

**Indian Research Site** (Figure 17). The *subject* of the wooden boat-building activity in Frasergunj is a group of carpenters, all of whom work on an *object* — a traditional fishing boat. The carpenters mostly use traditional manual woodworking and measuring tools as *instruments*, having only a couple of electric tools at hand. The *outcome* of the boat-building activity is constructing an effective wooden vessel for fishing as well as making a living.

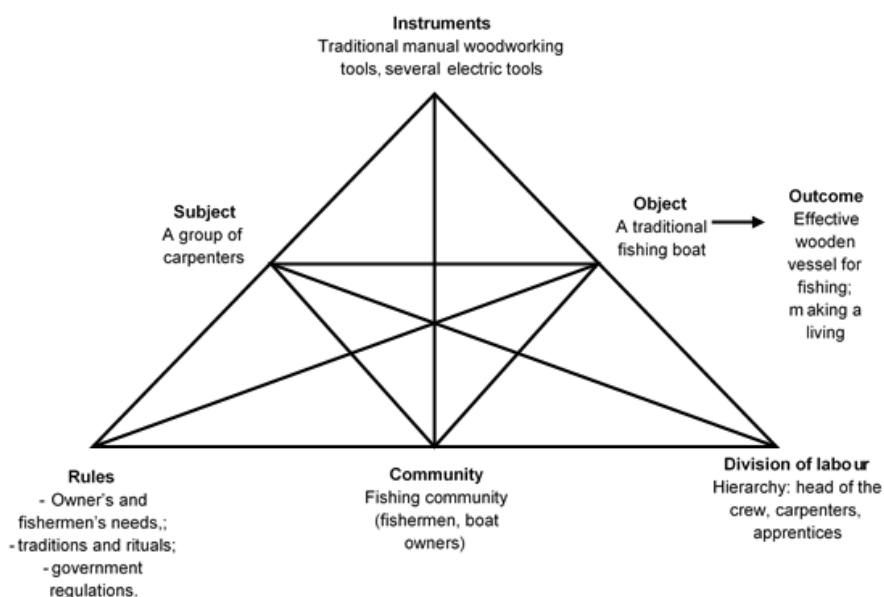


Figure 17. Activity system of wooden boat building at the Indian research site

The main *rules* regulating the boat-building activity are the needs of the boat's owner and fishermen, traditions and rituals, and, to some extent, government fishery regulations. The *division of labour* is rather strict: the crew is hierarchical, where the head of the crew organises the construction process, while all the work is carried out by the carpenters. Apprentices work as helping hands. The community surrounding the wooden boat-building activity includes the local fishing community (boat owners and fishermen).

The activity systems have been presented in this chapter without discussing any of the tensions and contradictions. This does not mean that the activity always

unfolded smoothly, without tensions and conflicts. The tensions and contradictions within the activity systems will be covered in the empirical chapters.

The components of activity system for the three research sites are brought together in Table 4.

**Table 4.** Components of the activity systems of wooden boat building at the three research sites

Components of activity system	Finnish Research Site	Russian Research Site	Indian Research Site
<b>Subject</b>	Shipwright and a changing group of apprentices	A group of carpenters	A group of carpenters
<b>Object</b>	Replica of an 18 <sup>th</sup> -century gunboat	Replica of the historic vessel <i>St. Peter</i>	A traditional fishing boat
<b>Instruments</b>	Modern woodworking tools (mostly electric, as well as manual tools), traditional manual woodworking tools	Modern woodworking tools (electric and manual)	Traditional manual woodworking tools, several electric tools
<b>Division of labor</b>	Shipwright does the major part of the woodworking job, while apprentices handle minor tasks under his supervision (blacksmith, caulking specialist)	Head of the crew, carpenters with various specialisations, apprentices, invited specialists	Hierarchy: head of the crew, carpenters, apprentices
<b>Rules</b>	Blueprints (in accordance to replicated vessel and modern regulations); 'Customer decides what he wants and when he wants the boat, the shipwright decides the rest and how'	Historic look; needs of the customer; blueprints	Governmental regulations, owner's needs, traditions and rituals
<b>Community</b>	Ehrensvärd Society; Viapori Shipyard Association; schools; wooden boat-building community	NSF and Maritime Museum (also wider maritime historical community); museum, monastery, village, tourists	Fishing community (fishermen, boat owners)
<b>Outcome</b>	Historic tourist boat; sustaining craft and skills	Ship for ethnographical expeditions with an historic look; reviving history and the craft	Effective wooden vessel for fishing; making a living

The *subject* in the Russian and Indian case is a collective subject — a group of carpenters. In the Finnish case, the emphasis is on a single craftsman — a shipwright, leading a group of apprentices. The Finnish site, like the Indian site, has a

strong master-apprentice hierarchy, possibly as a sign of the professional nature of the craft. At the Russian research site, with its hobbyist nature, the hierarchy is relatively loose and most of the decisions are made collaboratively.

The *object* at the Russian and Finnish sites is an historic replica of significant historical vessels. At the Indian site, the boats follow a traditional model, one which has been used for many years. At all three of the sites, the vessels have an actual purpose and use: a tourist boat at Suomenlinna, an expedition ship at Solovki and a fishing boat at Frasergunj.

Boat builders employ a variety of *instruments* in their work. A Finnish shipwright and apprentices mostly use modern electric and manual tools, switching to traditional ones when needed or with an aim of sustaining the skill. Russian carpenters use modern electric and manual tools — those that are readily available and easy to work with (in terms of the skill level). Indian builders use traditional manual woodworking tools along with some modern electric ones — those tools that they are able to afford.

The sites have somewhat diverse *divisions of labour*. Suomenlinna shipyard has a relatively straightforward division of labour: the shipwright does the major part of woodwork, while apprentices perform tasks under his supervision. At the Frasergunj shipyard, the head of the building crew organises the process and divides the tasks among the skilled builders, while apprentices do the auxiliary work. At the Solovetsky shipyard, the division of labour comes emerges primarily during the construction phase. For instance, everyone was involved during the planking stage, even the head of the crew. Later, though, the carpenters became more specialised in handling certain tasks with regard to their skills and interests. Regardless of the differences in the ways of learning the craft and the hierarchy in the activity systems, all of the shipyards follow various models of apprenticeship as a means of mastering the craft (Lave & Wenger, 1991; Marchand, 2013).

In all of the cases, the needs of a customer determine the *rules* of activity to a great extent. Finnish and Russian craftsmen follow blueprints, while Indian craftsmen follow traditional boat-building models. Traditions and rituals are present in their own way at each site: from strict religious rituals in India to Orthodox worship in Russia to official celebrations in Finland.

Each of the sites has a strong sense of *community*, where the customer is made to feel part of the community. In the Finnish case, the Ehrensvärd Society and Viapori Shipyard Association — the customer — represent the historic and boating communities, respectively. At the Russian site, NSF is at the core of the historic seafaring community surrounding the boat-building activity, while connections to a wider array of boating communities are weak. At the Indian site, the community surrounding the boat-building activity consists of the community of boat owners and fishermen. At all of the sites, the communities consist primarily of boat users.

The *outcome* for the three boat-building activities is an effective and usable wooden vessel. In the Finnish and Russian cases, part of the outcome also has to do with sustaining and reviving a craft and local history. In the Indian case, making a living is a significant part of the outcome: making a living not only for the builders, but also for the whole community of fishermen and locals.

These similarities and differences are somewhat located on the surface. In order to understand the core of the activities, it is important to look at an activity system through the lens of an object of activity: What is the purpose of these activities? The three activities have a similar, or even one, object in common: a usable wooden boat. The object in craft generates different arrangements, which results in the construction of a usable wooden boat in each of the cases. These arrangements are different for each of the specific objects, as they are formed in a specific cultural, historical and geographical situation, one in which the activity systems are always evolving. The empirical analysis in the next chapters builds specifically on the concrete peculiarities of each of the activity systems. A multi-sited approach is utilised as a way to trace how developments pertaining to the object of activity merged with certain historical and cultural circumstances in a certain time and space, resulting in the emergence of specific activities of traditional craft revival.

## 5 THE INTERCULTURAL DIMENSION OF THE OBJECT IN CRAFT

### 5.1 Introduction

Chapter 5 focuses on the first specific research question: *What is the potential of an object in craft as a unifying factor across cultures?*

People throughout the world are increasingly becoming interconnected due to globalisation. Globalisation enhances the number of interactions and exchange of ideas across the globe between different groups of people and individuals from different cultural backgrounds (Perry & Southwell, 2011; Sorrels, 2015; Weber, 2003a). The increasing number of intercultural encounters is especially visible in various fields of work. This trend is not only present in such essentially global fields as IT or business. Even such areas of work as traditional crafts are facing an increase in the number of intercultural interactions.

Traditionally, craft communities were insular communities: enclosed craft guilds were a means of protecting the trade from competition. Knowledge was transferred directly from masters to apprentices (Epstein, 1991). Throughout history, craft-based modes of production transformed to adapt to the changing market scenery, becoming more and more open. Nowadays, the availability of digital technologies (such as photo and video cameras) and the Internet, the sharing of craft skills both among hobbyist and among professional artisans, even across the globe, is gaining in popularity.<sup>69</sup> There are currently a variety of international forums on crafts and handicrafts; they range from knitting<sup>70</sup> to craft beer brewing

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<sup>69</sup> For instance, the BrewDog craft brewery, discussed in the introductory chapter, in 2016 publicly gave away the detailed recipes to each and every beer they ever made: <https://www.brewdog.com/about/history> (accessed 22.06.2017).

<sup>70</sup> One of the largest handicraft communities for knitters, crocheters, designers, spinners, weavers and dyers, Ravelry has 1.4 million registered users, including about 400,000 active users every month: <http://www.ravelry.com> (accessed 22.06.2017).

mentioned at the beginning of the monograph.<sup>71</sup> Even the relatively closed community of wooden boat builders also has forums<sup>72</sup> and web-based learning platforms<sup>73</sup> where professional shipwrights and boat builders can share their skills and knowledge. The Internet has become a means of virtual collaboration between individual artisans and communities of craftsmen, allowing practitioners from different parts of the world to interact and share their work. Communities of craftsmen are no longer keeping their knowledge and know-how inside their communities: sharing knowledge and learning from others, which has already been occurring for years, is now happening more and more often with the help of new digital and communication technologies (Levine & Heimerl, 2008; Rosner & Ryokai, 2009). One can say that the simple presence of sharing technologies may enhance this kind of communication. Focusing primarily on technologies is not enough, though; the socio-material dynamics behind the events need to be taken into account (Haddon, 2016).

Intercultural encounters require a certain type of intercultural understanding. Intercultural encounters are generally conceptualised via various concepts. One example is the concept of intercultural competence — an ability to interact appropriately and effectively in an intercultural situation or context. Intercultural competences build upon intercultural understanding (Perry & Southwell, 2011). Interactions across cultures require a certain level of intercultural understanding, which may be defined as an ability to understand and value cultural differences (Sorrels, 2015). A lack of intercultural understanding may be a source of clashes and conflicts in intercultural encounters (Hill, 2006; Sorrels, 2015).

From the point of view of activity theory, intercultural interaction may occur both on the level of actions and on the level of activity. Sustainable and effective intercultural interactions, which are built upon mutual understanding, require the creation of a new, shared activity system among those participating in the interaction (Weber, 2003). Activity always beings with an object. The construction of a new activity system should start with looking at the potential of constructing a shared object. Building sustainable intercultural understanding first requires mapping the potential of constructing a partially shared object, rooted in the real ob-

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<sup>71</sup> The growing popularity of ‘craft beer’ resulted in a growing number of discussion forums, both for professional and home brewers. For instance, <https://www.talkbeer.com/community/> has 7,815 members with more than 37,000 threads, and <http://www.thehomebrewforum.co.uk/> has 18,895 members with 67,242 discussion threads (accessed 22.06.2017).

<sup>72</sup> See <http://forum.woodenboat.com/>, which has 42,469 members and more than 191,000 discussion threads (accessed 22.06.2017).

<sup>73</sup> See <http://www.boat-building.org/learn-boatbuilding-skills>, an EU-funded project together with the Traditional Maritime Skill’s Virtual Learning Environment (VLE). The learning environment contains more than 50 key boat building skills.

jects of interacting groups. In this monograph, I suggest the notion of object-oriented intercultural understanding. This notion emphasises the necessity of constructing a shared object to achieve sustainable intercultural understanding. This conceptualisation of intercultural understanding allows for an understanding of cultures as communities, not as nations (Weber, 2003a).

Craft communities may be seen as communities of practices (Wenger, 1998, 2000). What makes the members of communities where learning mostly occurs as a process of movement from the periphery to the centre move towards the edge of their community? Learning in the boundaries between different communities expands competence and expertise, but it also poses a threat to the depth of knowledge and identity; new insights and radical innovations are not necessarily guaranteed (Engeström, 2014; Wenger, 2000).

What is so powerful about the object in artisan activities that it makes people cross the boundaries of their communities to participate in intercultural encounters? In other words, the potential of constructing an object-oriented intercultural understanding refers to the research question of the study on the potential of the object in craft as a unifying factor across cultures.

In this chapter, I will study the potential for building intercultural understanding between communities of craftsmen by virtue of constructing a shared object. The process of building intercultural understanding is conceptualised as a process of constructing a shared object. The data for the chapter comes from a mini-intervention, carried out as a part of the *Concept Formation and Volition in Collaborative Work* project between the boat builders from the Finnish and Indian research sites. The mini-intervention was a photo-elicitation interview: researchers asked boat builders to comment on and reflect upon the photographs, which depicted another activity system. In the case of indirect communication, the construction of an object was considered a virtual process and provided us with the possibility to study the potential for building a shared understanding. The virtually shared object under construction was wooden boats in general, an object central to the historically developed activity of wooden boat building.

First, I will formulate the conceptual framework for studying the potential of building intercultural understanding between two distant groups of artisans based on cultural-historical activity theory and Ilyenkov's (1974, 1975, 1982) philosophical ideas on the universal. Second, I will describe the methods of data collection and data analysis as well as the procedures, setting and data. Third, I will present the results of the empirical analysis, where notable differences and reflections on possible connections between the sites are discussed in detail. Finally, in the discussion section I will examine the empirical findings of this chapter.



## 5.2 Conceptualisation

### 5.2.1 Object-Oriented Intercultural Understanding

In his famous *The Interpretation of Cultures* (1973), Geertz described culture according to what it meant in practice for a cultural anthropologist: ‘a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their knowledge about and attitudes toward life’ (p. 89). Culture is not something determining human behaviour. It provides a context in which human behaviour can be described. Culture is social in its forms, origins and applications. In the anthropological approach, culture appears as a web of symbols and as a system of shared meanings passed down through the generations. These symbols allow humans to communicate and make sense of their lives. The core of culture is a symbol and symbol systems; symbols stand for or represent other things (Geertz, 1973; Sorrels, 2015). Erickson (2001) defines culture as ‘a product of human creativity in action ... the product of human activity, an artifact’ (p. 31).

Culture may be seen both as a product and as a process (Teräs, 2007). Some approaches focus on the interior aspects of culture, such as cultural schemas, while others emphasise its exterior aspects, such as material objects. With activity theory, both the inward and outward direction of culture are taken into account through the double nature of artefacts, as they are both material and ideal at the same time (Cole, 1996; Teräs, 2007). For Cole (1996), artefacts and their systems are fundamental constituents of culture. Culture exists as a context for activities, while at the same time binding things together. With CHAT, the division between cultural meaning and personal sense found in artefacts is important for understanding the sensory fabric of consciousness. Meanings have a dual life. They are an ‘ideal, mental form of the crystallization of mankind’s social experience and social experience and social practice’ (Leontiev, 1978, p.226), but at the same time they exist only in ‘concrete human heads’ (ibid.). Senses are created in life, through a subject’s activity.

Teräs (2007), drawing on the idea of a third space (Gutiérrez et al., 1999), understands culture as dynamic and hybrid, as well as socially and historically constructed. Culture is a combination of practices, discourses, values, conceptions and artefacts. Likewise, for Teräs (2007) the interaction and communication between cultures are better described as intercultural phenomena, whereas cross-cultural refers to a comparison.

Intercultural communication can be conceptualised using various concepts, such as intercultural competences, intercultural sensitivity, intercultural literacy, intercultural awareness and intercultural understanding (Hill, 2006). Most of them have a variety of definitions, which often overlap. For instance, intercultural awareness is understood as a cognitive stage of knowledge about another culture.

Awareness precedes understanding. Intercultural competence is the term most often used to conceptualise intercultural communication. Perry and Southwell (2011) define intercultural competence as an ability to interact effectively and appropriately in an intercultural situation. Intercultural competence is generally analysed against four dimensions: knowledge, attitudes, skills and behaviour. Intercultural competences are also strongly linked with identity (Lustig & Koester, 2010). No matter how it is conceptualised, through intercultural competences or sensitivity, intercultural communication requires a certain level of intercultural understanding (Perry & Southwell, 2011; Sorrels, 2015). Intercultural understanding goes beyond simple knowledge. Understanding often includes empathy and an appreciation of other culture (Hill, 2006).

Understanding is one of the key components of communication. Kincaid (1979) defines communication as ‘a process in which two or more individuals or groups share information in order to reach a mutual understanding of each other and the world in which they live’ (p. 31). Intercultural communication is the exchange of cultural information between groups from significantly different cultures. The goal is the development of shared, intercultural understanding or the ability to understand and value cultural differences (Gudykunst, 2003; Lustig & Koester, 2010). Mutual understanding is more of a process than a final goal: it can be approached, but never perfectly achieved. Based on the understanding of culture as a system of symbols (Geertz, 1973), intercultural understanding may be seen as the creation of shared meanings.

Some authors (Hill, 2006; Perry & Southwell, 2011) regard intercultural understanding as covering primarily cognitive (knowledge and awareness) and affective domains. The cognitive domain encompasses knowledge about one’s own culture and about other cultures. The primary components of the cognitive domain are the similarities and differences between the concrete cultures in question. Simple knowledge is not enough for achieving intercultural understanding; constructing understanding requires positive attitudes towards other cultures. A person’s affective response to intercultural differences is called intercultural sensitivity: the experience of cultural differences or a person’s active desire to understand and accept differences among cultures (Bennett, 1993; Hill, 2006; Perry & Southwell, 2011).

Apart from the cognitive and affective components of intercultural understanding, certain authors also distinguish a behavioural component. For instance, Sorrels (2015), inspired by the work of Paulo Freire (1973), looks at the intercultural praxis as an ongoing process of thinking, reflecting and acting. This process links understanding with responsible action to make a difference in the world. The affective dimension of intercultural understanding — attitudes — may also be understood through actions. For instance, Uznadze (see Perjanadze, 2015) conceived of sets and attitudes as a structure consisting of three components: 1) affective, or sensory image of the object; 2) cognitive, or knowledge about the object; and 3) a

behavioural component, or actions taken with respect to the object. The act of constructing intercultural understanding occurs through a critical reflection on the actions, experiences, thoughts, knowledge and attitudes involved in intercultural encounters (Valtaranta, 2013).

In the conceptualisation of intercultural understanding, post-colonial critique must also be taken into account. In the process of interaction between two cultures, there is always a danger of reconstructing the context of a foreign culture only from the perspectives of one's own culture or from positions of power. In order to avoid such an occurrence, understanding should be a process of negotiation between two contexts: of one's own context and that of another culture. The goals of understanding may differ as well, depending on each interaction in question (Bredella, 2003).

The need for embracing intercultural understanding, especially in the field of work, calls for the organising of courses and training sessions. These training sessions are generally aimed at facilitating the intercultural skills, competences and traits believed to form the basis for effective intercultural communication — communication, which leads to the construction of intercultural understanding. The variety of techniques and programmes exist on multiple levels: from government institutions to private organisations (Perry & Southwell, 2011). Intercultural training has often been associated with the training of adults whose work requires interacting with people from other cultures. At any rate, Valtaranta (2013), in a study of intercultural understanding as a salient component of professional expertise, points out that intercultural understanding should be developed already among students. For instance, in Australian schools intercultural understanding is promoted as a way of learning about and engaging with other cultures and languages, while recognising their differences and similarities (Arrowsmith & Mandla, 2017).

Intercultural trainers often draw upon ready-made models and inventories, for instance the Develop Model of Intercultural Sensitivity (DMIS) (Bennett, 1993) or the Intercultural Development Inventory (IDI) (Hammer, Bennett, and Wiseman, 2003). Regardless of the existing variety of standardised approaches, of the many attempts to develop intercultural competences those developed through lived experience are still considered to be the most effective (Perry & Southwell, 2011).

Lived experience does not always elicit intercultural understanding. Meier (2007) studied encounters between two cultures in the form of electronic correspondence, which occurred as an exchange of messages online between learners in South Africa and Finland. The results of the interaction showed that the project obscured rather than improved intercultural understanding. Even when engaging through lived experience, participants in intercultural encounters need not only a shared space, but also a certain object of collaboration.

Intercultural trainings should also focus on how to enhance intercultural learning, not just on how to shape certain traits and competences. Based on the Change Laboratory method developed in 1997 — an intervention method utilised as part of CHAT — Teräs (2007) further developed the Culture Laboratory method. This method makes it possible to enhance intercultural learning in the context of immigrant training. It provided the participants themselves with an opportunity to create hybrid learning spaces for intercultural development. The intercultural space in the Culture Laboratory serves as a developmental zone, one where the processes of observing, comparing and creating understanding take place.

It is commonplace to analyse intercultural understanding and competences as traits or qualities of personality, while it is still not clear whether they are transferrable across contexts, as the relational and situational contexts of intercultural communication appear to be of great importance (Perry & Southwell, 2011).

Within the framework of CHAT, intercultural interactions may be analysed as taking place either on the level of actions or on the level of activity. Sustainable and effective intercultural interaction requires the construction of a new activity system (Weber, 2003a, 2003b). Mutual understanding should be based on a new activity system, created among those participating in intercultural interaction. Weber (2003a, 2003b, 2005) elaborates on intercultural encounters using theories of ‘mindful identity negotiation’ by Ting-Toomey (2012) in the area of intercultural communication and the theory of expansive learning by Engeström (2015b). Weber’s (2003a) conceptualisation of intercultural encounters shows that people who are aiming at building understanding in intercultural situations and clashes enter into object-oriented activity system, which is mediated by rules, instruments, a division of labour, joint practices and/or languages, non/verbal communication and other means. Activity always starts with the object, which then drives, directs and determines the activity. Hence, the first step in building intercultural understanding should be the search for and construction of an object shared by participants engaged in an intercultural encounter. Within the CHAT framework, it is more fruitful to talk about object-oriented intercultural understanding than intercultural understanding via certain traits and competences. In many approaches, the creation of intercultural understanding may be seen as the creation of shared meanings (Geertz, 1973; Sorrels, 2015). In the approach developed in this monograph, constructing intercultural understanding requires the creation of a shared object, as successful interactions call for the construction of partially shared, partially fragmented, objects (Kerosuo, 2001; Miettinen & Virkkunen, 2005).

Looking at intercultural encounters through the emergence of joint activities allows us to move from understanding cultures as nations to understanding cultures as communities of practice. It also makes it possible to bring the real practical activities of participants into the picture, while enhancing their agency and the creative potential in their own work and life (Weber, 2003a, 2003b). A focus at

the level of activity also highlights the behavioural component of intercultural understanding. The notion of intercultural praxis, inspired by the works of Paulo Freire (1973), is an ongoing process of thinking, reflecting and acting. Sorrels (2015) describes it as joining increased understanding with responsible action to make a difference in the world — an agentic action in activity-theoretical understanding.

The object of activity may comprise all of the components of intercultural understanding: cognitive, affective and behavioural. These components may exist in the way in which a certain object or motivation, personal senses and actions, are conceived of and directed towards another object. The existing intercultural training modules in business generally focus on one side of intercultural competence: cognitive, affective or behavioural, generally suggesting ready models for competence development (Bredella, 2003; Weber, 2003a). Taking all three aspects into account, the CHAT framework enhances intercultural learning and development both on the individual and collective levels (Weber, 2003; Teräs, 2007). The complexity of the constructed object requires both individual and collective efforts from the participants engaged in an intercultural encounter. The role of the trainer or interventionist changes to that of a facilitator, giving space for and arranging a complex and stimulating environment, embracing the process of constructing a shared object and intercultural learning. Construction of a shared object brings real practical activities into the picture, which makes it more possible to establish intercultural understanding through lived experience. Constructing a shared object and a joint activity makes it possible to ascend from a general understanding of cultures as nations to a more concrete understanding of cultures as communities of practices (Weber, 2003a).

Communities of craftsmen can be seen as communities of practice (Wenger, 1998, 2000). This approach analyses learning as moving from the periphery to the centre. The emphasis is on the movement through community ‘inwards’, similar to Knorr Cetina’s (1997) notion of object-oriented sociality, where the efforts of a group of professionals are directed towards an object. Originally, Lave and Wenger (1991) conceived of learning and expertise in communities through legitimate peripheral participation, moving from the periphery to the centre. Learning in communities of practice does not occur only at the centre of communities, but also at the boundaries of communities. Learning at the centre is about obtaining a deep and concentrated competence and expertise. This type of learning constitutes the core of professional identity, holding the community together. Learning at the boundaries is about expanding competence and expertise. Boundaries are contradictory: being a threat to the depth of knowledge and identity, the meeting of perspectives can provide new insights and radical innovations (Engeström, 2014; Wenger, 2000). Learning at the boundaries of communities is not guaranteed, as the likelihood of irrelevant knowledge at the boundaries is high. That is why communication between members of different communities on their own initiative

may be limited. It is relevant especially in case of craft and artisan work, which still balances between traditional and modern, in practice between protection of the craft skill and the sharing of skills, respectively.

Communities of practitioners may be connected to each other in many ways: through the division of labour, rules and tools. Successful and sustainable interaction still calls for construction of a partially shared, partially fragmented, object between the communities (Kerosuo, 2001; Miettinen & Virkkunen, 2005). Cultural-historical activity theory provides a potential framework for understanding networks of interacting activity systems (Engeström & Glăveanu, 2012; Engeström 2015).

The process of constructing a partially shared object between two interacting activity systems may be represented as follows (see Figure 3.4 in Chapter 3): Object 1 refers to the initial problem, or ‘raw material’. Object 2 depicts a created image, vision or prototype of the constructed object. Finally, object 3 stands for the potential common ground or synergy between the two perspectives. In the case of establishing a dialogue between two distant activities of practitioners, the construction of a shared object is virtual and is mediated by researchers with the help of photographs.

When talking about the construction of a shared object, one needs to acknowledge the complexity and fragmentary nature of the object of activity and distinguish between the generalised object of a historically evolving activity and a specific object, as it appears to a particular actor engaged in a particular action (Engeström et al., 2003; Miettinen & Virkkunen, 2005; Toiviainen & Vetoshkina, 2018). The ribs and skeleton of a boat, a specific type of small boat, or pictures representing distant boat-building activity — these specific, situational objects — are partial instantiations of the object of a given activity system (Knorr Cetina, 1997). Respectively, wooden vessels in general are the object of the historically developed activity of wooden boat building, while a historic replica or a fishing boat are objects for a specific activity system.

Understanding the process of constructing a shared object is not complete without understanding the boundaries between communities. The notion of boundaries may be conceptualised in a variety of ways, from edge or periphery to a shared space (Star, 2010). A dialectical understanding of a boundary implies conceiving of a boundary as something that divides and separates, but also as a place of connection, learning and development (Kerosuo, 2001; Kerosuo & Toiviainen, 2010). Gutiérrez et al. (1999) formulated the notion of the Third Space as a way to understand hybridity in learning environments and educational settings. Hybridity and diversity in these spaces provides a place for learning and development.

Boundary crossing and the expansion of boundaries across communities of practitioners often builds upon expansion of the object of activity, and the appropriation and implementation of tools, which are utilised to grasp the expanded object and to expand the boundaries (Engeström et al., 2003; Engeström, 2014;

Kerosuo, 2001; Kerosuo & Toiviainen, 2011). Specifically, boundary objects (Star & Griesemer, 1989; Star, 2010), such as maps, models, forms, knowledge repositories and graphic representations, play an important role in the expansion of the object of activity and the crossing of boundaries (Engeström, 2014). The nature of such boundary objects is recognised by the fact that they are simultaneously concrete and abstract, specific and general. This can be characterised as interpretive flexibility — the variety of ways in which a certain community makes use of an object (Star, 2010). Boundary objects allow communities to collaborate and link them together (Wenger, 1998, 2000).

Learning and interaction across networks of communities is a complex process and can be seen as the interplay of four different levels (Toiviainen, 2003). Toiviainen analysed levels as dynamic spaces, not as predetermined or given fields. In the analysis of inter-firm collaboration in small subcontracting metal-working companies, she identified network-ideological, project, production and worker levels. The interplay between the four levels may call for learning. For instance, Jalonen et al. (2016) showed that a tension between the product concepts of design activity and the concepts involved in production may trigger learning in a given network of technological innovation. Studies on constructing a shared object and the expansion of objects within the framework of cultural-historical activity theory often focus on communities of professionals having a tangible shared object: for instance, a patient with multiple illnesses linking the interests of several different medical professionals (Kerosuo, 2001). Such studies also focus on constructing the object and collaborating across a prolonged period of time (see forums for regional learning networks for work-life specialists in Kerosuo & Toiviainen, 2011). In these cases, practitioners already share the initial premises and needs for interaction across communities and for constructing a shared object. In the current case of exploring the possibilities of building intercultural understanding across two culturally and geographically distinct groups of practitioners, interaction was indirect and occurred on the initiative of researchers. These factors may be seen as boundaries in the exploration of the potential for building an understanding or even question the need for such communication. In contrast, when there are no initial shared premises or existing needs for interaction, the potential of an object in the process of building understanding becomes more vivid. This indirect interaction may serve as a fruitful example for exploring the premises behind building a shared understanding. The features on which practitioners are drawing while constructing an object-oriented intercultural understanding may then be identified more easily. It may also give insights on how to organise a stimulating environment for intercultural training (Weber, 2003).

### 5.2.2 The Universal and Particular in the Object

In this study, I view sustainable intercultural understanding as an object-oriented understanding or occurrence through the construction of a shared object. In the case of indirect communication between two groups of practitioners engaged in the same occupation, the construction of the object may be considered virtual and provides the possibility to study the potential for building a shared understanding. The construction of this virtually shared object — wooden boats in general as the object of the historically developed activity of wooden boat building — took place against the background of already existing knowledge about one's own object and the object of another activity, depicted in the photograph. On what grounds did the craftsmen construct a shared object? What was the potential of the object in the initial stages of building intercultural understanding? Naturally, practitioners from the same field will focus on the similarities and differences between the objects: What are we doing similarly and what are we doing differently with the object? The cognitive domain of intercultural understanding also includes knowledge about similarities and differences between cultures. At first glance, it may seem that exact similarities make intercultural understanding possible.

The interplay between similarities and differences in the process of building understanding was tackled by Soviet Marxist philosopher Evald Ilyenkov (1975) in the following manner:

Clearly, the concrete-empirical, apparent essence of the relation that binds together various phenomena (individuals) into some 'one', into a common 'set', is by no means delineated and expressed by their abstract-common feature, nor in the definition equally characteristic of both. The unity ('or commonness') is provided much sooner by the 'feature' which one individual possesses and another does not. The very absence of the known feature ties one individual to another much stronger than its equal presence in both.

Two absolutely identical individuals each of whom possesses the same set of knowledge, habits, proclivities, etc., would find themselves absolutely uninteresting to, and needless of, each other. It would be simply solitude multiplied by two. One wit, as he explained to his young friend the ABC of dialectical logic, advised him to ask himself the question: what is it in his bride that attracts the young man; wherein lie the ties of their 'commonness'? (pp. 31–32)

This dialectical understanding of the interplay between similarities and differences was developed by Ilyenkov (1974, 1975, 1982) as a part of the notion of the universal. The dialectical understanding of the universal (Rus. *всеобщее*, *vseobshchee* — general, common, common to all) differs from the understanding of the universal in traditional logic. Instead of focusing on analytical abstractions, often



superficially attributed to entities in a given reality, a dialectical understanding of the universal focuses on that which is shared by and common to concrete entities. The emphasis is on relation and connection, not on certain abstract features. Ilyenkov (1975) illustrated this way of thought with the example of two people having a common ancestor: a concrete relation is the ancestor, while looking for superficial common features (eye colour, height, etc.) is not conducive to finding the actual common denominator between the relatives.

The dialectical understanding of the universal specifically aims at tackling what is common between two opposite entities acting together: for instance, what a teacher and a student have in common, what an employer and an employee have in common, what a reader and a book have in common, what processes of consumption and production have in common. The meaning of universal is not about being 'identical' or 'similar'; it is about the bond that is created between objects, people, entities. In this understanding of the universal, unity is specifically created by the differences, not by the similarities. A lack of a certain feature in one entity and its presence in another connects two entities more strongly than the possession of similar features. As Ilyenkov puts it:

the reader is the reader exactly because he is confronted, as a condition without which he is not a reader, by that which is read, the reader's concrete opposite. One exists as such, as a given concretely defined object, exactly because and only because it is confronted by something different as concretely different from it — an object whose definitions are all diametrically opposed to those of the former object. Definitions of one are inverted definitions of the other. That is the only way in which concrete unity of opposites, concrete community, is expressed in a concept. (Ilyenkov, 1982, p. 93)

Peculiarities and differences are the way to trace the development of the universal in the particular:

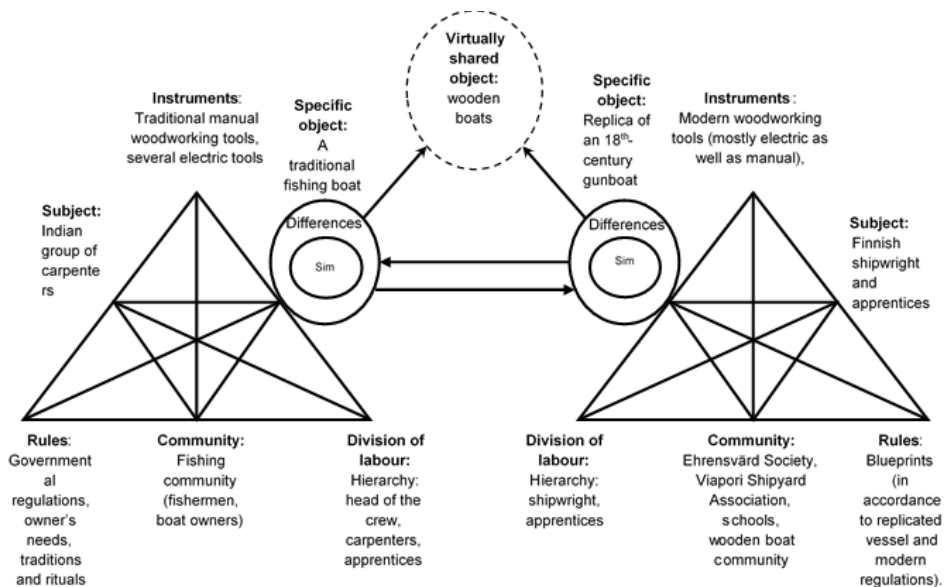
the human personality can rightly be considered as an individual embodiment of culture, i.e. of the universal in man. [...] diverse forms of specifically human life activity develop one from the other and in interaction of the one on the other, the faculties of social man and his corresponding needs. (Ilyenkov, 1975, p. 117)

A certain degree of sameness is of course assumed for establishing an understanding between people and groups of people. For instance, take a jigsaw puzzle: being part of one paperboard is the assumed sameness, but two pieces of the puzzle fit together exactly precisely because of a discrepancy in their shape. In addi-

tion to a certain basic similarity, differences are crucial in the process of constructing a shared object and are the key to building unity. Differences evoke the sense-making processes, and working out differences is crucial in the formation of a shared object and, consequently, building an understanding across various activity systems.

### 5.2.3 Conclusion

The conceptual framework for studying the potential for building object-oriented intercultural understanding across two distant communities of boat builders is outlined in Figure 18.



**Figure 18.** Conceptual framework for studying the potential for building an object-oriented intercultural understanding<sup>74</sup>

In the figure, the first steps in the process of understanding are depicted as a process of constructing a virtually shared object between two activity systems: 1) the group of Indian boat builders, constructing traditional wooden fishing boats and 2) the Finnish shipwright with his apprentices working on wooden historic replicas, small leisure boats and the restoration of old wooden vessels. The triangular diagrams follow Engeström's (2015b) conceptualisation of activity systems, which helps us to depict the key elements of the activities under scrutiny.

<sup>74</sup> 'Sim' refers to similarities.

The depiction reflects the already discussed distinction between the general, historic object of wooden boat building and the way it appears and becomes instantiated within local communities (also for specific actors) — a concrete object of a local activity system. In the case of indirect communication between the wooden boat builders, they are constructing a virtually shared object — the wooden boats as an object of the historically developed activity of wooden boat building. Figure 5.1 highlights a distinction between the specific object of each activity system: a fishing boat and the replica of an 18th-century boat, and a constructed virtually shared object — the general object of the wooden boat building in the form of wooden boats.

The hypothesis is that the prerequisites for object-oriented intercultural understanding between two distant communities of practitioners can be found in the differences between the local activities. In drawing upon these differences and making sense of these differences, subjects are constructing a virtually shared object. Certain differences between the activities are already evident from Figure 5.1. For instance, the use of blueprints in the Finnish activity system and the absence of drawings in the Indian activity system is the first evident difference. The object of activity determines the activity, and the peculiarities of each activity system are reflected in the object. The use or absence of blueprints finds its embodiment in the shape of the hull. The object therefore transmits differences of the whole activity system across boundaries.

### **5.3 Data and Methods: Photo-elicitation Interviews**

The use of visual data in qualitative research has flourished in recent years, especially with the growing availability of digital technologies (Spencer, 2011). Photographs, as one of the visual method options, may be extensively applied in research in the forms of photo-elicitation, reflexive photography, photo-voice, and so forth (Banks, 2007; Hurworth, 2004).

Ethnography is generally considered to be a method focusing on naturally occurring data, without the intention to promote change or transformations in the regular lives of the participants. Nevertheless, simply going out into the field is considered to be an intrusion on the everyday lives of humans and can itself be considered a type of intervention (Emerson, 2001; Ravitch & Carl, 2015; Ritchie et al., 2013). The presence of and questions asked by a researcher doing fieldwork can make participants reflect on their lives and working activities. As a type of participatory action research, methods like photo-elicitation and photovoice give an active role to participants and promote changes in studied communities, while also being non-directive (Migliorini & Rania, 2017).

The method of a photo-elicitation interview (PEI) may be used as an expansion of and complement to ethnography as a way of going deeper into the lives of par-

ticipants. This method is based on the idea of introducing pictures and photographs into an interview (Harper, 2002). In this case, the researcher-produced photographs are a suitable way to conduct theory-driven research, produce new meanings that might have remained undiscovered with basic ethnography or a general interview. They can help establish a rapport between the researcher and participants, unlike conventional interviews (Clark-Ibáñez, 2004).

Cultural-historical activity theory has been an activist and interventionist approach from the very beginning (Sannino, 2011). Even when a study, following the framework of CHAT, is not constituted with an intervention of any kind in mind, the role of the researcher is still seen as active and interventionist (Toivainen, 2003). With the CHAT approach, drawing on Marx's (1845/1984) idea of revolutionary practice, several types of formative interventions have been developed, including the Change Laboratory method, an interventionist method wherein practitioners actively transform their work with the aid of researchers (Engeström, 2011; Engeström et al., 2014). The practitioners in this type of formative intervention are collectively transforming their activity by primarily focusing on the object of their work. Researchers just provide the space for change; the participants themselves decide what should be learned and decide the direction in which it should take place (Engeström, 2011).

One of the key foundational principles of the Change Laboratory is the principle of double stimulation. It is a mechanism that allows people to transform their particular circumstances and escape a problem situation. For instance, in deciding to leave after 15 minutes of waiting for a friend, who is late for a meeting, the time period is a second stimulus, while the problem situation is the first. People employ external artefacts in order to turn a meaningless situation into a meaningful one (Sannino, 2011; Vygotsky, 1978). The Change Laboratory revolves around on ethnographic data derived from activity, forming 'mirror material' — the first stimulus, which stimulates the involvement and collaboration of participants. In the current mini-intervention, pictures from another activity system were the first stimulus, while the differences acted as the second stimulus, which helped the practitioners make sense of the other activity system.

In this study, a research-initiated, photo-elicitation interview (PEI) (Harper, 2002; Hurthworth, 2004) was used as a mini-intervention. The original aim of introducing photographs during interviews was to give the practitioners an active role and prompt them to reflect on their craft. The Indian boat builders in particular were not used to talking much about their work in structured interviewing. The photo-elicitation interview was also a way for the research team to establish better contact with the boat builders and gain a deeper understanding of the craft. The idea of showing photographs from another boat building community gave an opportunity to establish a virtual dialogue between the two groups of practitioners, mediated by the researchers. The photographs acted here as a first stimulus to

elicit a reaction from the craftsmen. Establishing this kind of virtual dialogue required the use of visual methods, as boat building is largely physical activity, situated in the material context of work and dependent on the use of tools. It would have been challenging to describe the object of activity and boat-building techniques without actually showing them to the interviewees. Other means of distant communication between the boat builders or visual methods were almost impossible due to distance, language and the restricted availability of technologies. This method was not excessively intrusive or complicated to implement in the same way as, for instance, videoconferencing or showing videos.

### **5.3.1 Photo-Elicitation Interview (PEI) Method**

Photo-elicitation is based on the straightforward idea of introducing photographs during a research interview (Harper, 2002). As an alternative and complementary method to verbal-only methods, the PEI method began to take shape in the 1950s in the field of anthropology. The initial idea behind PEI was that it could potentially stimulate new thoughts and memories (Collier, 1957; Collier & Collier, 1986). Further, photographs were also used as means to establish a rapport with interviewees and eliminate any tensions that might arise in answering direct questions. Photographs provide interviewees with the choice of a viewing angle and means for interpretation, giving them a more active role in interview process. Images also potentially open up pathways into the deeper layers of consciousness (Harper, 2002).

The ways of using photographs in interviews may vary. Harper (2002) recommends placing images along a continuum ranging from one extreme of showing visual inventories of objects, people and artefacts through a middle ground consisting of representations of collective or institutional settings and on to another extreme consisting of the intimate dimensions of a social group (families, couples, etc.). Another aspect of variation has to do with the authorship of the photographs: crucial differences exist between eliciting response with photographs taken by the researchers or other people and photographs that subjects have taken themselves. Taking and choosing photographs provides interviewees with the possibility to show what is significant for them. When researchers select the photographs themselves, they need to be aware of the structuring effect of photographs and examine the extent to which they represent the interviewees' perspectives (Keller et al., 2008).

Over the years, the PEI method has been applied in various fields of studies for various purposes. The PEI technique has also been used to study intercultural relations and intercultural understanding, primarily with the aim of exploring intercultural boundaries and ethnic identities. Gold (1991) studied how two populations of Vietnamese refugees living in America perceive their own differences and

identities using the PEI method. Harper and Faccioli (2000) attempted to understand how members of different cultures interpret advertising signs. They made photos of advertisements in the streets of Bologna, Italy, and they conducted interviews with women in Italy and the United States to elicit their interpretations of the signs. Harris and Sunderland (2012) applied the method in multicultural service evaluation research. Focus groups of participants from different cultural background evaluated health services in groups mediated by photographs introduced by researchers. Photo elicitation not only generated connections between participants and facilitators, but it also transcended different cultures and experiences.

In addition to the already mentioned important benefits of PEI, encouraging reflections and interpretations, building trust, producing new information and facilitating longer and more detailed interviews must also be mentioned (Cassell et al., 2015; Hurthwort, 2003). The PEI method is also a powerful tool for accessing the experiences of people who have difficulties with verbalisation and language, or when limitations exist for conducting conventional interviews (Affleck, Glass & Macdonald, 2012).

One of the main risks in using photographs in interviews is that the chosen pictures may not elicit a reaction. Harper's (2001, 2002) experiences from interviews with farmers and metal workers show that photos must break through the frameworks and normal viewpoints of participants in order to elicit a reaction. The ethics involved when using the PEI method should be taken strongly into consideration both with regard to the contents of the photographs and the participants, especially when working with children and vulnerable respondents (Ford et al., 2017; Padgett et al., 2013). Affleck et al. (2012) recommend using supplementary data sources in order to ensure validity and overcome the limitations of PEI.

### **5.3.2 PEI Procedure**

In this case of PEI, photographs worked as means in the indirect dialogue between the two distant groups of boat builders. Using photographs was a way to introduce material objects into the verbal world of interviews with practitioners in the craft activities, heavily grounded in the material surroundings. The introduction of photographs in the interviews was not aimed at directing conversation, but to elicit response from boat builders and structurally open up various aspects of activity to the researchers.

In this case of PEI, photographs served as a means of facilitating indirect dialogue between the two distant groups of boat builders. Using photographs was a way to introduce material objects into the verbal world of the interviews with practitioners of the craft activities since the photographs were heavily grounded

in the material surroundings. The introduction of photographs during the interviews was not done with the aim of directing the conversation, but to elicit responses from the boat builders and structurally open up various aspects of activity to the researchers.

The aim of introducing each of the activity systems structurally, as well as the practical challenges described earlier, determined the researcher’s choice of taking pictures with the help of the boat builders. The structuring and uniform impact of the taken photographs was more of an objective than a challenge or an obstacle. The researchers at both sites took a fair number of pictures of working process, tools and the constructed vessel. The boat builders sufficiently participated in the photographing process, showing what would be best to depict to represent the activity thoroughly.

Based on the taken pictures, the researchers together determined several broad categories and selected the final photographs. The selection process was guided by two main ideas. First, the photographs should cover the main features of the activity, such as the boats themselves, the workers, the tools and the working processes. Second, the photographs should reflect the particularities of each site and be able to elicit a response. Table 5 provides an overview of the categories of the selected photographs.

**Table 5.** Overview of the categories

Finnish Research Site	Indian Research Site
<b>THE BOAT AND ITS REPRESENTATION</b>	
<p><b>3 photographs</b></p> <p>Photographs show the whole boat and a graphical representation of the future boat. One of the photographs shows a blueprint-like drawing on plywood, made by a shipwright, which he used to explain tasks to the apprentices.</p>	<p><b>4 photographs</b></p> <p>Photos depict the boat at different construction phases from different points of view (from inside and outside).</p>
<b>WORKERS, COMMUNITY, AND DIVISION OF LABOR</b>	
<p><b>5 photographs</b></p> <p>Photos illustrate the working processes of the shipwright and the apprentices.</p>	<p><b>4 pictures</b></p> <p>Pictures show builders working together and their collective picture (which was included IN the set upon their request).</p>
<b>TOOLS AND TOOL USE</b>	
<p><b>9 pictures</b></p> <p>Photographs contain various types of tools and ways of using them, including the shipwright showing his tools and tool storage. Both electric and manual tools are depicted. A photo on safety and emergency equipment is also included.</p>	<p><b>10 pictures</b></p> <p>Photos depict the ways in which the tools are used and stored at the workplace. One of the photos, depicting all the tools together, was taken by the boat builders.</p>
<p><b>Total: 17 pictures</b></p>	<p><b>Total: 18 pictures</b></p>

In both cases, 10 x 15 cm photographs were printed on plain paper using a colour printer. The interviews were structured only by the presence of the photographs: the researchers briefly told the interviewees about another community of boat builders, introduced the photographs and asked the boat builders to comment on them. During the course of the interviews, the researchers asked clarifying questions. Samples of the photographs from each of the sites are depicted in Figure 19.<sup>75</sup>



**Figure 19.** Samples of the photographs from the photo-elicitation interviews.

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<sup>75</sup> The whole set of the photographs is provided in Appendixes 3 and 4 for the Finnish and Indian sites, respectively.



### *Indian Research Site*

An interview was first conducted at the Indian research site by the local researcher. Unlike other conversations at the Indian site, this interview was recorded, transcribed and translated. The Indian boat builders had never been formally interviewed, not to mention recorded. The builders were not much engaged in the conversation at the beginning. During the course of the interview, the crew members became more curious about the Finnish boat-building activity and looking at the photographs of the Finnish site became both exciting and engaging for them. Not being used to formal interviews, they began talking at the same time, having side conversations and discussions in pairs. At the end of the interview, they asked the researcher to take a group picture and a picture of their tools to show to the shipwright in Finland. These photographs were then included in the corpus of pictures presented to the Finnish shipwright.

### *Finnish Research Site*

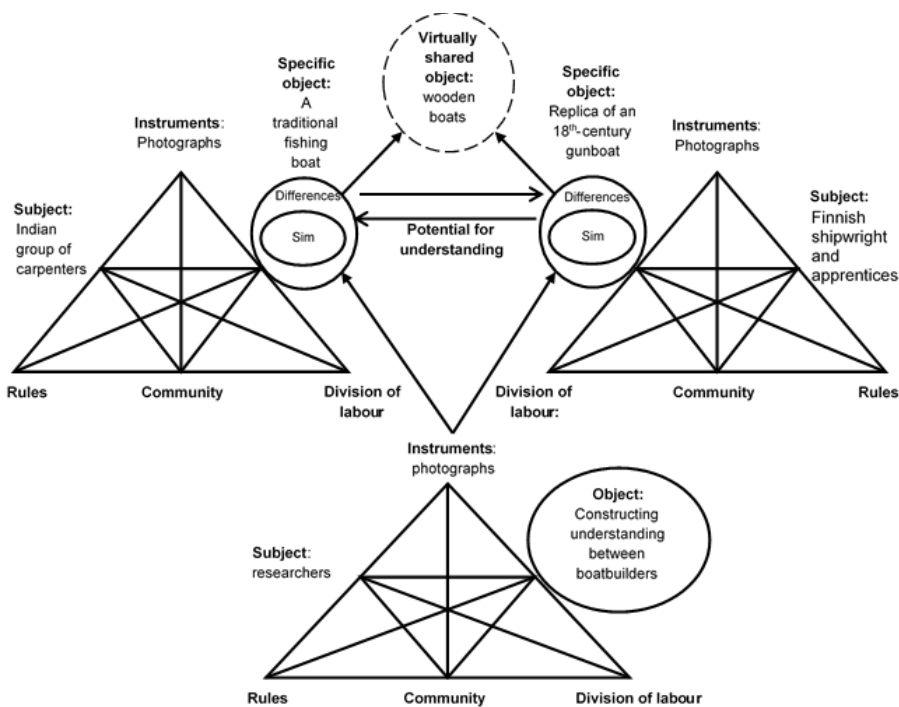
Several days later, researchers from Helsinki visited the Finnish shipwright. The interview took place in the morning in a small room inside the shipyard building. Two researchers, the author (a PhD student) and a post-doctoral researcher from the *Concept Formation Concept and Volition in Collaborative Work* project, conducted the interview. Only the shipwright participated in the interviews, which reflected the hierarchy between a master and apprentices. It also indicated that the shipwright was the key person responsible for the construction of the gunboat. He was in a hurry that day, so at the beginning of the interview he was not as talkative as usual. Most of the previous interviews had also been conducted mostly ‘on the spot’, making them less formal. However, his interest grew as he began looking at the photos and by the end of the interview he was fully engaged in the discussion. The shipwright was fluent in English, so the interview was conducted in English. It was both audio- and video-recorded and later transcribed.

### **5.3.3 Unit of Analysis**

The unit of analysis in this chapter is expanded from one activity system to include interacting activity systems (Engeström, 2001). The interaction between the two activity systems of wooden boat building was indirect and mediated by photographs. The photographs, as instantiations of the object of boat building activities (Knorr Cetina, 1997), acted here as boundary objects (Star & Griesemer, 1989; Star, 2010). Boundary objects are

Objects which are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. (Star & Griesemer, 1989, p. 393)

Photographs were specifically the instantiations of an object that were able to travel across cultural boundaries. Visual depictions of the activity systems allowed distant groups of builders to construct a virtually shared object. Virtual communication between two research sites, and specifically, the initial stages of building an understanding between two groups of practitioners were the object of the researcher's activity, as there was no initial practice-based need to communicate between the boat builders. This calls for including the researcher's activity system into the unit of analysis (Figure 20).



**Figure 20.** Unit of analysis, including three interacting activity systems.<sup>76</sup>

Finally, the unit of analysis includes three directly and indirectly interacting activity systems: two of the boat builders in India and Finland and one of the researchers. The photographs were a research tool; they also acted as boundary objects in the indirect interaction between the activities. The pictures became an instrument for reflecting similarities and differences in another activity system and in constructing a virtually shared object across the groups: wooden boats being built. Figure 20 depicts the unit of analysis, representing the possibility of building

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<sup>76</sup> Some elements of the activity systems (e.g. rules, division of labour, etc.), only marginally relevant for the current representation, remained unclarified in order to make the figure easier to comprehend.

an understanding through the construction of a virtually shared object, where the photographs acted as a tool for researchers, mediated interaction between the boat builders and served as instruments in the process of constructing a shared object.

#### 5.3.4 Methods of Analysis

The audiotaped interviews were transcribed and translated into English (in the Indian case). The length of the Finnish interview was approximately 55 minutes, while the transcription contained 454 speaking turns. The length of the Indian interview was approximately 29 minutes, while the transcription contained 460 speaking turns.<sup>77</sup>

Data analysis was carried out following the methodological framework of CHAT (Engeström, 2015), which meant it was both theory driven and grounded in the data.<sup>78</sup> The original aim of the interviews was to prompt the boat builders to both reflect on and elaborate upon their work activities and for the researchers to understand their work in detail. In the process of developing this mini-intervention, exploring the potential for building intercultural understanding between two distant groups of craft practitioners also became one of the research aims. After the first reading of the data, we noticed that the boat builders were referring mostly to differences, not similarities, between the activity systems, while virtually constructing a shared object. Ilyenkov's (1974) theoretical ideas regarding the universal and the significance of differences in communication and trying to understand of one another supported the idea of turning to differences in the data analysis.

The process of data analysis for the interviews adaptively followed the method of thematic analysis (Braun & Clarke, 2006, 2013; Clarke, Brown & Hayfield, 2015; Vaismoradi, Turunen, & Bondas, 2013). The analysis was carried out in several iterative steps.

The *first step* was to identify all the possible utterances that mentioned any kind of difference. The differences were explicated in both interviews in the following ways:

- Using comparative formulations, such as '*more*', '*less*', '*bigger*', '*smaller*', etc.
- Categorising other activity as '*traditional*'
- Explicitly mentioning words like '*different*', '*difference*', '*differently*', etc.
- Explaining difference technically and in detail

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<sup>77</sup> The interview took place in a group. At times, there were multiple conversation lines, as boat builders chose to discuss the photographs in small groups or in pairs.

<sup>78</sup> The data analysis framework is described in detail in Chapter 3 of the thesis.

- Using grammatically negative expressions, for example ‘*they don’t do...*’, ‘*they aren’t using...*’
- Using grammatically positive expressions, for instance ‘*they do it this way...*’, ‘*we are making it in this way...*’
- Asking clarifying questions
- Admitting ignorance, for instance ‘*I don’t know how they...*’

The expressions for further analysis were identified based on two criteria: the above-mentioned ques and those containing a certain topic of discussion (for instance, ‘ribs’, ‘tools’, ‘technique’, etc.). Overall, 185 expressions were identified containing a reference to various differences: 86 in the Finnish interview and 99 in the Indian interview.<sup>79</sup>

The *second step* was to thematise the topical contents of the expressions of difference. The crude listing of all the topics mentioned in the expressions in great deal followed the elements of an activity system (Engeström, 2015b). Each of the expressions was consequently categorised against the elements of an activity system, such as object, division of labour, and so forth. The details of this stage of analysis are discussed later in this chapter.

The craftsmen not only mentioned the differences between the two activity systems, but also elaborated on the factors behind the differences. The *third step* was to trace the factors behind the differences and identify the key factors behind the differences

The *fourth step* consisted of listing the comments on possible connections between the communities. While reading the data, I noticed that the boat builders had reflected on the possibility of real direct interaction with each other. These comments were important with regard to understanding the potential of building object-oriented understanding in this episode.

## 5.4 Analytical Categories

### 5.4.1 Notable Differences

The types of differences identified in the thematic content of the interviews for the most part followed the elements of an activity system. The types of differences are listed in the Table 6.

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<sup>79</sup> Most of the utterances were overlapping, as often sentences and speaking turns contained several topics and themes. The interviewees often switched between several topics during one speaking turn.

**Table 6.** Types of differences and their frequency among the expressions of differences in the data<sup>80</sup>

Types of differences	Finnish Site		Indian Site	
	Number of expressions	Percentage	Number of expressions	Percentage
<b>Object</b>	26	30.2%	19	19.2%
<b>Instruments</b>	17	19.8%	34	34.3%
<b>Technique</b>	21	24.4%	28	28.3%
<b>Division of labour</b>	11	12.8%	8	8.1%
<b>Community, rules</b>	5	5.8%	9	9.1%
<b>Subject</b>	6	7%	1	1%
<b>Overall</b>	86	100%	99	100%

Craftsmen at both sites mostly talked about objects, instruments and technique; they talked least about the subject of activity. Boat builders from both activity systems elaborated much more on the building technique — the way one constructs a vessel — throughout most of the interviews, which led to identifying *technique* as a separate topic. The expressions of differences in both cases aptly fit the same themes, hence there was no need to develop different topical content for each of the sites.

Indian craftsmen repeatedly discussed instruments through the course of the interviews. They mostly used manual tools, but prior to the interview they had acquired a couple of new electric tools. The variety of electric tools at the Finnish site specifically caught their attention. The Indian boat builders also spoke much about community and rules, while very little about the subject and division of labour. The Indian crew, though highly hierarchical, have a strong sense of community and family-like relationships with each other. The rules are tacit and essential. All of the members of a building crew follow traditional roles, unlike at the Finnish site, where rules and roles must be explicated. The Indian crew members work together for long periods of time, following a traditional apprenticeship model. They identify community as a subject, as a central actor (they also primarily used ‘we’ when talking about themselves). At the Finnish site, apprentices come to work temporarily, hence the sense of community is less strong and the focus is on the agency of a single craftsman. The Finnish shipwright spoke much about the object of activity — the boats, which reveal a certain uniqueness and specific value of the wooden vessels as a product in the local community.

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<sup>80</sup> As already mentioned earlier, the expressions for further analysis in the raw data contained a reference to differences and a certain topic of discussion.

## **Object**

The interviews at both sites contained numerous discussions about and references to the objects of boat-building activity — boats and ships. Boat builders discussed concrete vessels when referring to the pictures, their own boats as well as wooden vessels in general, or specific historic and local examples of boats and ships.

Interestingly, both the Finnish shipwright and the Indian boat builders categorised the boats of the other group as *traditional* or old. For the Finnish shipwright, traditional was a reference to the early ship models, which were built without drawings:

### *Excerpt 5.1*

S: the shape of the hull like here is more like, ah ... a Viking boat or canoe, or that they used to have far out [sic], in that time. It is a very traditional model. (Finnish interview, T:<sup>81</sup> 62)

### *Excerpt 5.2*

S: This is a very simple model to build. It is very traditional, like I told you. And they used to build that in what ... before our time ... it is very old. It is before drawings were done. The drawing came into time [sic] in the 1700s. (Finnish interview, T: 104)

The Finnish shipwright connected the transfer from traditional to modern boat building with the introduction of calculations and blueprints. It is not the appearance, but the technique, embodied in the shape of the hull, that makes a ship traditional or modern. For Indian builders, on the contrary, the appearance of a boat was a crucial factor in identifying whether it is traditional:

### *Excerpt 5.3*

L: Older type ... in that it is ... this one doesn't have much above [hand gesture indicating above the deck]. They didn't have much, like cabin-cabin,<sup>82</sup> nothing. (Indian interview, T: 46)

Similarly to the Finnish shipwright, the shape of the hull appears to be the main part, in this case, of the appearance:

### *Excerpt 5.4*

L: the stern is pointed, narrower ... while the front, the bow, is like, wider. The stern is longish and narrow, like a tail...

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<sup>81</sup> 'T' stands for speaking turn.

<sup>82</sup> Reduplications (echo words) are often used in Bengali.

B7: This is unlike what we do — the pattern is different from ours...

O: It was that way many years ago... (Indian interview, T: 229–232)

The Finnish shipwright categorised the main difference between objects at the different sites in terms of the variability in the boat models he is dealing with. Indian craftsmen were always working with the same model all the time, while he is working with different models:

*Excerpt 5.5*

S: It is very hard to explain because they are building only ... this ship and this model. And when I build, I always have a different model in ship building. (Finnish interview, T: 196)

At the same time, the Indian model provided more freedom for carpenters, as boat builders did not have blueprints strictly determining the parts and look of the boat. Interestingly, the possibility of constructing a variety of models was a way to ‘deprive’ the shipwright of this kind of freedom from constraints, since it stemmed solely from a customers’ needs:

*Excerpt 5.6*

S: I don’t think they do. I think they are ... every boat is different. Unique. [...] This boat, this ship, is only done like this, because the customer wanted exactly the same ship that was built in 1700s ... this is not a very good model. This is not a good model at all. But for that purpose, at that time, as a warship it was the best and top technique, and top model.

R: It means that you would build differently, if you build...

S: A good boat, a good boat, a good gunboat. It would be a little bit different, the model. (Finnish interview, T: 318–326)

*Excerpt 5.7*

S: Yes, I always have a different shape, a different model, but it doesn’t matter to me because the customer is right. The customer is all ... the one who is paying, he is telling me always. (Finnish interview, T: 436–438)

For the Indian builders, one of most significant differences between their boats and the Finnish boats was the purpose of the vessels, which determined the structural characteristics of the boats:

*Excerpt 5.8*

O: They need lighter boats there because their soil is different... (Indian interview, T: 235)

*Excerpt 5.9*

O: the purpose may be different ... ours is for fishing, smaller cabins. Theirs could be for passengers... (Indian interview, T: 259–261)

The boat builders discussed different aspects of the object of boat-building activity, ranging from the purpose to the models. The shape of the hull appeared to be a crucial ‘element’ of any boat in both of the interviews. Certain shapes of the hull are achieved by applying a variety of techniques — ways of constructing of the object.

**Technique**

The technique of boat construction was another notable topic in the interviews. A variety of techniques are applied in wooden boat building, including wood-working techniques. Technique in these interviews was a reference to building technique — how one builds a boat, or simply the order of construction. Technique may be considered as a part of the rules of activity. In both cases, craftsmen elaborated on differences in technique a great deal, so *technique* was treated as a separate topic from other *rules* (for example, building inside versus building outside).



**Figure 21.** Shape of the hull and the construction process when using the skeleton-based technique: Finnish site.

There are multiple methods and ways of classifying building techniques in wooden boat building: carvel, clinker, moulded, ply, and so forth (Chapelle, 1994). With regard to the order of the construction, two groups of methods can be identified: skeleton-based technique (Figure 20) and plank-based technique (Figure 21). The gunboat from the Finnish site, primarily depicted in the photographs, was built using the skeleton-based technique: first, a skeleton (keel and ribs) is laid out, after which planks are put around it following the curves of the skeleton. The Indian carpenters use a plank-based technique: first, a keel is laid out, after which planks using clinker/ lap-strake methods form the hull of the boat and then



ribs are put inside of the hull following its curves. The skeleton-based technique assumes the use of drawings and calculations. This specific difference was noticed and elaborated on quite often by boat builders from both sites.



**Figure 22.** Shape of the hull and the construction process when using the skeleton-based technique: Indian site.

The Finnish shipwright explained the difference in technique through the absence of drawings in Indian boat-building activity:

*Excerpt 5.10*

S: They did not have any drawings?

R: I don't think so.

S: They don't actually need them. First, they build the hull. Like here you see [reference to a photo] there is nothing, only these first ribs ... there are no ribs [points at a photo]. There cannot be any drawings. [...] The shape of the boat, the shape of the ship is different. If you build a boat like this, the plank goes ... it turns only into one position. If you twist it more or less you... (Finnish interview, T: 54–57, 60–62)

For the Finnish shipwright, technique goes hand in hand with the shape of the hull, not the purpose of the boat:

*Excerpt 5.11*

S: Yeah. Fishing boats. But it doesn't matter what kind of boat you are building. It doesn't matter for the technique. Only for the details. (Finnish interview, T: 12)

In the Indian interviews, a similar difference in technique was also elaborated on as another way of achieving a similar result — a certain shape of the hull:

*Excerpt 5.12*

B4: Ah, they have built a ‘tekture’<sup>83</sup>... with a ‘tekture’ they are forming the shape [of the boat].

L: Then they prepare the ‘tekture’ first... (Indian interview, T: 21–22)

*Excerpt 5.13*

D: We, for example, we keep heating the plank to build the body ... this is, however, is using ‘tekture’ to get the same result... (Indian interview, T: 208)

The Indian boat builders also qualified that the Finnish technique is only possible with the introduction of machinery and requires an education and engineering skills. This technique was viewed as more expensive by the Indian boat builders:

*Excerpt 5.14*

O: To follow this technique, it costs a lot more. And for us, the cost is lot less... (Indian interview, T: 82)

*Excerpt 5.15*

B1: Ours is done without a ‘tekture’, but can be done [here] when using one. [...] It seems that ... if you have a ‘tekture’ that ... when someone like an engineer is not around, has left for something or other, the work can continue. [...] We, anybody for that matter, can work with the planks in the usual way. [...] even if he [the engineer] is gone for a while. But here, as we work without a ‘tekture’, R has to keep an eye on us. We all are monitoring the work ourselves, but even after that, he needs to... (Indian interview, T: 243)

Technique in both groups of interviews appeared to be strongly connected with the shape of the hull — the critical part of any vessel. Technique also heavily depended on the presence of blueprints, the division of labour, the level of mechanisation and the availability of instruments.

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<sup>83</sup> Meaning a structure, a form.

### ***Instruments***

Instruments were another important topic of discussion in the interviews, especially for the Indian boat builders, as has been mentioned earlier. Craftsmen from both sites pointed out that more electric tools are used in boat building in Finland (as well as more tools in general), while Indian boat-building activity only made use of a small number of manual tools.

The Finnish shipwright mostly mentioned the difference between the manual and electric tools and the further relation of this difference to the techniques employed:

#### *Excerpt 5.16*

S: They are a little bit older and smaller, like the electric tools ... and then ... I think they use maybe more hand tools than I do. (Finnish interview, T: 228)

Indian crew members put this difference into a broader perspective of the labour costs and expendables:

#### *Excerpt 5.17*

O: The labour cost goes down . . . but the cost of electricity goes up, and these machines ... are expensive ... very expensive ... the one who wants to start a [factory] ... suppose I want to start a factory here, like that — the total investment is not at all small ... that's for sure.

L: right ... you need fewer people, but a lot more [power] tools... (Indian interview, T: 159–162)

The use and availability of instruments were strongly intertwined with the division of labour, and with labour and instrument costs: the more instruments that are available, the less the number of people who need to be involved in the construction process.

### ***Division of labour, rules, community and subject***

The topics of division of labour, community, rules and subject were often discussed together and logically intertwined in both of groups of interviews. Therefore, they are discussed together in this analysis.

The key difference in the *subject* (extending it to *community*, which was already mentioned as a distinct feature of the Indian site), elaborated upon in the interviews, was in size of the crew. The difference in the size of the construction crew consequently meant a different *division of labour* and different *rules* of supervision. Craftsmen from both sites also stressed the presence of technology (e.g. manual vs. electric tools) as a key factor in the size of crew, and hence, in the division of labour:

*Excerpt 5.18*

S: More, more shipwrights are involved...

... Yes, like me. Who is doing their carpentry work. Who is doing the pieces. Who is doing ... who has the eye. (Finnish interview, 6, 89).

*Excerpt 5.19*

O: If it was us, there would have been ten people ... ten people together to clamp up the pieces and apply pressure ... [for us] with ten people, moving around, pulling and pushing together. For them ... here, they have a crane here ... they have [mechanical] arrangements to move the drills around ... they have gadgets and equipment to get the work going... (Indian interview, T: 89–91)

Supervision rules, reflected in the division of labour, appeared to be different in the activity systems. The Finnish shipwright noticed the significance of community in the case of the Indian crew and reflected that in his case, supervision is often about a mere distribution of tasks:

*Excerpt 5.20*

S: And hopefully they do exactly as I tell them. It is a problem that you are able to see that that group is working together more or less from year to year; and I am here, the only one that has been here. All my helpers are changing all the time. (Finnish interview, T: 270)

The Indian crew (see excerpt 5.15 earlier in the text) also elaborated on the complex relationship between the division of labour, technique and ways of supervision. The use of drawings and the skeleton-based technique diminished a significant amount of supervision, which becomes transformed into ‘telling [someone] what to do’. The absence of ‘structure’ — skeleton-based technique and drawings — calls for a closer relationship among the crew members as well as closer supervision and self-supervision: ‘we are all monitoring the work ourselves, but even after that, he needs to, he has to, keep a closer watch all the time, all the time’ (excerpt 5.15). As previously mentioned, the strong level of hierarchy in the Indian crew, resembling a family and ties between relatives, appears to be essential for the given division of labour and rules.

***Making sense of photographs though differences***

The boat builders were presented with pictures of another activity system, and they needed to make sense of what they saw in the photographs. They were making sense of another activity system, drawing primarily on the differences between the activities. When drawing on the differences depicted in the photographs, and

when comparing them to the already existing knowledge of their own object of activity, the craftsmen took the first steps in the process of building intercultural understanding. Interestingly, in each case practitioners from different communities employed various types of knowledge against which to interpret the differences. The Finnish shipwright often used history to refer to differences between the activity systems. Among the historical examples he referenced, that of Viking boats (see excerpt 5.1 earlier in the text) and the *Vasa* ship<sup>84</sup> were significant:

*Excerpt 5.21*

S: It is very old. It is [from] before drawings were done. The drawing came into time [sic] in the 1700s ... even the *Vasa* laiva [ship] was done without drawings. [...] She was built without drawings. That is maybe one reason ... one of the many reasons she felt, because they didn't do any. They weren't able to do any calculation, so exactly like they did in the 1700s, which is the ship we are now building. And this boat they are building is very traditional model, which was built without drawings before 1700. (Finnish interview, T: 110–114)

The Indian crew members were mostly employing current examples from geographically close areas to make sense of the differences:

*Excerpt 5.22*

L: You still see it — in Kerala, Tamil [Nadu] — in those regions. That means I saw them in Orissa, when they come to fish there. I have never been to Kerala or Tamil Nadu...

O: They need lighter boats there because their soil is different ... here, we have dense, sticky mud ... depends on the environmental conditions, you know? The soil, water, all contribute to the design. In sand, the boat has to be different — it is harder to push a boat — the bottom has to be smaller and lighter. It is really difficult [otherwise]... (Indian interview, T: 234–235)

In both cases, craftsmen tried to map and locate another activity against already existing knowledge. It also showed that the construction of a virtually shared object goes beyond the here and now. The boat builders employed both new information and already existing knowledge in process of constructing a virtually shared object — the wooden boats in general. One can see a reflection of the own

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<sup>84</sup> *Vasa* was a Swedish warship built in the beginning of the 17th century. It sank during its maiden voyage. It was salvaged in the second half of the 20<sup>th</sup> century and turned into the main exhibit of the Vaasa Museum.

craft in the employed examples. In the Finnish case, the reference to history reflected the craft of wooden boat building as something from past times, which needs to redefine itself in the present situation. In the Indian case, the reference to modern examples characterised the craft of wooden boat building as a living craft, possessing a significance in society.

In the interviews, the boat builders not only mentioned the differences, but also drew on the factors behind the differences. These factors were also embodied in the virtually shared object, which they were constructing. There was an interplay of local, historical, cultural, economic and geographical factors behind the differences mentioned by the boat builders at both sites. The Finnish shipwright drew strongly on the markets, labour costs, customers and demand for the product:

*Excerpt 5.23*

S: The tradition and, also, that they need this kind of boat. They have customers. Someone is using these boats. None is sort of using this ship that we are building here. These ships are used and people are earning money with this ship. There is a market. There has to be a market for them, for that kind of boat. Plastic hasn't gone by this. This could be built by [sic] plastic: cheaper, faster and less people working. (Finnish interview, T: 365)

*Excerpt 5.24*

S: Yes, I have always a different shape, a different model, but it doesn't matter to me because the customer is right. The customer is all. (Finnish interview, T: 436)

The Indian crew made reference to the use of boats, the conditions of use, the costs of production and the availability of technology (excerpts 5.17, 5.19 and 5.22). In the next subsection, I will explore the interplay of factors behind the differences in the activity systems, as they were presented by the boat builders.

#### **5.4.2 Factors behind the Differences**

Exploring the possibilities for constructing an object-oriented understanding did not involve simply reciting the differences. The practitioners were actively making sense of another activity through differences by constructing a virtually shared object — boats to build. Object construction occurred through elaborating on the factors behind the differences.

The key factors behind the differences mentioned by the Finnish shipwright included the following:

- the purpose of a boat;
- the conditions of the sea;

- customer needs.

In the interviews, it became evident that these factors not only determine the differences, they were themselves in a complex relationship and tightly intertwined:

*Excerpt 5.25*

S: The sea, where it is going to be used and the purpose. Whether it is going to be a fishing boat or cargo boat or... (Finnish interview, T: 205)

*Excerpt 5.26*

S: The shape of the hull is one thing; and the shape of the other things, like this building here ... it doesn't matter how you build this. It is up to the customer, how he wants this. Maybe. He comes with money and tells, build a sauna, and you have to build a sauna there, which would be nice ... it is up to the customer, but the hull is always the same.

R: The hull is this part?

S: Yes, this. It is like the ship work...

R: So maybe the question is, what is the most important part ... is [it] the shape of the hull?

S: Yes, it is like the ship ... also the inside, the interior. You are able to build there for fish or for passengers. It doesn't matter, but the hull is... (Finnish interview, T: 422–432)

*Excerpt 5.27*

S: This boat, this ship is only done like this, because the customer wanted exactly the same ship that was built in 1700s ... but for that purpose, at that time, as a warship it was the best and top technique, and top model.

R: It means that you would build differently, if you build...

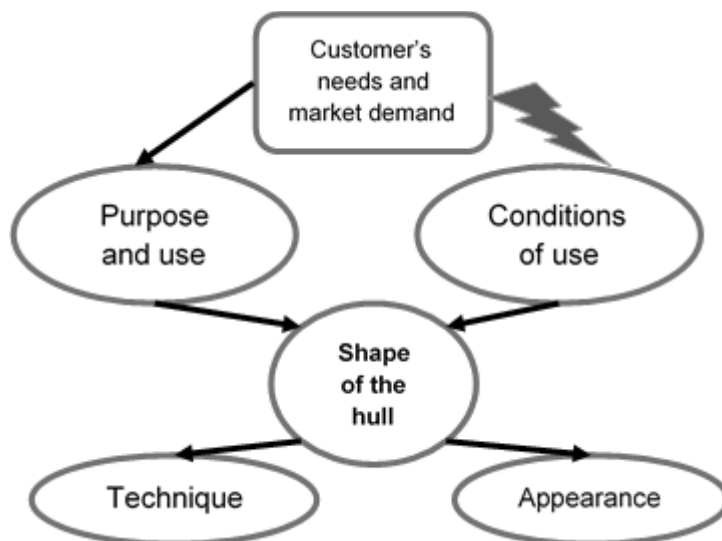
S: I would. If someone asked me to build a different ... a good boat, a good boat, a good gunboat. It would be a little bit different, the model.

R: But what differences can there be? What differences will you make? In the shape or...?

S: In the shape. Mostly. And in some details, but mostly in the shape. Because she is not a very good sailing boat and not a very good rowing boat, and especially with [an] engine very hard to manoeuvre. (Finnish interview, T: 318–328)

The purpose of a vessel — ‘a fishing or cargo boat’ — and the type of sea determine the shape of the hull, which first seems to be independent from the needs of customers. Later, it appeared that the needs of a customer were crucial in determining the boat's purpose: the ‘customer wanted exactly the same ship’, which often contradicted the conditions of use, meaning ‘not a very good model’

(excerpt 5.27). Market demand — building historic replicas — intrudes into the basic relationship between the use of a vessel and the conditions of the sea in determining the hull of a boat. Technique and appearance were then secondary to the shape of the hull. These complex interconnections are depicted in Figure 23.



**Figure 23.** Relationship between the key factors behind the differences embodied in the object of activity at the Finnish site.

In this depiction of the interplay between the key factors at the Finnish site, the shape of the hull embodies the essence of wooden boats for the Finnish shipwright. The *shape of the hull* may be regarded as the central organising factor behind the differences.

The Indian boat builders discussed the following factors behind the differences:

- production costs;
- conditions of use;
- number of workers and division of labour;
- availability of technology (tools, machines, etc.).

*Excerpt 5.28*

L: This and the other one are the same. This one has a ‘tekture’ done; for the other one the whole body is completed ... this is the forma they have done ... for this, they have the forma pre-made ... the design is such that the stern of the boat is made pointy, pointier...

B5: (forcefully): They made the bow narrow...

L: (correcting him): ... the stern is pointed, narrower ... while the front, the bow, is like, wider. The stern is longish and narrow, like a tail...



B4: This is unlike what we do — the pattern is different from ours...

O: ... They need lighter boats there because their soil is different ... here, we have dense, sticky mud ... depends on the environmental conditions, you know? The soil, water, all contribute to the design. (Indian interview, T: 220–235)

*Excerpt 5.29*

O: We are using a clamp to attach first ... now, what is happening inside the factory is ... on that side they have...

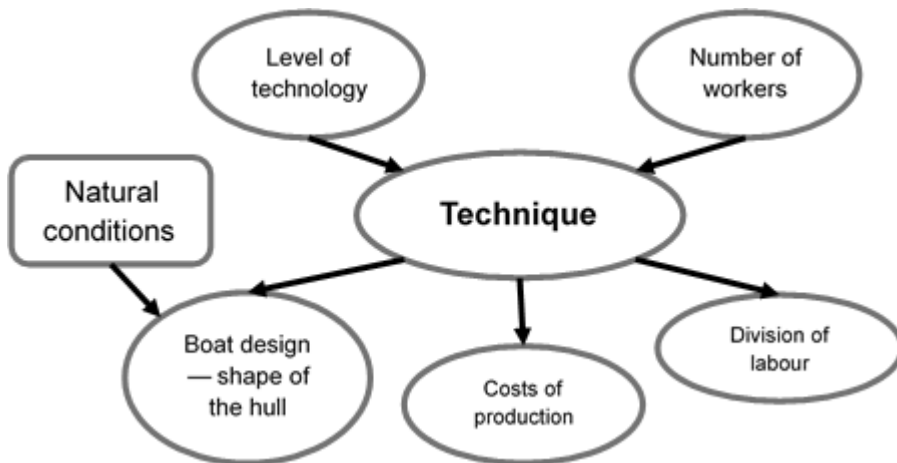
L: Using machines, and clamps that run on current [electricity]. They have many tools that run on current electricity ... with machines they have ... meaning tools that can exert the right kind of pressure, and such, like [those] used for making ... tools assisting...

O: To follow this technique, it costs a lot more. And for us, the cost is lot less. [...] If it was us, there would have been ten people ... ten people together to clamp up the pieces and apply pressure ... [for us] with ten people, moving around, pulling and pushing together. For them ... here they have a crane here ... they have [mechanical] arrangements to move the drills around ... they have gadgets and equipment to get the work going... (Indian interview, T: 78–91)

*Excerpt 5.30*

B2: if you have a ‘tekture’ that ... when someone like an engineer is not around, has left for something or other, the work can continue ... we, anybody for that matter, can work with the planks in the usual way. [...] even if he is gone for a while. But here as we work without a ‘tekture’, R has to keep an eye on us. We all are monitoring the work ourselves, but even after that, he needs to... (Indian interview, T: 243)

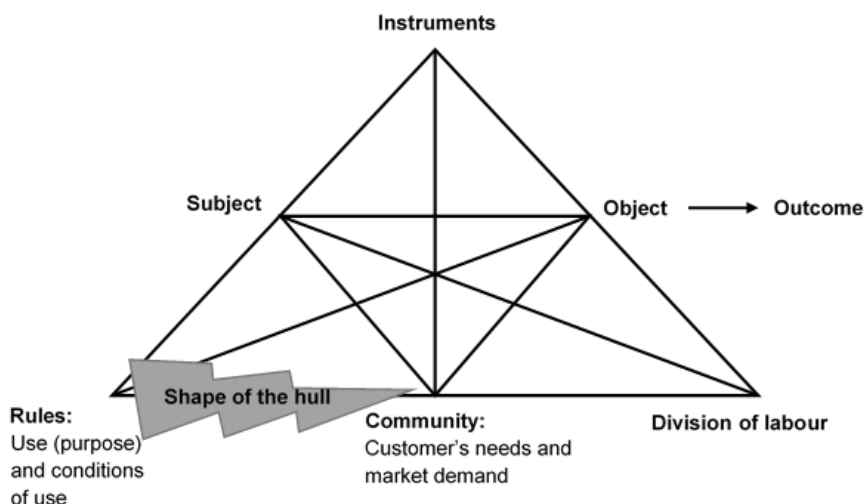
The complex relationship between factors determining the differences noted by the Indian builders are depicted in Figure 24. The availability of technology, such as tools and electricity, and the number of workers largely determine the technique: rib-based or skeleton-based technique. Technique dictates the division of labour, the costs of production and vessel design or shape of the hull. The shape of the hull appears to be primarily influenced by the conditions of use, standing apart from technological and economic factors. For Indian boat builders, the emphasis was not on the product, a boat, but on the process, on what they do, or the technique. The essential component of any boat was the technique of construction. *Technique* was the central organising factor for the Indian crew members in the process of constructing a virtually shared object.



**Figure 24.** Relationship between the key factors behind the differences embodied in the object of activity at the Indian site.

The central organising factors in the process of constructing a virtual shared object were not stable entities themselves. The boat builders discussed how the shape of the hull (in the Finnish case) and technique (in the Indian case) were adaptive; they reflected the contradictions and tensions present in the everyday activities of the boat builders. The central organising factors adaptively followed a certain contradiction in a given activity system.

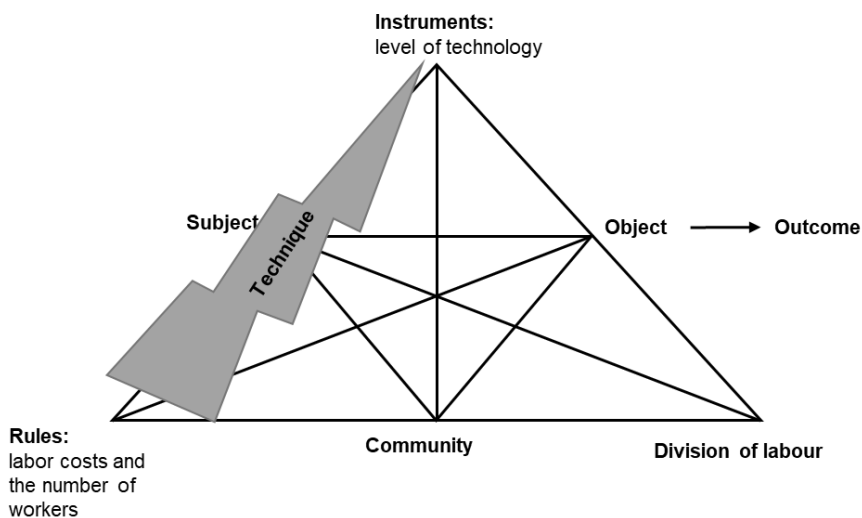
For the boat builders, the shape of the hull appears to be dependent on what a boat is used for (cargo, passenger) and the conditions of use (type of sea). As for the Finnish shipwright, it at first seemed that customer needs and demands of the market have nothing to do with this fundamental relationship: ‘the shape of the hull is one thing; and the shape of the other things ... it is up to the customer, but the hull is always the same’ (excerpt 5.26). Later, he noted that customers not only define the use of a ship, but also directly affect the shape of the hull, especially in case of building historic replicas and traditional vessels, which is a significant part of boat building activities in Finland. In such cases, customer needs often contradict the requirements specified by a boat’s use and conditions of use: ‘this is not a very good model’ (see excerpt 5.6). The *shape of the hull* calls attention to a contradiction between the rules (use and conditions) and community (customer needs). This contradiction is depicted in Figure 25.



**Figure 25.** The contradiction behind the central organising factor behind the difference — the shape of the hull — in the Finnish data.

For the Indian boat builders, the conditions of use (soil) and purpose (passenger or fishing) appeared to be crucial for boat design, which is an embodiment of the technique (excerpts 5.8 and 5.9). Nevertheless, these factors were not in tension with the other factors; they were stable and omnipresent. In this case, more a point of tension existed between the labour costs, the availability of technology (electric tools, machines) and the number of people working: ‘the labour cost goes down ... but the cost of electricity goes up, and these machines ... are expensive ... very expensive...’ (excerpt 5.17). The more machines and electric tools that are available, the less people that are needed. An increase in the cost of electricity and electric tools increases the production costs. Technique adaptively follows this contradiction between the rules (labour costs and number of workers) and the instruments (level of technology). The contradiction is depicted in Figure 26.

Practitioners of the two activity systems listed different central organising factors behind the differences in the activities. These factors to a certain extent reflected the virtually constructed object of wooden boat-building activity — the wooden boats themselves. The reflections — on technique and the shape of the hull — played off one another in circular fashion in both groups of interviews (see excerpts 5.1, 5.2, 5.10, 5.12 and 5.13). The boat builders mentioned multiple times that technique affects the shape of the hull, which in its turn determines technique.



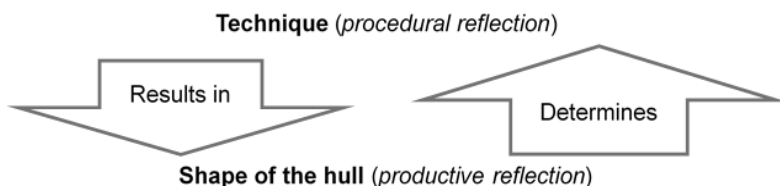
**Figure 26.** The contradiction behind the central organising factor behind the difference — the technique — in the Indian data.

The Finnish shipwright explained this relationship by focusing on a how the need to construct a vessel with a specific hull shape determines whether or not a certain technique is used: ‘First, they build the hull ... The shape of the boat, the shape of the ship is different. If you build a boat like this, the plank goes ... it turns only into one position’ (excerpt 5.10). Building ‘a boat like this’ calls for the use of a certain technique.

The Indian boat builders focused on how a certain technique — the order of actions — results in a specific hull shape: ‘they have built a "tekture" ... with a "tekture" they are forming the shape [of the boat]. [...] We, for example, we keep heating the plank to build the body ... this is, however, is using “tekture” to get the same result...’ (excerpts 5.12 and 5.13). The order of construction determines the result and the required shape of a vessel is different for different techniques: ‘the stern is pointed, narrower ... This is unlike what we do — the pattern is different from ours’ (excerpt 5.4).

These reflections call attention to the various surfaces of object construction and interaction. Drawing on Toiviainen’s (2003) and Jalonen et al.’s (2016) idea about levels, mentioned already in the conceptualisation part of the thesis, it is possible to analyse these reflections as certain surfaces for potential understanding. The shape of the hull, as discussed in the interviews, reflected the product — the outcome of the activity. The focus of the Finnish activity system is on the boats as products — a productive reflection. Technique reflected the procedure of object construction. The focus of the Indian activity system is on the process of constructing boats — procedural reflection. As mentioned earlier, the shape of the

hull and technique were interconnected in both of the interviews: technique results in the shape of the hull, while the shape of the hull determines technique (see Figure 27).



**Figure 27.** Relationship between the central organising factors of technique and shape of the hull in the interviews.

Members of the two professional communities reflected on different aspects of the virtually constructed object during the process of its construction. At first glance, this makes the overall construction of a virtually shared object impossible; likewise, it makes the potential for building intercultural understanding in this interaction almost impossible. However, the construction of a virtually shared object and building understanding were in fact possible because the central organising factors were different. The difference between them, as presented by the craftsmen, was not about being completely separated and diverse; rather, it was about complementarity and commonality. As discussed in conceptualisation section, one of the basic ideas of the universal, as developed by Ilyenkov (1975), is the idea of complementarity. For instance, a wife and a husband, a reader and a book — they are different, but complementary. In a similar way, technique and the shape of the hull are different, but complementary ways of reflecting on the constructed object — wooden boats in general. They constitute a part of the shared commonality — the general object and historically developed activity of wooden boat building.

### 5.4.3 Reflecting on the Possibility of Interaction

Intercultural understanding, in addition to being cognitive and affective, encompasses the behavioural domain in the form of actions. In this study of mediated interactions between two groups of craftsmen, this domain was represented as a discussion about the possibility of real interaction between the two groups. Both sets of interviews included reflections on the possibility of real interaction between the two communities outside the photo-elicitation interviews. This reflection can be interpreted as a sign of the potential for building intercultural understanding in this episode of interaction between two communities of practitioners.

The Finnish shipwright mentioned the possibility of working at the other site:

*Excerpt 5.31*

S: The differences are not that big. I could go there and work. (Finnish interview, T: 71)

The Indian crew also reflected on the possibility of the Finnish shipwright coming and working at their site:

Indian craftsmen also considered this possibility:

*Excerpt 5.32*

B4: Can this head mistri<sup>85</sup> come to our country? Could have come and visited here...

O: what does he gain otherwise?

B4: Seeing this ... he will be able to make his own... (Indian interview, T: 373–376)

This unity in the global community of craftsmen was stressed by the boat builders in a variety of ways in the interviews. The Finnish shipwright reflected on the possible connection with the Indian crew by expressing concern about the decline of the craft in general and the hope for continuing wooden boat building worldwide:

*Excerpt 5.33*

S: Well, we don't want to ruin that. We don't want to send them any tools.

R: They do not have very much money to buy sophisticated tools.

S: Well, we don't want to ruin that. We don't want to send them any tools ... because then there is only one person working after that. That is what happens everywhere. The robots are building cars. Which is sad. (Finnish interview, T: 18–23)

Together with this hope and sense of unity, there was a glimpse of certain feelings of supremacy of modern over traditional culture on the part of the Finnish shipwright. A similar tendency is also visible in the fact that in both of the interviews, only the possibility of the Finnish shipwright going and working at the Indian site was considered. When asked whether Indian crew could come and work in Finland, the shipwright's answer was as follows:

*Excerpt 5.34*

S: Why would they? They live there. (Finnish interview, T: 75)

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<sup>85</sup> Chief.

Traces of supremacy and paternalism appeared in the Indian interviews as well. Sensing a certain level of tension not noted previously, the interviewer wrote in her field notes: ‘I sensed his [L’s] worries and maybe even distrust. To them, I am an outsider — a Bengali who lives abroad. What role do I have in bringing in the technology of Europeans?’ The head of the crew indicated a fear of their technologies being stolen by outsiders, which is a painful topic with respect to Indian history:<sup>86</sup>

*Excerpt 5.35*

L: They want to know if their tools are similar to our tools, right? ... Then if the work is similar — of the same type ... right? ... If the work is similar, they would be able to [do] the same work — understand? This is what they want to know — this is at the bottom of it ... if the tools are similar, if the work is similar ... then they can do this. This is what their head mistri<sup>87</sup> wants to know... (Indian interview, T: 258)

Luckily, this was only a momentarily concern, as at the end of the interview the Indian boat builders decided to organise their instruments so that the researcher could take a picture of their tools and show it to the Finnish shipwright:

*Excerpt 5.36*

App: Arrange them nicely, one at a time.

B5: Haturi-taturi<sup>88</sup> — all that is there ... get them in an arrangement.

App: Not all, but one of each kind ... a sample for them.

B4: Whatever we have to show what we...

L: The water bottle is also in the picture [laughs].

B5: That's nothing to laugh about — they know that there is a water bottle... (Indian interview, T: 401–404, 431–432)

They also asked the researcher to take a picture of all of them and show it to the shipwright. This exploration of the possibility of building object-oriented intercultural understanding between the two communities of boat builders was indirect and mediated by the photographs introduced by researchers. Although the two activity systems had no prerequisites for communication, which was facilitated by the researchers, the practitioners managed to overcome cultural boundaries and

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<sup>86</sup> Indian maritime history, shipbuilding history and general history are discussed in Chapter 4 of the monograph.

<sup>87</sup> Master.

<sup>88</sup> A hammer.

take preliminary steps in creating understanding by means of constructing a virtually shared object.

## 5.5 Discussion of the Empirical Analysis

In this chapter, I elaborated on the intercultural potential of an object in craft and addressed the first specific research question of this study: *What is the potential of the object in craft as a unifying factor across cultures?*

The potential of an object as a unifying factor across cultures was traced via the attempt to explore the prospects for building object-oriented intercultural understanding between two distant groups of wooden boat builders.

Effective intercultural communication requires a certain level of intercultural understanding, which is often analysed as the creation of shared meanings across culturally different communities (Geertz, 1973; Sorrels, 2015). When viewed from the standpoint of activity theory, intercultural communication may occur at different levels of action and activity (Leontiev, 1978; Engeström, 2015b). Sustainable interaction in a given intercultural encounter implies the emergence of a joint object-oriented activity system. When creating a joint object-oriented activity system in an intercultural encounter, the process of building intercultural understanding takes the form of constructing a shared object (Kerosuo, 2001; Mietinen & Virkkunen, 2005). Drawing on the CHAT approach, I suggest the notion of object-oriented intercultural understanding as a means of conceptualising intercultural communication between communities of practitioners. The process of building of object-oriented intercultural understanding was analysed through action of constructing a partially shared object.

The intercultural encounter analysed in this chapter was indirect and mediated by photographs introduced by researchers. In this episode, the construction of a shared object — wooden boats as a general, historically developed object of wooden boat-building activity — was virtual. The boat builders were presented with photographs depicting another activity system. They had to make sense of what they saw in the pictures. In this process of sense-making, the practitioners drew heavily on the differences between the two activities. This was in line with Ilyenkov's (1974, 1975) conceptualisation of the notion of the universal, which emphasises the importance of differences between two entities when constructing a shared understanding.

The differences between the two boat-building activities specifically formed the prerequisites for constructing a virtually shared object. This object was constructed through resolving and working out these differences. The craftsmen were constructing a shared object by drawing on existing knowledge and know-how, placed against the new information about another activity system.



The boat builders had numerous boundaries between them. They were engaged only in indirect communication through photographs, an activity driven and directed by the researcher. They lacked a common language and had differences in culture and education. Regardless of the boundaries, comments on possible future interaction reflected the potential for establishing intercultural understanding between the two communities of artisans.

The differences were not an obstacle, but the basis for the process of constructing a virtually shared object. In order to make sense of what they saw in the pictures, the craftsmen drew on the differences between the two activity systems, analysing them against already existing knowledge and experience. The practitioners actively engaged in the process of constructing a shared object — wooden boats as a general object of wooden boat building. They did not simply mention the differences, but also elaborated on the factors behind these differences.

Members of each community focused on one central organising factor that they felt explained the variability in the virtually shared object. In the Finnish case, it was the shape of the hull, while in the Indian case it was technique. The central organising factors were not stable in and of themselves, as they adaptively followed a contradiction in a given activity system.

The contradiction behind the central organising factor of the *shape of the hull* in the Finnish activity system followed a contradiction between rules (the use of a boat and conditions of use) and community (customer needs). The *technique* in the Indian activity system adaptively followed a contradiction between rules (labour costs and the number of workers) and instruments (level of technology).

Practitioners reflected on different facets of the constructed object — wooden boats. This may be seen as an obstacle when exploring the possibilities of building intercultural understanding. On the contrary, this difference created the potential for unity. These two central organising factors were themselves interacting in the process of constructing a virtually shared object: a certain technique results in a certain shape of the hull, and a certain shape of the hull requires a certain technique. These factors were not just different, they were complementary. This complementarity follows the idea behind Ilyenkov's (1975) conceptualisation of the universal, where a common understanding is constituted via complementary differences. The two organising factors — technique and the shape of the hull constituted part of the common understanding — a general object representative of the historically developed activity of wooden boat building.

The unity across two distant communities of practitioners was achieved exactly through the differences between their objects and activities. Unity in this interaction was not about being unified or uniformed. Unity was about connection and togetherness. Engeström et al. (2003), in contrast to prevailing theories of post-modernity, have noted a trend of expansion with respect to an object of work, not only compression. In this study, the object demonstrated a potential for expanding

across space and cultures, even in the case of indirect researcher-driven communication. The potential of an object as a unifying factor across cultures was that the object of activity was able to expand across space and overcome cultural boundaries and was likewise a prerequisite for constructing a shared object. The potential of the object allowed for the construction of unity as commonality and complementarity, not unity as uniformity. The differences between the activities, manifested in the object, were complementary to each other; they were crucial for taking the first steps on the way to establishing intercultural understanding.

The differences between the objects of local boatbuilding activities were the driving factor for practitioners to move the boundaries of their communities and expand their expertise. It was a step towards learning at the boundaries of communities and expanding their expertise. The significance of differences in the process of learning resonates with Marton's variation theory (Marton, 2014). Variation theory of learning focuses on the relationship between learning and the conditions of learning. Learning is understood as a meaning-making process, which occurs when there is a difference against a background of sameness (Marton & Pang, 2013). According to variation theory, variation in tasks, material examples and representations are crucial for learning. Without these variations, learning is impossible (Marton & Trigwell, 2000).

The core idea of variation theory — the importance of differences against a certain sameness — is in line with the findings of the current chapter on importance of differences in the process of constructing a virtually shared object. At the same time, the current study also stresses the importance of the complementarity of new knowledge. From this point of view, it is important to focus also on how to establish unity between already existing knowledge and new knowledge. The crucial element for establishing this unity may be the object of the learning activity.

Photographs, which depicted boatbuilding activities, were a means of communication between the two groups of boat builders. In this case of researcher-driven communication, they became a fairly effective boundary object, one that sufficiently depicted one activity while being flexible enough to adapt to the needs of another community to evoke a response (Start, 2010; Wenger, 2000).

As instantiations of the object of local activities (Knorr Cetina, 1997), boundary objects allowed for such activities to be translated across cultural and spatial boundaries. The potential effectiveness of photographs as a boundary object in this mini-intervention once again underscored the importance of an object's presence for fostering learning at the boundaries between communities in interventions. In some cases, it may be beneficial to introduce an object of a similar activity into the discussion to evoke a response and to overcome possible difficulties experienced by some groups of participants or with sensitive topics; such objects can potentially break through existing frameworks (Harper, 2001, 2002).

In this mini-intervention, photographs appeared to be an effective way to introduce objects into a discussion. Photo-elicitation also develops a shared understanding between participants and researchers (Racadio et al., 2014). An understanding of intercultural encounters often focuses on the language or non-verbal aspects of speech (Bredella, 2003; Valtaranta, 2013). In some cases, discourse is not enough. Many working activities are materially grounded. Visual representations of objects can bring socio-materiality into intercultural encounters. Materiality plays a significant role in the construction of joint activities at intercultural boundaries (Teräs, 2007). In the Culture Laboratory, as presented by Teräs (2007), paper functioned as a mediating artefact. Paper in the form of photocopies, texts and textbooks was physical in form, it was textual and promoted collaboration. The different types of paper triggered various kinds of activities and interactions among immigrants participating in the Laboratory: participants read, wrote and shared about the types of paper.

Much of the training and courses offered in the field of intercultural competences are based on developing certain aspects of intercultural competences. Often the development of intercultural competences has the aim of developing competences on a 'general' level (Weber, 2003). This limits connections with the real working activities of participants in the courses. The effectiveness of intercultural encounters may be enhanced by focusing on constructing an object-oriented intercultural understanding. The presence of an object representing the real working activities of practitioners is crucial for effective intercultural communication. This also allows for understanding culture situationally, on the level of communities, not just nations.

In this study, even with the absence of face-to-face communication induced by the researchers, the presence of real objects and real activities showed the potential for building intercultural understanding. For Weber (2003), the development of the intercultural competence requires 'mindful identity negotiation' via expansive learning. The empirical results of the chapter show that all these elements require grounding in a concrete object of activity. Objects of activity in communities of practitioners are material carriers of identity through their differences and means of expansion.

An object has the potential to expand and unify practitioners of similar occupations across cultures. Unity as complementarity was achieved through differences. In the introductory chapter of this monograph, practical physical function was discussed as a common unifying factor behind a craft object (Risatti, 2007). Practical physical function can hardly explain cases of communication via the Internet among craftsmen and communities of craftsmen, as presented at the beginning of this chapter. It is specifically the local cultural differences, manifested in the object of craft activities, which bestow upon the object a unifying potential and allow craft objects to cross cultural boundaries.

In both cases, craftsmen mapped knowledge about another activity system not only against their own activity, but also against knowledge about already existing historical and geographical examples. The construction of a virtually shared object went beyond the here and now; in addition to the spatial dimension, this object also expanded across time along the temporal dimension. In the next chapter, I will scrutinise the temporal dimension of the object of activity in the craft of wooden boat building and ponder the second research question: *What is the potential of the object in craft as a unifying factor across history?*



## 6 THE INTERTEMPORAL DIMENSION OF THE OBJECT IN CRAFT

### 6.1 Introduction

The focus of the previous chapter was on the intercultural dimension of the object in craft. In the second empirical chapter, I will explore the second specific research question: *What is the potential of the object in craft as a unifying factor across history?*

Traditional crafts are often seen as bearers of national cultural and historical heritage (Kawatoko, 2017; Kouhia, 2012). From the heritage point of view, craft skills should be preserved without any modifications to their authentic form. The authenticity of traditional crafts is often made reference to in cultural tourism and museum activities (Hyytönen, 2004; Terrio, 1999). Authenticity as an exact correspondence of craft practices to historical examples becomes crucial in the marketing and advertising of heritage and cultural tourism. Authenticity becomes a marketing concept (Kolar & Zabkar, 2010).

In practice, even the most traditional forms of crafts are in a constant process of innovation and change. Even seemingly implacable work, like that of the masons of Djenne in Mali, who restored and constructed traditional mud-brick structures in the Djenne's historic sector, a UNESCO World Heritage site, appears to be a largely changing and innovative craft in Marchand's (2009) analysis:

becoming a master mason in Djenne requires more than merely technical competence. The masons I knew demonstrated a keen ability to innovatively configure building plans and details; communicate their ideas and knowledge with words and actions; negotiate their positions and status; and perform secret knowledge that not only provided guarantees of safety, but persuaded the public of their professional expertise and grounded patronage in trust. These ways of acting and knowing were seamlessly woven into coherent performances of 'being a mason'. Djenne's masons have also adapted their practices to ever changing circumstances by strategically integrating new tools, technologies, and attitudes to existing ones. (p. 277)

Traditional crafts are hardly stagnant, as they are an essential part of modern production (Wilkinson-Weber & Ory deNicola, 2016). In order to sustain their position in the modern world, contemporary traditional crafts are in the process of constant change, while craft itself is a constant process of innovation (Gore, 2004; Marchand, 2009; Soini-Salomaa & Seitamaa-Hakkarainen, 2013).

In the case of wooden boat building, techniques of the past have primarily survived only in museums. This craft has undergone significant changes since the introduction of new technologies, for instance the use of epoxy for caulking (Chapelle, 1994; Jalas, 2006). The Finnish shipwright promptly described this constant process of innovation during the visit of the Indian researcher to the Finnish site:

S: But the model, the model ... and they are trying to make it better. But the way they are building it, more, maybe, traditional.

R: But it's not locked in time. There is continuously innovations goes in [sic]. You know, the government requires that it should have a motor, it should have a GPS, it should have a wireless, which were not there 20 years ago.

S: No, that's also here. It's going forward. Like the small details. Every carpenter is trying to make them better, of course. So, so, the ship would be better to use and would last longer.

Traditional crafts appear to be in a constant process of transformation. The historical development of craft activities can move in different directions: some crafts are sustained, some are reviewed and modernised, and some become marginalised and extinct. A certain craft as a trade may combine these different trends simultaneously in concrete cases of craft activities: in some places wooden boat building may become almost extinct, while in another it can experience a revival and in a third place it can be a stable part of the local economy. A concrete craft activity may experience different trends as part of its historical development. Why does this happen? When using the approach of CHAT, the why behind the activities is explained by the notion of an object of activity (Leontiev, 1978; Engeström, 2014). Objects drive, determine and shape activities, providing actors with a horizon of possible actions (Engeström, 1995).

Deeply rooted in history, objects drive history-making efforts (Vetoshkina et al., 2017). Tracking the historical trajectory of an object gives researchers the potential to understand the historical development of craft activities and why certain crafts are sustained and others marginalised. What is the specific potential of an object in the historical development of concrete craft activities? In other words, this refers to the second research question of this study regarding the potential of the object in craft as a unifying factor across history.

In order to understand the potential of the object as a unifying factor across history, I will develop two claims in the current chapter. First, historical development is not seen as a unified process, but history is instead analysed as a number of intertwined historical lines. Second, the object of activity from the standpoint

of history is analysed as an intermediary object in the course of historical development: objects drive, determine and shape activities, and changing and transforming the object of activity makes the lines of history go forward.

The data for the current chapter consisted of semi-structured interviews from the Finnish and Russian sites. The interviews were an extension of present-focused ethnography into the past and future. Restorative and historical boat building, primarily compounding the boat-building activities at the sites, is a specifically rich domain for analysing the historical dimension of an object in craft.

First, I will formulate the conceptual framework for analysing the role of an object in historical development. Based on the works of Scribner (1985) and Hutchins (1995), historical development is conceptualised as a movement across lines of history connecting the past, present and future. Understanding the object of activity as an intermediary object in the course of the historical development of an activity draws not only on the concept of intermediary object (Vinck, 1999, 2011, 2012), but also on the further development of this concept in CHAT (Miettinen & Paavola, 2018; Paavola & Miettinen, 2018). Second, I will describe the methods, procedures of data collection and data analysis: semi-structured interviews and thematic analysis. Third, I will report the results of the empirical analysis, reflecting on the four lines of history found in the data as well as on the overlaps between these lines. Lastly, in the discussion section I will review the empirical findings of the chapter.

## 6.2 Conceptual Framework

### 6.2.1 Lines of History

A principle of concrete historicism, historicity is also one of the key principles of CHAT. Vygotsky (1998a) claimed historical analysis to be the key method when adopting a dialectical approach: studying something historically meant for him studying phenomena in movement, in motion:

Precisely this is the basic requirement of the dialectical method. To encompass in research the process of development of some thing in all its phases and changes — from the moment of its appearance to its death — means to reveal its nature, to know its essence, for only in movement does the body exhibit that it is. Thus, historical study of behavior is not supplementary or auxiliary to theoretical study, but is a basis of the latter. (Vygotsky, 1998a, p. 43)

From the standpoint of a dialectical approach, the principle of concrete historicism in practice means considering the concrete history of a concrete phenomenon



in each particular case. Understanding the historical development of a phenomenon is a key to understanding its nature (Davydov, 1999; Ilyenkov, 1982). The principle of historicity in CHAT also means that each activity system has taken shape and undergone transformation over a significant period of time.

Traditionally, psychological time is regarded as a homogenous phenomena (Zimbardo & Boyd, 2015), with past, present and future orientations; orientations are often used as an explanation for why people engage in certain activities. Taking activity as a unit of analysis may change this picture. The timeline for an activity is different from the one for an action. Action time is relatively linear and has a finite starting point and end point. Activity time is recurrent and cyclical, and it contains multiple levels and threads. The focus on activity calls for another way to conceive of time, history and the process of historical development: as heterogeneous lines penetrating the past, present, and future, not as an orientation to the past, present or future. Interestingly, physics also uses the idea of a line in the analysis of time, but there is no distinction between the past and the future. According to Hoacking (2011), time is conceptualised in the form of arrows (with an increase of entropy within time), which distinguish the past from the future, giving direction to time. There are multiple arrows of time: a thermodynamic arrow of time (the direction of time in which disorder or entropy increases), a psychological arrow of time (the direction in which humans feel that time passes) and a cosmological arrow of time (the direction of time in which the universe is expanding).

History in activity-theoretical analysis needs to be studied as the local history of an activity and its objects and as the history of the ideas and tools that have shaped the activity (Engeström, 1999).

Scribner (1985) analysed Vygotsky's uses of history on multiple levels (Figure 28):

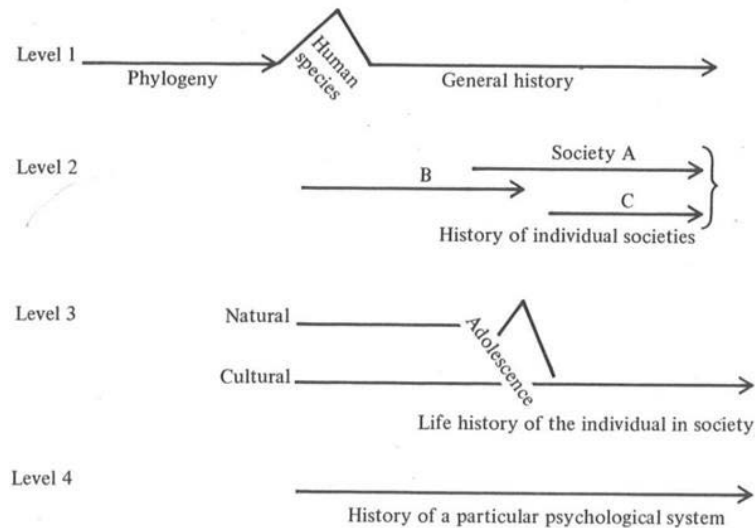
1. *General history*: historical development of humankind;
2. *History of individual societies*: history of specific societies;
3. *Ontogeny*: life history of an individual in society, a subject's individual history;
4. *History of a particular psychological system*: the history of higher psychological functions.

These levels of history in Vygotsky's understanding are not just abstract analytical concepts, they are concrete events occurring across time:

Vygotsky seems to be saying that it is not merely history in the abstract but some actual stuff of history that is critically important to theory on research on child development. (Scribner, 1985, p. 126)

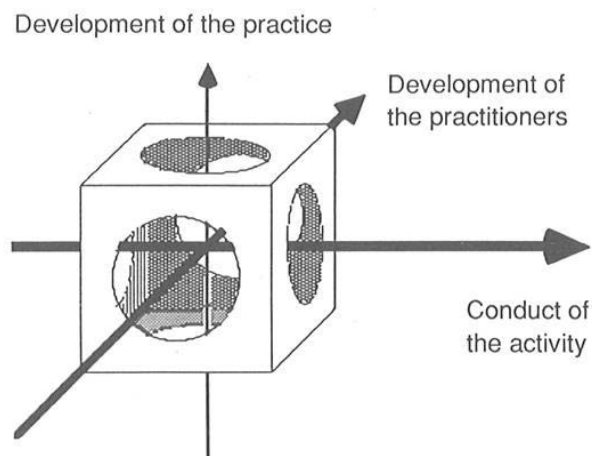
The aim of Vygotsky's historical analysis of multiple levels of history was to build a theory of consciousness and to understand the formation of human nature, specifically human forms of behaviour, through studying the development of higher

mental functions. Vygotsky's levels of history in Scribner's analysis appear as interwoven and find embodiment specifically in the history of development of higher mental functions, which characterise 'uniquely human aspects of behavior' (Vygotsky, 1978, p. 19).



**Figure 28.** Scribner's modification of Vygotsky's levels of history (1985, p. 141).

In the studies of practice, Hutchins (1995) also utilises the idea of multiple trajectories of history, intertwined in human practice (Figure 29). For Hutchins, any given moment in practice consists of several developmental sequences: historical development of practice, development of practitioners and progression in the conduct of a situated practice.



**Figure 29.** A moment of human practice (Hutchins, 1995, p. 372).

The developmental sequences in Hutchins's understanding are different in duration. For instance, in the practice of historical wooden boat building, the development of practice took thousands of years, mastering the skills takes tens of years, while the action of putting a ship plank in place takes several hours. The sequences of development of practice and the development of practitioners are carried out through the conduct of the activity, the very actions constituting the practice:

The very same processes that constitute the conduct of the activity and that produce changes in the individual practitioners of navigation also produce changes in the social, material, and conceptual aspects of the setting. [...] The microgenesis of the cultural elements that make up the navigation setting is visible in the details of the ongoing practice. (Hutchins, 1995, p. 374)

This understanding was crucial for Hutchins's claim that human cognition is always situated in a complex sociocultural world. Scribner (1985) analysed Vygotsky's use of history in terms of levels. Levels reflect the multi-layeredness of history, although they disregard its directionality. Hutchins (1995) used the idea of trajectory, which presupposes the directionality of an object when certain forces are applied to the object. In the current study, I suggest the idea of lines of history as a general way to look at the lengthy process of historical development. The lines can be both straight and curved, and they can have different levels of intensity. They presuppose directionality, but unlike an arrow's movement, they can move in various directions. Both for Vygotsky and Hutchins, multiple lines of historical development found their embodiment in the phenomena under their investigation: the development of higher mental functions for Vygotsky and the conduct of situated practice for Hutchins. The focus of the current study is on understanding the potential of objects in craft activities. What is the place of the objects of activity along the path of historical development of an activity, and how do objects correspond to the different lines of history present in an activity?

### **6.2.2 Movement across History and Contradictions**

Understanding history as a combination of lines of history emphasises the process of movement in history. The crucial point is then how movement along the lines of history occurs. It is superficial to assume that movement along the lines of history occurs smoothly and predictably. The movement of history is a laborious process, one filled with tensions and obstacles. The CHAT framework's approach to history draws on Marx's materialistic understanding of the development of human societies over time.

The core idea of Marx's materialist conception of history (Marx, 1976, 2010; Marx & Engels, 1967) is that the causes of development in human society lie in the means of production of necessities and productive forces. The productive relations in which all humans engage arise from given productive forces. Productive relations — the economic base of society — determine social relationships, the organisation of society, certain political institutions, and so forth. Development occurs through class struggle.

Internal tensions are aggravated via the progress of productive forces and production relations. When a given style of productive relations is no longer able to support the progress of productive forces, a revolutionary transformation takes place. Structural contradictions in a given system of production are resolved, and a new system of productive relations appears. In the Marxist tradition, society is believed to have moved through several types of modes of production: from primitive communism (tribal society) to ancient society, to feudalism, and finally, to capitalism. For instance, at some point of development feudal property relations became incompatible with developed productive force. Free competition stepped in, giving rise to capitalism (Cohen, 2000; Marx, 2010).

The development of an activity system is conceptualised in a similar way. Along with time, systemic contradictions are aggravated in activity. Individuals start questioning the rules activity and start deviating from them. These individual exceptions to the rules are adopted by other participants engaged in an activity, thereby becoming new rules. When the contradictions are resolved, an activity is transformed (Ilyenkov, 1982; Sannino, 2011).

Contradictions are the key to understanding the development of activity systems and history in general. Contradictions are generally understood as a proposition or statement that asserts both the truth and falsity of something. A contradiction implies the simultaneous existence of incompatible or opposite things (Engeström & Sannino, 2011).

Classical logic follows Aristotle's (1998) law of non-contradictions, which rejects contradictions as a logical incompatibility between two things. The dialectical tradition has a different understanding of contradictions. Since dialectics deals with systems and developmental phenomena over time, contradictions are essential (Wilde, 1989). They are understood as the unity of opposing forces existing within one realm and object, as historically accumulating structural tensions within and between activity systems and a driving force for transformations (Engeström, 2015b; Ilyenkov, 1974, 1982).

The notion of contradiction in the Marxist tradition is a subject of debate between different scholars. Engeström & Sannino (2011) describe three foundational and essential ideas behind the concept:

1. It is a foundational philosophical concept, which should be separated from other concepts, such as paradox, tension or conflict.

2. Contradictions are historical phenomena, so they must be traced as concrete historical developments.
3. Systemic and significant contradictions cannot be dealt with by merely combining and balancing competing priorities. The focus should be shifted from external contradictions to internal ones.

Contradictions in an activity system may exist on different levels (Engeström, 2015b). As depicted in Figure 30, primary contradictions (1), or the double nature of a phenomenon, exist within the elements of an activity system, while secondary contradictions (2) occur between the elements. Tertiary contradictions (3) emerge between the object/motive of the central activity and the object/motive of the culturally more advanced or dominant form of activity. Quaternary contradictions (4) exist between the central and neighbouring activities.

In the dialectical approach, any phenomenon or object is a living contradiction. Specifically, objects of activity are inherently contradictory, containing opposing forces in themselves (Miettinen, 2005). According to Marx (1867), in capitalism all things, objects, activities and relations are commodified. All commodities possess use value and exchange value. The contradiction between use value and exchange value constitutes the primary contradiction of capitalism.

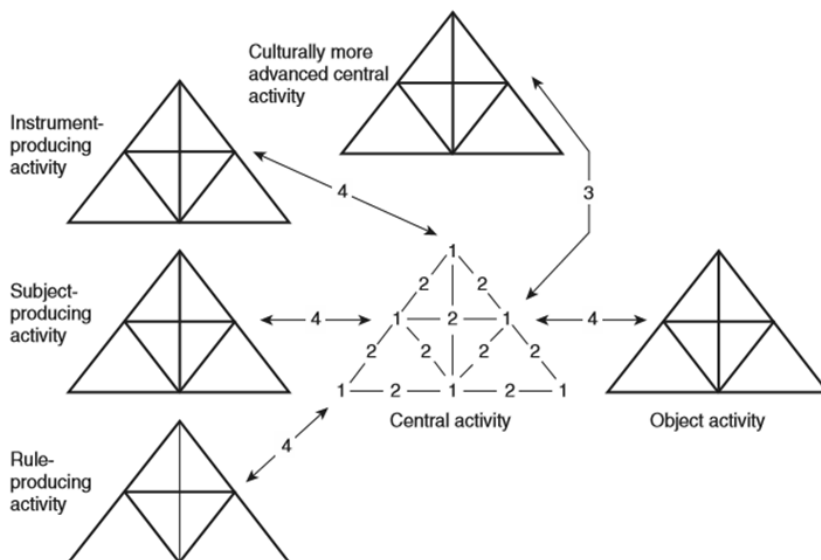


Figure 30. Four levels of contradictions within an activity system (Engeström, 2015b, p. 71).

Development occurs via constant creation and resolution of the contradictions. Contradictions are resolved by creating a qualitatively new, more complex thirdness (Engeström & Sannino, 2011; Ilyenkov, 1957, 1974).

Development in activity occurs through the emergence and resolution of contradictions on different levels. Activity resides in a state of constant balance and development. Development shapes actions, constituting activity, and these actions in turn shape development.

An activity system may adopt an element from the outside — a new instrument. This may lead to an aggravated secondary contradiction with an older element (for instance, the division of labour). Such contradictions generate tensions, conflicts and disturbances in everyday practices, which may lead to attempts to change and transform the entire activity (Engeström, 2005). Some of the participants in the activity system may start acting differently when facing these everyday tensions. These individual revolutionary actions may be taken up by other members of a community and escalate into a collaborative change effort. An expansive transformation occurs when the object of activity is re-conceptualised and a new object provides a broader horizon of possible actions than the old one. In activity-theoretical analysis, the specific contradictions of a given activity should be analysed and interpreted against the historical evolution and developmental potential of this activity. This historical approach (Engeström, 1995, 2015b) makes it possible to turn contradictions into a powerful resource for analysing the developmental potential of an activity and identify change potential in a given activity.

### 6.2.3 Object of Activity and Historical Development

History is often seen in relation to the role of subjects, not objects, in historical development. Interestingly, history itself may be regarded as a process without a subject. Trying to avoid the classical sociological opposition of agency versus structure (Giddens, 1984), Callinicos (2004) has studied how human agents draw their powers from the social structures in which they are involved. He develops the idea of agency being involved in history making: the pursuit of private goals in routine conduct, the pursuit of public initiatives and the collective pursuit of social transformations. Indeed, people may deliberately make history, and make history even without noticing it. In all of the cases, history making occurs through the process of engaging in practical activity, which reflects the dialectic nature of historical process:

Men make their own history, but they do not make it as they please; they do not make it under self-selected circumstances, but under circumstances existing already, given and transmitted from the past. (Marx, 1852/2008, p. 15)

Marx (1845/1984) called this correspondence a revolutionary practice. Looking at this transformational potential of human activity, Vygotsky (2004) discussed activity as a creative endeavour:

Aside from reproductive activity, we can readily observe another type of activity in human behavior, what can be called combinatorial or creative activity ... reproduction of previously experienced impressions or actions

but in the creation of new images or actions is an example of this second type of creative or combinatorial behavior. If human activity were limited to reproduction of the old, then the human being would be a creature oriented only to the past and would only be able to adapt to the future to the extent that it reproduced the past. It is precisely human creative activity that makes the human being a creature oriented toward the future, creating the future and thus altering his own present. (p. 9)

The process of interaction between individuals and historical processes is carried out through the processes of internalisation and externalisation.

Both the cultural-historical approach and activity theory understand internalisation as the appropriation and internal reconstruction of external forms of activity, whereas externalisation is the transfer of internal processes to the external creation of signs, means and tools, thus changing objective reality (Vygotsky, 1988; Leontiev, 1978). Though for Vygotsky (1988) internalisation and externalisation were two inseparable and simultaneous sides of the process of mediation, his focused primarily on the internalisation of external forms of activity and communication, specifically language. The focus on externalisation and the transformation of objective reality became the focus of interest in the works of the philosophers Ilyenkov (1977, 2013) and Lektorsky (1984), and later in Engeström's (2015) theory of expansive learning.

The process of externalisation emphasises the process of objectifying inner processes, when thoughts become objectified as cultural artefacts. Writing down thoughts on a piece of paper, making a sketch of a wooden boat and sawing a wooden detail for a boat are all examples of externalisation. Externalisation involves the transformation of objective reality, the transformation of the object of activity (Davydov, 1996). The objectification of human activity in the form of artefacts is a central mechanism of cultural development. According to Ilyenkov (1977):

all forms of activity (active faculties) are passed on only in the form of objects created by man for man. (p. 277)

It is only by specifically transforming the object of activity through their daily actions, thereby creating new cultural artefacts, that people change objective reality and make history. Actions must be situated in the development of activity to reflect creativity (Clot & Béguin, 2004).

There is another facet to objects of activity: they have their own histories. Objects drive and direct activities; they provide 'horizon of possible actions'

(Engeström, 1995, p. 397).<sup>89</sup> Activity flows in accordance with the object of activity (Davydov, 2008) Objects transform and accumulate the history of their transformations. Due to their strong roots in human culture and history, an object of activity can be conceptualised as an entity having the power to mobilise activities and drive human actions (Vetoshkina et al., 2017).

From the historical point of view, objects of activity have a dual nature. On the one hand, objects, having their own history, are driving and directing activities, providing a horizon of possible actions. On the other hand, by working on the objects, humans are transforming objective reality and creating cultural artefacts. The created objects and artefacts play a foundational role in history-making endeavours: they carry the socio-historical experience of humanity or of a community.

In the development of historical lines, in drawing upon history and making history, objects of activity may be seen as intermediary objects. The notion of intermediary object was first developed based on the ideas of Actor-Network Theory (Vinck, 1999, 2011, 2012) and applied to physical and digital artefacts, such as drawings, sketches, guidelines, models and documents. Intermediary objects are artefacts that move from one actor to another; they represent both the object under study and the specific perspective of those who designed and prepared it (Vinck, 1999). Intermediary objects are modifiable, concrete and dynamic, which makes them different from static boundary objects. Moving in and across networks, intermediary objects undergo a process of equipping, meaning that actors add something to an object (equipment) to modify its properties (Vinck, 2011).

Paavola & Miettinen (2018) have chosen to employ the notion of intermediary object to refer to cycles of collective construction of an ideal object and to augment the Building Information Modelling (BIM)<sup>90</sup> model when used for the purposes of design and the construction industry. They have analysed such combined BIM models as tools of collaboration, as objects of joint transformation and intermediary outcomes in the cycles of design.

I will utilise the notion of intermediary object more as a metaphor for the potential of an object of activity in historical development. Drawing on the understanding proposed by Miettinen & Paavola (2018) and Paavola & Miettinen (2018) that an intermediary object is an entity directed somewhere, I will now describe the conceptual framework for the current chapter (Figure 6.3). At any given moment of history, an object of craft activity may be seen as an intermediary object in the process of the historical development of an activity. The object of activity — concrete wooden boats — provides the means for progressing across

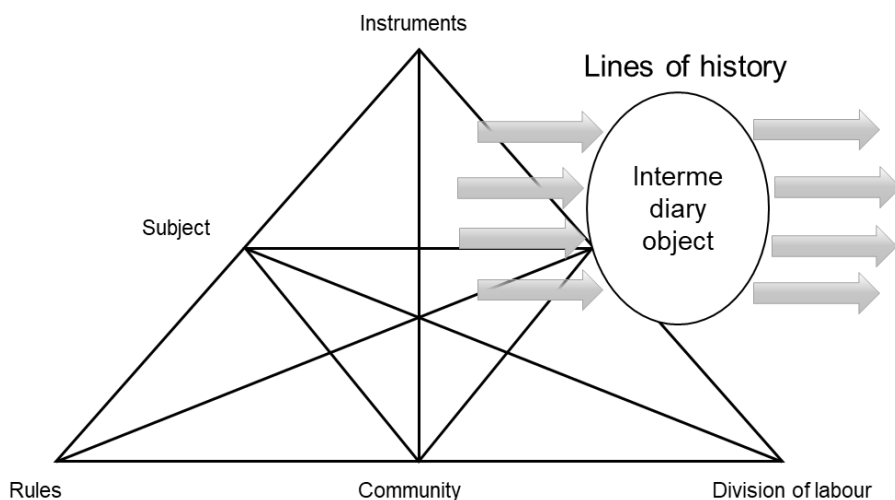
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<sup>89</sup> These ideas are more thoroughly discussed in the theoretical chapter of the monograph.

<sup>90</sup> Building Information Modelling is the generation and management of digital representations of physical objects and spaces.



the lines of history. On the one hand, wooden boats carry history in and of themselves, namely they motivate and drive people to perform certain actions. On the other hand, by transforming and modifying an object of activity through their actions — building a wooden ship — subjects are changing objective reality, making history and making the lines of history move forward. The lines of history are depicted as straight, but in practice they may be curvy and discontinuous since movement occurs through resolving contradictions.



**Figure 31.** The potential of the object of activity in the process of historical development

In the next sections of the chapter, I will analyse what specific lines of history are present in the activities of wooden boat building in the Finnish and Russian cases.

## 6.3 Data and Methods

### 6.3.1 Data and data collection

The analysis in the current chapter focuses on the interview data from the Finnish and Russian research sites. Interviews were an essential component of the fieldwork as an extension of the present-oriented focus of ethnography into the past and future (Gubrium & Holstein, 2005; Ravitch & Carl, 2015; Warren, 2002)<sup>91</sup>.

The boatbuilding activity at these research sites is primarily concerned with construction of ship replicas, thus history was particularly salient in the data. The

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<sup>91</sup> The method of interviewing is discussed in more detail in Chapter 3.

original aim of the interviews was to reveal how complex wooden vessels are constructed with the presence or lack of blueprints. To meet the original goals, the interviews were designed as informal, two-way, meaning-making conversations with no predetermined questions, only a list of topics to be covered.

The interviews at the Finnish site were conducted during several short-term visits, while interviews at the Russian site took place during two prolonged field visits. General information on the interview data is presented in Table 7. A more detailed description of the interview data can be found in Appendix 3.

**Table 7.** Overview of the interview data

Site	Period	Number of interviews	Participants
Finnish site	December 2011-May 2013	9	Shipwright, managers, and apprentices.
Russian Site	June 2012 and June 2013	13	Head carpenter, carpenters, apprentice, and members of the NSF community.

In both cases, the interviews took place during working hours. The majority of the interviews included interruptions due to the ongoing working process and the need to move around the shipyard area. The interviews were videotaped or audiotaped, and later transcribed. The interviews at the Finnish site were conducted in English, while those at the Russian site were conducted in Russian. The excerpts from the Russian interviews utilised in this chapter were translated by the author.

### 6.3.2 Data Analysis

As already mentioned, the original aim during interviews was to figure out how complex wooden vessels are constructed in cases when blueprints are unavailable, incomplete or imprecise, or when the workers are lacking specific skills or experience. The interviews indeed revealed the features of the craft skill of wooden boat building, but a preliminary reading of the data also showed the significance of history in these craft activities.

The interviews were analysed adaptively following thematic analysis procedure (Braun & Clarke, 2006, 2013; Clarke, Brown & Hayfield, 2015; Vaismoradi, Turunen & Bondas, 2013). The analysis was carried out in several iterative steps. First, after a preliminary reading of the data, all segments referring to history were identified. Overall, 161 relevant excerpts of various lengths were found in the data: 95 segments in the Finnish dataset and 66 segments in the Russian dataset. Second, the excerpts were re-read in order to identify possible themes in the references to history. Third, after roughly identifying potential themes, excerpts with a specific topic were identified, and four distinct lines of history became visible

in the data. The lines of history and the number of references to them in each of the datasets can be found in Table 8. The number of excerpts (161 overall) is smaller than the number of references to particular themes (278 overall), as some of the excerpts (as a logically complete reference to a certain topic) referred to several themes.

**Table 8.** The number of references to themes across the data

Themes: Lines of history	Russian data	Finnish data	Total
1. Personal history	36	42	78
2. Community history	32	43	75
3 General history	14	18	32
4. Object history	51	42	93
<b>Total</b>	133	145	278

The lines of history in the analysis were laden with tension. When working through these tensions, the boat builders mostly engaged in a certain instantiation of the complex object of wooden boat-building activity (Knorr Cetina, 1997; Toiviainen & Vetoshkina, 2016, 2018), which was conceptualised as an intermediary object for movement along a specific line of history. Fourth, I have identified tensions and intermediary objects for the specific lines of history. Many of the identified excerpts contained references to multiple lines of history. Fifth, I have analysed how the lines are intertwined in the course of the historical development of an activity. The discussion of the analysis in the next section will first follow the lines separately at each site. After that, the overlaps will be discussed in a separate sub-section.

## 6.4 Analytical Categories: Lines of History

### 6.4.1 Lines of History

The following lines of history were apparent in the data:

1) *Line of personal history.* This line contained the personal history of the craftsmen: the professional autobiographies of the boat builders.

2) *Line of community history.* This line contained the history of the wooden boat community: the historical development of the community around wooden vessels, their construction and use.

3) *Line of general history.* The third line contained the general history of nations: the political history of nations and their relations in connection with maritime history and the role of the navy and fleets in the history of nations.

4) *Line of object history*. The history of wooden boats and ships: the history of concrete wooden vessels as objects of wooden boat-building activity.

The subsequent sub-sections contain a detailed analysis of each of the lines of history separately at the Finnish and Russian sites as well as an analysis of the overlaps between the lines of history.

### ***Line of personal history***

This theme reflected the professional history of the boat builders, details about their career paths and the reasons behind the choice of occupation. The craftsmen talked about their experiences of becoming and being a boat builder. The line of personal history primarily contained excerpts with a first-person perspective.

#### **Finnish Shipyard**

With respect to Finnish boat-building activity, this thread is characterised by pride in possessing a particular skill acquired through many years of hard work (excerpts 6.1, 6.2 and 6.6). Personal history also reflected a sense of satisfaction with being an independent creative agent at own work, where a person has an opportunity to demonstrate his/her professional competences and skills in a tangible product — wooden boats (excerpts 6.1 and 6.3).

#### *Excerpt 6.1*

R: Ok. But then, if you consider yourself a designer?

S: Well, I suppose, I have to be. [...] But I consider [myself] more like a ... I would be an artist ... that's ... actually does not matter for me what I am building from wood. Because I am building boats and ships from wood, almost for all my working age. That's the best I know.

(I: 2, T: 139–144<sup>92</sup>)

#### *Excerpt 6.2*

S: Yeah. It takes a lifetime to learn to build a boat like this. You cannot ... if, if a person, my age, 50 years old, starts first time to build a ship he maybe gets it done, but it would take a lifetime. So, but it is the same in any handwork, I think, quite close to any work. If you play a saxophone you have to start quite early if you want to earn money by playing saxophone.

(I: 4, 147)

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<sup>92</sup> 'I' is for 'interview' — the transcript number; 'T' is for 'turn' — speaking turn in the interview.

*Excerpt 6.3*

S [laughs]: There are few pictures ... I build a boat and then I sell it. It's sort of, nicer way. I don't have a customer. If I have a customer, it's all right. But it's better if I don't. I build a boat ... as I want ...

R: You find customer no matter what? There are buyers?

S: Well ... I have now five boats for sale [laughs].

(I: 5, T: 397, 401–402)

The line of personal history is also filled with obstacles, conflicts and tensions. Independence and creativity are often constrained by market demands and the needs of customers (excerpt 6.3). The boat builders reflected on the difficulties of making a living through such a trade, which requires complete devotion (excerpt 6.4). Though the trade requires dedication, there is a certain amount of romanticism in how it is perceived (excerpt 6.4). A realistic attitude towards the craft, the demanding requirements of the profession and economic constraints cause most professionals to ultimately leave the occupation (excerpts 6.5, 6.6).

*Excerpt 6.4*

App1: It's not something you ... start at night or in the morning and ... Finish at five o'clock and you go home and think nothing [smiles] ... it's a lifestyle and you just have to ... have to want to do it and ... For example, I have a child coming ... it's a very big quizzing [sic] way ... why I maybe [am] not doing this next winter.

R: Ok, yes...

App1: But somehow these boats in places, for example this dockyard, it somehow, pulls you back. [smiles]... say something to the record: 'I'm not going to work here in couple of years', but if you come here 2015, I will be here [smiles]...

R: Yes, There is ... I think there is something that ... that kind of...

App1: Yes. Connects people together ... binds them all.

R: So fascinating about this...

App1: But still, it's uh ... it's a job for me and S. This is nothing personal. I like the ships and I like boats but...

R: But you don't sail or...

App1: I do sail but it's ... it's nothing like that. I would like to, uh ... give [sic] my own life...

(I: 6, T: 105–139)

*Excerpt 6.5*

App1: You give so much to these ships and then they give you nothing back [smiles]. ( ... ) Well, they give you little back but it's still minus

[smile] (...) So you have, most of these workers have another jobs and they...

(I: 6, T:151-155)

*Excerpt 6.6*

S: Maybe that's it, I don't know ... and it's ... it's always that I have, sort of, uh ... partly lost the effort in teaching because I have taught so many students and none [stress] is continuing...

R: None?

S: None! [...] Because you have to get involved. It's lifetime ... involvement ... it's more like marriage ... you will have to start when you are twenty ... to build boats and you have to continue all your life to become a master...

R: Yes ... but what about these youngsters that are now working, do you think some of them would...

S: I have taught so many times, so that ... so that I've ... I don't [inaudible] faith ... [smiles] ... some are already discussing about the money, that they are not getting enough, or ... that they don't get along with the money or wife is, uh ... telling that couldn't you find some other work, or ... better paid, or...

R: Less involvement...

S: That's right. So...

(I: 8, T: 77–88, 142–150)

### **Russian Shipyard**

In the Russian interviews, this theme consisted of pride in learning a new and unfamiliar skill as well as the ability to create something with one's own hands (excerpts 6.8 and 6.9). The carpenters discussed boatbuilding with fondness and apprehension; certain events, like the launch of a boat, have specific driving power (excerpt 6.7). For the craftsmen, boat building is more than just an occupation: it is as a way for personal development and a way to challenge yourself; it is also a way to attain practical skills for everyday life and an opportunity to solve challenging technical tasks (excerpts 6.8 and 6.9).

*Excerpt 6.7*

App: Before I finish everything here, it won't be pulled out [of the dock]. I really want to take part when it will be pulled out. I will come here to see how he will be pulled out.

R: And why exactly to see how it will be pulled out?

App: Well, it [pause]. Have you ever seen the boat launched out to the water? I've never seen it before.

(I: 3, T: 35–37)

*Excerpt 6.8*

C4: Yes, I did, well, my first, my, perhaps, kind of a victory [smiles]. Perhaps it, it is a two-step ladder, I made ... I was, kinda, asked to make it. And, for me ... the guys know that I'm not strong, well, in doing something, but they said, well, without any ... that I can't do. I thought first and then made it. For me, generally, hmm, dad — physicist, his father, my grandfather — built three houses, made furniture, well, that is, it is somewhere in the genes, perhaps, all of this is there. I mean, he did everything manually, well, but for me, sort of ... I even didn't have a hammer at home ... So now, well, I bought...

R: Tools?

C4: Some tools [smiles]. Yes, something more. Yeah. That is, besides, well, something like that, you overcome yourself. I mean, except for the product you are making, you can do more, well, something, hmm [smiles], perhaps, more, perhaps, than the product. Well, like here, there is a saying, well: a carpenter carves wood — a wise man creates himself. Well, you go into sort of a stage of wisdom [smiles].

[...] That's it. Well, this is my first product, a two-step ladder. I mean, I did that, I took it out to take a picture, because I started ... I was so proud, although C1 said, while I was making it: 'Well, it's, like, [used] for a week, then we will demolish it'. And I still use it. That is, it is not yet demolished.

R: Yes?

C4: It. Yes. I can show it to you ... all the folklore on this topic, well, existing ... about such a discovery, yeah [smiles] of a new planet...

(I: 13, T: 124–130, 144–146)

The line of personal history in the Russian activity system also contained underlying tensions and conflicts. The lack of experience in connecting with the demanding nature of the craft means that the workers were dealing with new and unfamiliar issues on a daily basis. Many tasks appeared to be challenging for the partly amateur crew (excerpt 6.9). Though carpenters regard boatbuilding as something attractive and motivating, they also notice another side of the occupation: the need for near complete dedication to the craft, which requires time and a change in lifestyle (excerpt 6.10).

*Excerpt 6.9*

H: Well, none of us have a lot of experience. I had some sort of general concept. I have already worked in Archangelsk ... got some general ideas. Well, [name of a carpenter], he worked in a shipyard in Petrozavodsk. So he knows something about it. The most difficult thing here, in boat building, is kind of, to see it as new and unfamiliar, to understand how ... any

particular unit, well, how it must be done. Because the materials here are: wood. It is a simple material. And if you know how the units should be done, it is not a big deal to make them. As we have a design project ... as the design project isn't so detailed, some of the units are not designed. This is where we turn to the books, look and do something like that.  
(I: 2, T: 28)

*Excerpt 6.10*

R: Are you planning to sail yourself?

H: I think so ... I plan to sail in the beginning, first year. Definitely during the tests. Then a big trip to an island [inaudible] is planned, there, to Novaya Zemlya. The area of Novaya Zemlya. I also would like to go here. But fully, kind of full time, I don't want to be on the ship. If the ship works for a long period, if it lives for a long period, the same crew sails, I would like to come here from time to time and go for a trip — a week or two. Something like that. I don't want to fully bind myself to the boat. Because I also have a family; it is really complicated to combine this kind of life and family. When you are a sailor. The guys are divorced [laughs]; for them it is [easier] ... it is best for a sailor [pause]. Perhaps, the ones who are building are going to sail. Maybe, one will be a captain of the ship. Some of them, for sure.

R: Binding [oneself] with the ship is for life...

H: I don't know, but I think one has to spend time. You have to always be away. It is interesting. But you are choosing a direction in life, what is [interesting] for you. What you are going to do? If I finished my studies now, I would bind myself with ships without a doubt. Now it is not so important. Though I used to want it, gradually the desire dissolved, well.  
(I: 2, T: 82–86)

In both cases, the line of personal history represents the process of professional development of the craftsmen, who are filled with pride in performing a manual skill, one which requires total dedication, time and effort to master. The feelings of joy and gratification to be able to work in such a trade appears to be in conflict with the constraints and challenges of the trade, such as the need for complete devotion and difficulty in mastering the skill (for both sites), the high demands of the trade in relation to a lack of experience (Russian site), market demands and the needs of the customer (Finnish site). This tension is resolved by engaging with a concrete boat or element of a boat, which is seen as the result of a craftsman's skilled performance.



### ***Line of community history***

The second category included the history of a community dependant on wooden vessels. The community congregates primarily on a professional basis (Finnish site) or else consists primarily of non-professionals (Russian site). A wooden boat-building community may also include certain enthusiastic boat users (not all customers), historical and maritime professionals, scholars and general enthusiasts.

#### **Finnish Shipyard**

The community of boat builders in Suomenlinna appears as a small and enclosed community of professionals, one which has some medieval guild-like features (excerpts 6.11 and 6.12). The emphasis in the community is on an individual master-craftsman, who represents the true skill of an endangered craft (excerpt 6.11). The economic constraints on the boat-building community are becoming stronger, which also is manifested in the fact that the community cannot find young apprentices interested in joining and staying with the occupation (excerpt 6.12).

#### *Excerpt 6.11*

R: Ok. Isn't there a type of community of professionals that you, kind of, keep in touch or...?

S: Oh yes, in boatbuilding ... in boatbuilding, yes, but in shipbuilding not. Because in shipbuilding, I am only one who is been employed now, in that ... at this moment ... and then, in Finland, there are only three shipwrights. So. But boat builders there are quite a few. Although they are not ... most of them are repairing and not building new boats ... so, less than ten are building new boats.

(I: 7, T: 242–255)

#### *Excerpt 6.12*

SW: I like to build. I don't so much like to teach. Maybe that's it, I don't know ... it's always that I have, sort of, uh ... partly lost the effort in teaching because I have taught so many students and none is continuing...

R: None?

S: None! ... Because you have to get involved. It's lifetime ... involvement... it's more like marriage ... the lifestyle is too expensive for hand worker[s] in Finland. And youngsters, if I could call them 'youngsters' ... want some lifestyle...

R: Yes ... But what about these youngsters that are now working, do you think some of them would...?

S: I have taught so many times, so that, I don't [inaudible] faith ... some are already discussing about the money, that they are not getting enough...

R: Whose fault do you think that is, like, do you think it is because, like, there is pressure of...?

S: It's everyone's fault ... who is involved. It should be more appreciated ... from government side ... teaching is not a big problem, the biggest problem is when you ... when you get out of school ... capabilities to ... to start working as a shipwright or even boat builder.

R2: Hum...

R1: But the guys that come from schools, these ones, did they have any skills or ... up to you ... were they skilled or they were...?

(I: 8 T: 93–118, 165–223)

The community of boat builders at some points also extended to include other actors apart from boat builders: a historical society and certain groups of customers (excerpt 6.13). The historical society is seen as a resource in the challenging task of preserving the remaining historic wooden vessels. Customers have a contradictory role: as partners with whom it is possible to collaborate and as a threat to the preservation of the remaining heritage

*Excerpt 6.13*

S: When I started repairing these, after [the] war built galleass, there were no shipwrights in Finland. Nobody knew how to replace a plank into a ship. So when I went to boatbuilding school, first and then, then I [was] sort of drafted into these ship-owners' groups, and then they asked me to find out and learn how to replace planks, because they were all rotting ... but when I started, there weren't any. Now we have about ... then we built it in Åland, in Ahvenanmaa, an island between the Finland and ... a boat, a ship, about this size. And then I went there to teach them, which is ... the craft which I had just learned myself. I went to teach them how to build a ship. So, then when it started — 1980s. [...] I wrote a book about ... mmm ... how to restore.

R: But it's in Finnish, isn't it? I think I've seen it on the Internet.

S: Well, it's not very thick. It's only about, mostly about this galleass. Replacing planks and ribs and the original idea was that I wrote a book for ship-owners that they don't ... when they replace wood they don't destroy the very few ships that in Finland has [sic] left. Because that's what was happening. They were building saunas and all kind of things, and...

(I: 5, T: 117, 121–123)

### **Russian Shipyard**

The boat-building community at the Solovetsky shipyard describes itself as community of strongly interconnected enthusiasts, who are interested in wooden ships, maritime history and local history. The carpenters are mostly non-professionals,

who a face the need of combining the craft occupation with other jobs in order to make enough money (excerpts 6.15, 6.16).

They hardly consider themselves as part of a nationwide wooden boat-building community, primarily due to their own ‘nonprofessional’ position, but also due to the features of the wooden boat-building community in Russia in general. This community appears to be almost non-existent, scattered around the country in the form of temporary efforts, described as ‘romantic uprush’ (excerpt 6.14).

*Excerpt 6.14.*

R: Any kind of school?

H: No. Basically, we don’t have wooden shipbuilding in the country. Excluding two shipyards in Petrozavodsk. Even with them, one differs from the other. They have different managers. One ... he builds this way: faster-faster, builds everything clumsy, just for selling faster, and then goes sailing. Another, he has, like, a more commercially successful shipyard. [...] Maybe, there is another shipyard there. But I vaguely heard about it. There also they build wooden yachts, but kind of varnished, like, nice and fashionable. That’s all. In our country, in wooden shipbuilding there are only rare attempts to build some ships in certain cities. Here we have one. In Piter,<sup>93</sup> there they built *Standart* some time ago. [...] But there was not enough of something for the second one. Either interest, or, maybe, strength. They started the second ship. But it can’t be called a shipyard ... I have no idea about other cities. I know that in Crimea they also built one big ship, that’s all. But these are not shipyards, it’s sort of ... a romantic uprush. They started, made an effort and built. In Russia, there are only two in Petrozavodsk, which have been working at for many years, permanently. That is why there are no schools, no schools at all. And they do not make any colleges at the shipyards, because the staff is not big; they just employ simple workers there.

(I: 2, T: 23–26)

There is, though, a strong connection with the Solovetsky historical community, which is technically a customer for the ship under construction (excerpt 6.15). The two communities appear to have merged, together forming an enclave existing both ‘outside the market economy’ and in loose connection to the local community (excerpt 6.16).

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<sup>93</sup> Piter (Rus. Питер) is a shortened slang name for Saint-Petersburg.

*Excerpt 6.15.*

R: So, you do not have any ‘money’ issues?

H: Sometimes, yes. But not on the edge ... when we need to reject another expensive thing ... our project is, sort of, non-commercial. We will build it and use it ourselves. That is why a lot of peculiarities appear: we don’t have any deadlines. Any specific deadlines. Like, a customer gives money and we promise to build ... we don’t have this. We postponed it for one year, then for another year. It happens because of the customer. Well, NSF is like a customer, they are not against extending the deadlines. For instance, we are not on time, but we need to make it of high quality. It is very complicated to foresee, as we have never built a ship like this. That is why it is enough ... it very rare, I don’t [know] any kind of ... I mean, talking about work activity, there are hardly places like this, perhaps, as we are outside of the market economy.

(I: 2, T: 15–16)

*Excerpt 6.16*

H: So, NSF, there were just young guys on the island; they were interested in history, they went on some ethnographical expeditions. They had some boats ... small, with oars, sails. Then, one thing led to another and they met one businessman from Moscow who had money. And he invested in their idea of historical research. Some ethnographical research. They built a bigger ship, also sailed the White Sea. Among other ideas, as well, there was an idea to create a Maritime Museum, the one here, and to build a ship. That is all, the simple desire of normal people to build a ship. [...] And people come here [to work] only for the summer. That is why they come for vacation, when it is possible, for summer. Then in the fall, everyone left. And so it was for several years: they came only for summer, were building for three months, then left. But then the period was extended. Then all of us, we had already formed a permanent team, we started to extend the period, so it was more comfortable for people to work. [...] In fact, it was very complicated for us: lots of people were coming; the work is very interesting. People came and built, but soon they had to leave. Again, locals, locals ... only one local guy was working here. We had this custom, I do not know why. It was easier to bring people than to find people here. So, people left in fall; they had to find some job at home. To survive...

(I: 1, T: 1,5)

This line of history reflects wooden boat-building communities as closed and insular communities with limited contacts with the outside world, though each in its own way. The boat-building community at the Finnish site resembles a guild-

like hierarchical group. The community at the Russian site seems to be a self-sufficient entity through strong connection between the craftsmen and their customers — the historical community. The presence of the communities on the Internet speaks for itself. Both shipyards maintain web pages about the ships under construction. The Ehrensvärd Society and the Viapori Shipyard Association both have web pages that provide information about the gun sloop. In the Finnish interviews, social media and the Internet were not even mentioned by the craftsmen themselves. The Solovetsky shipyard also maintains a detailed web page, where they report the stages of construction. The carpenters mentioned their active use of the Internet as a means to look up information on boat-building techniques, order supplies and recruit people. However, the online (as with ‘offline’) interactions are primarily limited and addressed to people interested in the history of the Russian North and Solovki. Overall, the line of community history is filled with tension between ‘self’ and ‘the other’. At the Finnish site, this tension is manifested as pressure between the dominance of a single master (‘I’) and the emphasis on collective achievement (‘we’). At the Russian site, it is manifested as a tension between the collective subject (‘we’) and the other boat-building communities and the market in general (‘others’). The tension is worked out through engaging with the object of activity as a product for a certain customer.

### ***Line of general history***

The third line of history follows the general history of nations, with the focus on maritime history as a significant segment. The key principle of identifying this line of history was discourse on how the vessels were connected to different historical events and persons, and the role of ships and boats in different historical periods. In both cases, the ships under construction were historical replicas of ships that had played a significant role in the political and military history of the respective nations. The interviewees primarily elaborated on the history connected to the ship replicas and their significance.

### **Finnish Shipyard**

This line of history at the Finnish site is primarily filled with discussions on the historical events behind choosing to build a replica of the gun sloop (excerpts 6.17 and 6.18). Members of the gunboat project discussed the significance of this boat model in history. The gun sloop was an engineering success of the time, built by a leading naval architect for the Swedish king. It was designed for swift and agile manoeuvring in the shallow waters of the Finnish archipelago, by rowing and by sailing. It had a low profile, making it very hard for the enemy ships to hit and sink it. The gun sloops were also built in Suomenlinna, and they had a significant impact on Sweden’s naval prestige in the 18<sup>th</sup> and early 19<sup>th</sup> centuries (excerpt 6.17).

*Excerpt 6.17*

M1: As a tactic, it was very good; it was shallow, going rather fast and, like ... the naval battle of Ruotsinsalmi.<sup>94</sup> They say it was ... they won because of these [points to the boat under construction].

(I: 2, T: 48)

The historical significance of the boat had to be transformed to conform to the rules of modern activity, which created certain tensions: the model is not that successful for current times and uses; likewise, resources are limited, unlike in the past (excerpt 6.18).

*Excerpt 6.18*

S: This boat, this ship, is only done like this because the customer wanted exactly the same ship that was built in 1700s. [...] This is not very good model. This is not good model at all. But for that purpose, at that time, as a war ship it was the best and top technique, and top model.

R: It means that you would build differently, if you build...

S: I would. If someone asked me to build a different ... a good boat, a good boat, a good gun boat. It would be a little bit different, the model. [...] She [the boat] was going to be very good for that time, end of the 1700s, because she was drawn, and the top naval architect drew her, drew the model. And there was no end to the money, how much it cost, because it was the king's ... for the king's navy. At that time, I think that at that time, it didn't matter how much it costs, when the king was telling someone what to do.

(I: 4, T: 318–326, 492)

**Russian Shipyard**

The line of general history at the Russian site also contains discussions on the historical events behind the choice of the ship being replicated (excerpt 6.19). The members of the community strongly emphasised the significance of the *St. Peter* in helping establish the naval power of the Russian Empire. The replicated ship was the first ship of the newly built naval fleet, and it was the yacht used by Emperor Peter the Great, who sailed it to Solovki.

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<sup>94</sup> The Battle of Svensksund (fin. Ruotsinsalmi) was a naval battle fought during the Russo-Swedish War (1788–1790). It was fought in the Gulf of Finland near the modern city of Kotka. It is considered Sweden's most important naval victory and was the largest naval battle ever fought in the Baltic Sea region. T. Mattila (1983), *Meri maamme turvana: Suomen meripuolustuksen vaiheita Ruotsin vallan aikana* (Jyväskylä: K. J. Gummerus Osa-KEYHTIÖ)

*Excerpt 6.19*

M2: Ten years ago we started building the ship. Who came up with this idea — not me. [...] Well, if there is a shipyard, there should be a ship. That's it, probably, it matured naturally ... Why this ship, the *St. Peter*? A replica of a historical vessel, a yacht that was built in 1693 for Peter I, the Sovereign's yacht, by shipbuilders of Arkhangelsk led by Dutch masters. Why exactly this yacht? Maybe because Peter I sailed it to Solovki on a pilgrimage in 1694. Maybe because it's a yacht not in the modern sense, not in the modern meaning of the word, but is a military boat. It is the first ship of the naval fleet created by Peter. That is, in several senses, meanings came together. And maybe more was known about this ship than about any other ancient ship.

(I: 12, T: 1–5)

The need to follow the historical original created certain difficulties in the actual process of implementing the project and constructing the ship (excerpt 6.20). At the Solovetsky shipyard, the process of colour choice for the ship was specifically drawn out and laborious, as a certain historical outlook had to be created when information on the exact colour of the original ship was lacking; the difficult situation was compounded by the availability only of modern paints and techniques and the multiplicity of points of view from different actors.

*Excerpt 6.20*

C2: Right now, we are choosing colour for the ship; we bought the paint. We don't like it one bit. [...] The ship also shouldn't become so lurid [in colour]. Since it is a northern sea, well, the light. It's like letting out a parrot, from the southern seas, the Caribbean Islands, a very colourful one. [...] And here is the White Sea, with its own colour spectrum. That's got to the point, that before, artists, painters, who made frescos, icons, yes, came, well ... [inaudible] ... in Novgorod. They sent their apprentices. They were searching for stones on the bank of the river. Something else, some old bricks, broken ones. They pounded it, and then paints were made out of it. And exactly this spectrum ... went on the walls in the cathedrals, churches, and that's all. And it turns out, well, very harmonically. Our ship also should be done with the same harmony ... especially that the ships were painted also with quite calm colours: chromium oxide [green], vinous, pale dark-blue, blue. Well, I had such options. Well, now that the paints are bought, which were available. With the help of coloration, something more suitable may be arranged out of them.

R: Basically, is it similar to, well, to the one that you are replicating? What was the colour of the old one? Or it was not...?

C2: I think it could have been ... It was, of course, painted. And, regarding what was written in the documents: that the goldsmith was paid five rubles. That was big money for the job. Well. The carving was gilded. Well, most likely, the colour was, in the White Sea it was regularly sort of green ... 90% per cent. That was it. Well, how it will be painted, I still [have no idea].

(I: 3, 186–189)

The line of general history reflects the important aspects of historical and traditional wooden boat building: the motivation behind activity and a need to justify modern activity through history. The replicated ships are not just mere ships or ship models: they are material representatives of past epochs, which have a connection to the concrete geographical places where they are being replicated now: gun sloops were built in Suomenlinna, Peter the Great made a pilgrimage to Solovki on board the original *St. Peter*. Ships as objects are literally bringing events of the past into the ‘here and now’. Finding motivation and justification in the past also bring challenges for the present: there is a tension at both sites between the need to replicate the historical outlook of a ship (Russia, Finland) and a traditional model (Finland) versus the modern use of vessels and modern boat-building techniques. This tension is worked out through engaging with the object as cultural and historical heritage.

### ***Line of object history***

The line of object history reflects a historical perspective on boats and ships as objects of wooden boat-building activity. This line contains much discourse on the material and technical aspects of boat construction with regard to the temporal dimension: from the start of construction, through current issues, to the prospective use of the ship. This type of history reveals the relationship between craftsmen and their objects of activity as a process, one where the object materialises from the craftsmen’s hands across a span of time and in connection with their everyday actions.

#### **Finnish Shipyard**

This line of object history in the Finnish data reflects boats being the result of individual, deliberate choices, as an object is moulded by the intentions, ideas and actions of a craftsman: ‘I am able to see this space’, ‘I am building it as I want’ (excerpts 6.22 and 6.23). These bold statements are immediately restricted by the rules governing activity: ‘it has to look similar to the 1700’s boat’ (excerpt 6.23). The shipwright in the end is not building ‘as he wants’: he needs to take into account the customer’s wishes as well as the prospective use of the boat. Adding motors and taking guns away ‘is good for the passengers; you have more space’ (excerpt 6.24). The craftsman’s agency enters a dilemmatic balance between the modern use of the ship and remaining true to history (excerpt 6.24).



*Excerpt 6.22*

S: I am able to see this space, like, like a boat, ready in mind.

R: So, you have a picture in your mind?

MH: Yes. Sort of like sculpture. [...] It doesn't matter. I am able to build, like sculpture, clay or stone, or anything. A sculpture. It is, sort of, in my head.

R: You have a clear image [of] how it will look.

S: Yes, yes.

R: From the very beginning?

S: Yes, yes. And I always ... I am able to see it so clearly, that I know, where the waterline will be. So?

R: But you don't have to build a little model for yourself?

S: No.

(I: 2, T: 112–124)

*Excerpt 6.23*

S: The shipwright. The shipwright decides. Like here, the customer hasn't been here seeing this at all. So, I am building it as I want. But the first thing was that it has to look similar to the 1700's boat. So, I change what I want. So, I try to do it better to my knowledge.

(I: 4, T: 450)

*Excerpt 6.24*

R: Typically it had two guns, front and back?

M1: Front and back. Yeah.

S: And that deck, which I am doing now is with one gun and they turned the gun. There is more space used for the gun in the deck, and that's why we thought that it is good for the passengers; you have more space.

R: Yeah, ok. What is this going to be used for?

M: As a tourist [boat], around the Suomenlinna. [...] There are going to be two electric motors. [...] But the rowing, they will be rowing it as well.

(I: 2, T: 40–52)

In addition to striving for an equilibrium between historical justification and modern use, the line of object history in the Finnish discourse reflects a complex relationship between a craftsman and the object of activity (excerpt 6.25). This relationship appears to be contradictory. On the one hand, there is almost an intimate, object-driven side in the human-like descriptions of a broken boat and desire to collect pictures. On the other hand, there is a tendency to distance oneself from any attachment to the object, as attachment may bring negative feelings with it.

The negative feelings are generally caused by the customers' improper utilisation of the object, which undermines the results of a shipwright's hard work.

*Excerpt 6.25*

R: Do you name all your boats?

S: No, I want rather that the owner names it, of course ... I haven't repaired not many [sic] boats of ... of this ... only two, I think two. One, I changed: a couple of planks had cracked and the other one was some ribs, that they are bended [sic] in small boats, they are bended. [...] They were broken, like these ribs here. They were broken. Seven or eight from the back. [...] They have been driving too fast. If you go with this motor boat, and bang it against the waves, the ribs, they broke. You have to use it with the proper ... but I know that some of the smaller boats have been destroyed or lost. But it's better I don't hear. I don't have any feelings for the boats. They have paid it and ... It's nice to have the pictures from [them], I tried to get a picture from every boat I built. I've been building close to eighty boats, but I found only sixty, I think about only sixty different pictures.

(I: 8, T: 494–495, 577–620)

### **Russian Shipyard**

The Finnish shipwright described the process of boat construction as a relatively smooth movement from a clear idea to actual implementation ('I am able to see it so clearly that I know where the waterline will be', excerpt 6.22). For the Russian carpenters, the similar process appears to be more a road full of obstacles, extending from the planning phase to the implementation phase. The choice of colour is prototypical in this case (excerpt 6.26, Figure 6.5). Already during the discussion stage, the colour of the ship was a reason for arguments between the different actors, while during the implementation stage a tension emerged between the need to follow the historical prototype and the use of available modern paints. This tension together, with the lack of knowledge and skills, led to uncertainty about the finished product: speaking about the quality and choice of paint, one worker said, 'it will become stronger ... or fall off' (excerpt 6.26).

The lack of skill and knowledge at the Russian site indeed often appeared as an obstacle in the process of moulding objects (excerpts 6.26 and 6.28), while a strong desire and drive to successfully build the ship appears to have given the workers the power to overcome all the obstacles (excerpt 6.27). The object also challenged the pride and self-esteem of the carpenters and prompted them to tackle seemingly 'impossible' tasks and challenges: for instance, the carpenters decided to cast and install part of the rudder themselves (excerpt 6.28).

*Excerpt 6.26*

R: Well, the choice of colour. It was a long process?

H: Long. Turned out to be long. Yeah, let's see how it [the paint] will cover it. If it covers at all. [...] If not already the first time, we'll have to do it twice. [...] Well, nothing will go wrong with it. [...] Well, in five years we will again have to repaint ... well, if we do it properly. Then what have we mixed there? It also doesn't affect them very well, the fact that we mixed different kinds of paint. Maybe it will only become stronger from this [laughs]. Or fall off.

R: Isn't it some kind of special, marine paint? No?

H: No, it's, it's ... yes, well. It's meant for painting boats. The main components. And those that we add, well, they are also ... they are all, all marine, but they are different, from different manufacturers. [...] Maybe it will fall off right away [laughs]. Or, the other way around [smiles].

(I: 9, T: 97–126)



**Figure 32.** Colour choice at the Russian shipyard. Left: colour sketch of the ship. Right: choosing colour combinations with the help of painted wooden plates.

*Excerpt 6.27*

M1: To build? To build — you need one — a desire to build the ship. That's all, you need nothing else. Just desire. Even skills, as it turned out. All the guys, who are building now, except for one, have never built a ship ... yes, and H has never built a ship himself; he participated in the building process. I mean, the head shipwright. [...] And the guys who were coming here, many of them have never held an axe in their hands. [...] Where are they now? They are making furniture quite, quite professionally.

(I: 11, T: 65–69)

*Excerpt 6.28*

C5: We decided to do it ourselves. We had a big idea. It resulted in problems. We have to still think, scratch our heads: what's next? How to finish this thing?

R: Why did you decide to do it yourself? Is it money or somehow you just wanted to try?

C5: No ... clearly some kind of non-pragmatic aims. Even for the love of the game, so to say ... pride. Maybe, ambitions. To some extent.  
(I: 3, T: 161–165)

The line of object history is a line of compromise between history and practice: '[it is] a historical vessel, and also we tried to squeeze something modern out of it' (excerpt 6.29). The ship embodies a balance between the past (the need to replicate the outlook of the historical prototype), the present (the conditions of construction, such as the level of skill and distant location) and the future (its modern use and the conditions of use) (excerpts 6.26 and 6.27).

*Excerpt 6.29*

R: Was your purpose to build a boat as comfortable as possible for expeditions?

H: Yes. At the same time to fit it to some sort of historical image. I mean, we could have built a totally comfortable boat, totally modern with all the possible equipment, which eases the sailing. As we need this [history], that we have these kinds of sails, we have more difficulties. Well, it is going to be sort of a compromise: a historical vessel and also we tried to squeeze something modern out of it.

(T: 2, T: 63–64)

This dialogue between the time and collective nature of the effort put into the object (primarily the use of 'we' instead of 'I') becomes most explicitly visible in terms of the need to place representations of the subjects, those who created the object, in the ship itself. One of the carpenters told the researcher that he and his colleagues had inserted 'messages' in various places in the ship for people who may be later repairing the boat: 'the boat is stuffed with messages'. He specifically described a case when he put a picture of the crew into a hutch (excerpt 6.30, Figure 6.6). The ship appears to be not only the manifestation of a compromise between the past and present, but also a potential way to communicate with the future, a material carrier of the creators' personalities.

*Excerpt 6.30*

C1: I offered everyone a chance to write. But somehow, [they] were busy, I decided [to do it] alone ... just to write myself. Then ... well, the boat is stuffed with [other] messages.

R: Really? Do you, like, I mean ... isn't it the only one? Where else?

C1: Somewhere there ... we wrote. Even a coin somewhere ... someone put a coin. Some of the old, even a commemorative ruble. Imagine, you know, you are making something [repairing the boat], and then: Oops! Pictures. And the carpenters who made the boat, are looking at you.

(T: 8, T: 10–22)



**Figure 33.** Finishing the hutch.

The thread of object history focuses on the process of constructing wooden boats and ships as objects of wooden boat-building activity. The two main aspects are imbedded in this thread in both of the activities. The first theme is the agentic actions of craftsmen, resulting in the moulding of an object. In the Finnish case, these actions encounter obstacles primarily having to do with the needs of customers; while in the Russian case, a lack of experience may be seen as a similar obstacle. Second, wooden vessels appear to be material carriers of a balance between history (building a replica, historical justifications) and practice (modern use, conditions of construction). This historical line, as others, appears to be fraught with tension, with the primary point of tension being between the agency of craftsmen and rules governing the activity, including adherence to history, modern use, the needs of the customer and the practicalities of the building process. Identifying the intermediary object along the line of the object history may seem challenging. This tension is of course resolved through working on the boats as an object of activity, but specifically by working on the object of activity as a contradictory entity embodying the tension between the use value and the exchange value of the object.

#### **6.4.2 Movement along the Lines**

The movement across history in Scribner's (1985) analysis of Vygotsky's ideas occurs through the actual concrete events happening across time. For Hutchins (1995), historical development occurs through the conduct of practice, or actions, constituting activity.

In the current analysis, historical development occurs through movement along the lines of history. It is not a smooth and easy process. In the interviews from

both sites, the lines of history were full of obstacles and tensions. As previously discussed in the conceptual framework of this chapter, development in activity occurs through aggravating and resolving the contradictions on various levels. Resolving the contradictions and creating a qualitatively new thirdness leads to a transformation of activity (Engeström, 2015b; Engeström & Sannino, 2011; Ilyenkov, 1982; Sannino, 2011).

How does resolving the contradictions and historical development occur in the daily conduct of an activity? Contradictions cannot be directly located in the data (Engeström & Sannino, 2011), and rarely are they resolved directly through activity. Objectifying human activity in the form artefacts is a central mechanism of cultural development (Ilyenkov, 1977). It is specifically through everyday actions, directed at transforming the object of activity, that contradictions are resolved and history moves forward. The object of activity is an intermediary object (Vinck, 1999) from the standpoint of historical development. Looking at the specific lines of history, movement occurs by engaging with a certain intermediary object along the course of development of each line of history. In each of the lines, this intermediary object is not the general object of the activity system in question; it is a certain instantiation, a partial representation of the object of activity (Knorr Cetina, 1997; Toiviainen & Vetoshkina, 2018).

Each of the lines of history in the data from the shipyards may be located against the elements of an activity system (Engeström, 2015b). The line of personal history refers to the subject of the activity — the boat builders. The line of community history follows the community surrounding wooden boats. The line of general history may be located in the rules of historical wooden boat building. The line of the object history is located in the object of activity.

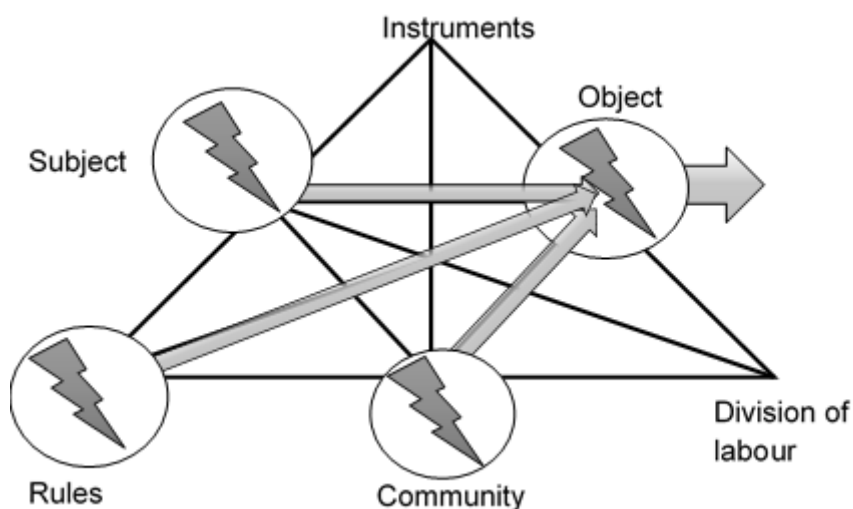
The line of personal history contains the tension between professional pride and the constraints of the trade. This line represents the process of professional development of craftsmen being filled with a sense of pride in their manual skills, which require full dedication, time and effort to master. The feelings of joy and gratification when engaging in the trade often stand in conflict with the constraints and challenges of the trade. The movement — the resolution of this tension — occurs by engaging with and working on a concrete boat or an element of a boat as an embodiment of skill.

The line of community history is laden with the tension between ‘self’ and ‘other’. The tension is manifested in the dominance of single master compared with a sense of collective achievement or between the collective subject and other professional communities. Movement along this line occurs by working on a boat as a product for a customer.

The line of general history contains the tension between replicating the old and creating the new. There is a need to replicate the historical outlook and traditional model versus the modern use of the vessels and the need for modern boat-building

techniques. Movement along the third line occurs through working on a boat as an aspect of cultural and historical heritage.

The line of object history is filled with the tension between agency and rules of practice. The agency of craftsmen must come to terms with the rules governing the activity, including adherence to history, modern use, the needs of the customer and the practicalities of the building process. Movement along this line occurs through working on a boat as an embodiment of the contradiction between the exchange and use value. The contradiction between the use value and the exchange value is the primary contradiction of capitalism (Marx, 1976). This contradiction is inevitable for any modern productive activity, but in the case of historical wooden boat building this contradiction is especially acute. The use value of a historical wooden vessel, for instance a gun sloop, may be low, while the exchange value, added by the history may be high. A custom-made agile wooden boat may have a high use value in the Finnish archipelago, while the exchange value may be low due to the competition with cheaper boats made of plastic.



**Figure 34.** Movement along the lines of history and the location of the lines in the activity system.

Movement along the lines of history and the location of the lines of history in the activity system of wooden boat building are summarised in Figure 34. The line of personal history is compatible with the subject of activity. The line of community history is compatible with the community surrounding the activity. The line of general history is compatible with the rules governing the activity. The line of object history is compatible with the object itself. Movement occurs through resolving the tensions, occurring along each line by working on a certain instantiation of a general object of a historically developed activity. This instantiation acts as an intermediary object for each of the lines of history.

### 6.4.3 Overlaps of the Lines of History

The majority of history-related segments in the interviews contained overlaps between the lines of history. These overlaps are indicators that lines of history with respect to activity do not move independently; they overlap and intertwine in a variety of ways. The overlap of lines of history in the data constituted a situation in which one historical segment contained references to multiple lines of history. For each of the sites, I will first look at the number and profile of the overlaps, and then I will show how the lines of history intersect with the help of examples from the data.

#### Finnish Shipyard

In the Finnish interviews, more than half of the history-related segments contained overlaps (see Table 9). The lines of personal community history had the highest percentage of overall overlaps. These lines are also tightly intertwined, reflecting the already discussed strong professional identity of Finnish boat builders with respect to a certain closeness of the community. The line of general history mostly overlaps with the line of object history, as if historical events seem to find their embodiment in an object. The line of object history had the most intersections with the lines of personal history and community history, as already discussed earlier, reflecting objects as a material result of the craftsmen's intentions.

**Table 9.** Overlaps between the lines of history in the Finnish data

History lines	Number of segments		Overlaps			
	Total	With overlaps	1. Personal history	2. Community history	3. General history	4. Object history
<b>1. Personal history</b>	42	25 (59.5%)	-	20	1	10
<b>2. Community history</b>	43	24 (55.8%)	20	-	2	10
<b>3. General history</b>	18	7 (38.8%)	1	2	-	6
<b>4. Object history</b>	42	19 (45.2%)	10	10	6	-
<b>Total</b>	145	75 (51.7%)	31	32	9	26

In excerpt 6.31, the shipwright traced the line of wooden boat community development (line 2) and professional development (line 3), connecting periods of growth and decay with larger historical events (line 3), sometimes with surprising results, such as the increase in the number of wooden vessels constructed in the post-WWII period. Both lines consequently result in the history of concrete vessels — galleass (line 4), built after the war and being at risk of disappearing today without proper maintenance and renovations (Figure 35).



*Excerpt 6.31*

S: Yeah. That's ... this is what we don't have anymore. That wooden boats are not used ... [on] sort of a daily basis. Metal has replaced [them]. All the smaller crafts are also metal. Which is so...

R: When did that happen? When did this change happen?

S: Well, the last wooden ships that were built for use, [like] this galleass, were built after the war. Right after the war. And, actually, those were built of wood because metal was so expensive and difficult to get after the war. So, that was the only reason why they built wooden ships, which we have about 20 left. Which I am repairing.

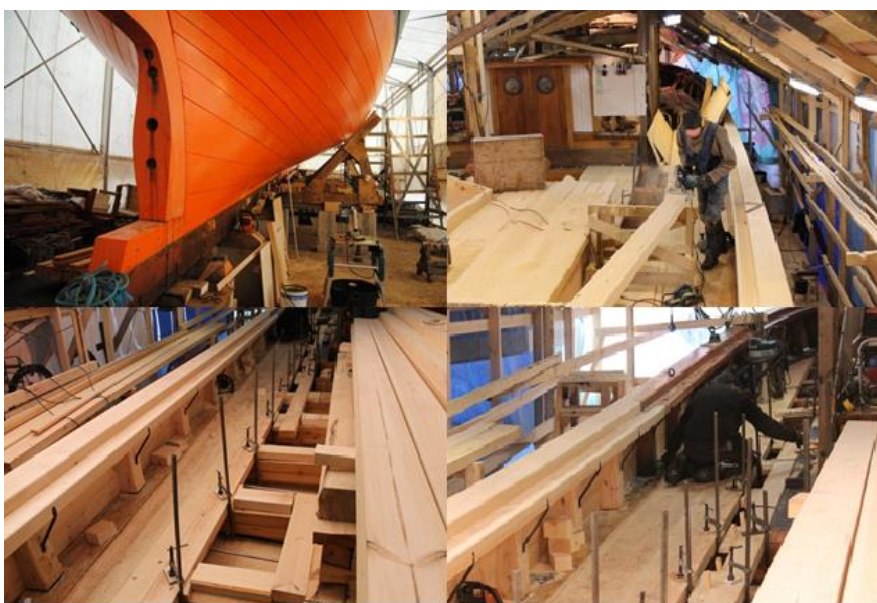
R: Are you one of the few who are still maintaining the craft?

S: Yes. And then a little bit smaller boats like, like a, let's say 15 metres, which are going from here to town and back, were built when I went to school at the end of the 80s. The last ones. And there are ... over ten.

R: But they are not used...

S: Water buses. But they are also now changing slowly to metal and most of them are metal. But some of the old mahogany are left.

(I: 5, T: 135–151)



**Figure 35.** The shipwright (in the upper photos) and his apprentice (in the lower photos) repairing a galleass.

In excerpt 6.32, the manager for the gunboat project almost exclusively discusses how different lines of history are coming together ‘here and now’: ‘the history is kind of closing’. The actual construction of the gunboat (line 4) required the occurrence of a number of major historical events between the Finnish and

Swedish nations (line 3), a certain level of professional skill and the right person to do the job (line 1), as well as the infrastructure and financial support brought by communal effort (line 2).

*Excerpt 6.32*

M1: We have been here since 1987. And he [shipwright] has been making major constructions, reparations. Kind of mentally ready. And this waited for the suitable moment. And now when Ehrensvärd.<sup>95</sup> When did he die? They want to lift the history between Finland and Sweden ... and then, little by little, this size that can be built in here. It is the original vessel which has been built in Suomenlinna.

R: It was built here? Ah, yeah...

M1: Yes, yes. So, history is kind of closing. They made an even bigger one than this as well in here, but they made a smaller [one] as well. Yes. And then the persons who were able to collect the study money...

(I: 2, T: 27, 37–44)

### Russian Shipyard

More than 60% of the historical references in the Russian interviews contained overlaps between the different lines of history (Table 10). The profile of overlaps differs from the one in the Finnish interviews. At this site, the line of general history contained the largest percentage of segments with overlaps. Moreover, the line of general history was even more densely interconnected with the line of community history. Notable historical events appear to be an important factor for bringing the community together and in framing the activity. The thread of personal history contained the lowest percentage of overlaps, again reflecting the strong collective orientation of the carpenters.

**Table 10.** Overlaps between the lines of history in the Russian data

History lines	Number of segments		Overlaps			
	Total	With overlaps	1. Personal history	2. Community history	3. General history	4. Object history
1. Personal history	36	17 (47.2%)	-	9	4	11

<sup>95</sup> Field marshal count Augustin Ehrensvärd (1710–1772) was a Swedish military officer, military architect, artist and creator of the Sveaborg fortress and the Swedish archipelago fleet.

<b>2. Community history</b>	32	23 (71.9%)	9	-	6	15
<b>3. General history</b>	14	13 (92.9%)	4	6	-	9
<b>4. Object history</b>	51	30 (58.8%)	11	15	9	-
<b>Total</b>	133	83 (62.4%)	24	30	19	35

Similarly to the manager of the gunboat project in the Finnish interviews, one of the members of the historical community explicitly made reference to the construction of this concrete ship as a result of certain kinds of historical and cultural factors coming together at a certain time and place (excerpt 6.33). He elaborated on how the need for a wooden vessel emerged in the community (line 2). Incarnating this idea in the construction of a tangible vessel (line 4) to suit current conditions required finding connections with broader history (line 3).

*Excerpt 6.33*

M1: Exactly like this. Exactly on Solovki. Exactly the wooden ship. Well, we were still thinking, well, there were different questions, which boat to build? Somehow we came across this boat, the yacht, *St. Peter* ... um, [we were] looking for any boat historically connected to Solovki ... on the other hand, [we] were looking for a boat not very large in size. That's it, it [had to be] wooden, historical, with more or less tangible parameters, so that it was possible to build inside this building ... Well, the yacht *St. Peter*, that historical one, it was close to these parameters, although its original measurements were bigger than what we built. It was 18 metres, I think, the length. And we have 13. That is, well, [we] had to shorten it a bit.

(I: 11, T: 13–19)

In excerpt 6.34, the head of the carpenter crew also explicitly discussed how the process of constructing the *St. Peter* (line 4) mainly derived from the needs of the community and current circumstances (line 2), where history was mostly a justification for the project and was embodied in the appearance of the ship (line 3).

*Excerpt 6.34*

R: But initially it was planned as a complete replica?

H: No, never. Has never been ... that is, it was always wanted to be like this. Sort of a stylisation. Stylisation. He just in the stylisation ... you're

going to come across solutions that are ... to approach more from the historicity or the modernity? [You] always choose one [of them]. Where does the stylisation start and where does it end?

R: How was this choice made?

H: Somehow.

R: For each particular question, it took place ... separately.

H: only historical type of equipment. Gaff-rigged ship, as it was gaff-rigged. But as it has already been implemented, it is already going to be made 80% in a modern way. Well, at least 70%. Well.

R: Yeah ... that is, the history has always been after...

H: Well, yes...

R: After the...

H: Like sort of a reminder. Here is such a ship, it looked approximately like this.

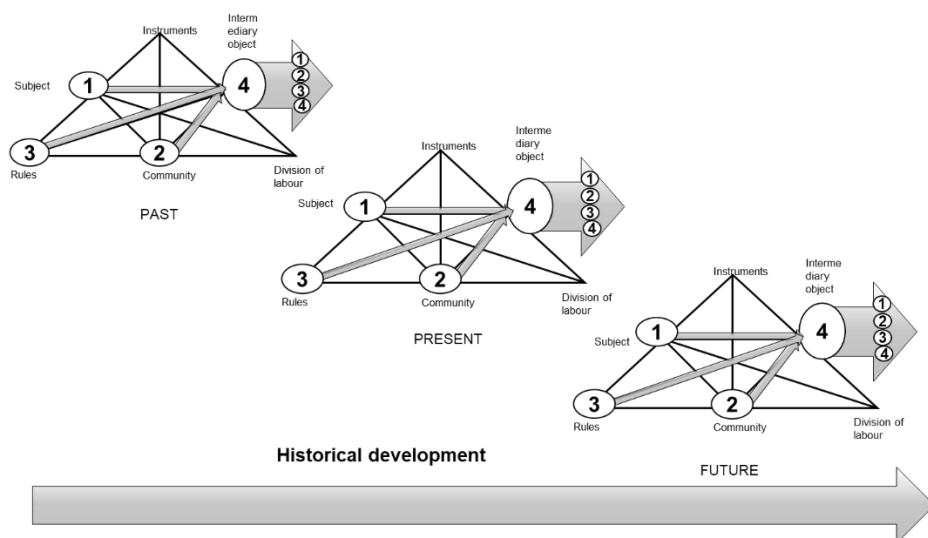
(I: 4, 237–252)

Movement along the lines, as already discussed earlier, occurs by resolving tensions and contradictions through working on a certain instantiation of the general object of activity. The overlaps between the lines of history show that the lines do not just progress on their own during the course of the historical development of an activity; they are intertwined. For Vygotsky (see Scribner, 1985) and Hutchins (1995), movement along multiple lines of historical development found their embodiment in the phenomena under investigation: the development of higher mental functions for Vygotsky and the conduct of situated practice for Hutchins. Looking at the overall historical development of the activity system, movement occurs by resolving tensions and contradictions through working on the object of activity.

First, the lines of history have a specific location in an activity system. The line of personal history corresponds to the subject of the activity. The line of community history corresponds to the community surrounding the activity. The line of general history may be located in the rules governing the activity. The line of object history corresponds to the object of activity. All four lines of history appear to be embodied in the object, which acts as a material carrier of history. The object of activity plays the role of an intermediary object from the standpoint of the historical development of an activity. By transforming and modifying the object, subjects make other lines of history embodied in the activity go forward. In this light, the event described in excerpt 6.30 is especially illuminating. The object is explicitly used as a material means to connect the past, present and future.

Now, I can modify Figure 6.9 from the conceptual section of the current chapter. Historical development occurs through movement along the lines of history across the activity systems of past, present and future. In Figure 36, the numbers refer to the location of the lines of history in the activity: 1) personal history, 2)

community history, 3) general history and 4) object history. The object of activity embodies the lines of history. While the transformation and development of the object moves all four lines of history forward, the object of activity acts as an intermediary object in the course of historical development. The lines become intertwined in the object. Movement along the lines is not linear and direct, as it encounters obstacles along the way. With real activity systems, the lines of history are not always straight. Movement affecting the historical development of real activity systems resembles a vast terrain rather than a set of straight lines. The depiction in Figure 36 and the whole idea of a line may be seen as an analytical abstraction that is made concrete through practical activity (Ilyenkov, 1982).



**Figure 36.** The process of historical development embodied in an activity when viewed through the lines of history.

History occurs only through engaging with and transforming objects of activity. All possible lines of history in a given activity are moving forward only by means of the transformation of objects. The object of activity appear as intermediary objects in the process of historical development.

### 6.5 Discussion of the Empirical Analysis

The second empirical chapter focused on the research question: *What is the potential of the object in craft as a unifying factor across history?* The potential of the object as a unifying factor across time was traced in the interview data via the craftsmen involved in historical boat and ship building.

Following the analysis by Scribner (1985) on layers of history in Vygotsky's works and Hutchins's ideas (1995) on historical trajectories in practice, I suggested the idea of lines of history as a means of conceptualising the historical development of an activity. The idea of a line of history was chosen for its flexibility and directionality — lines can be straight or curvy. Movement along the lines can occur in a variety of directions. The idea of a line of history was utilised as an abstraction, made concrete through specific activities.

In the interview data from the Finnish and Russian shipyards, the course of historical development of an activity appeared as a heterogeneous weaving of four lines of history: the line of *personal history*, the line of *community history*, the line of *general history* and the line of *object history*. These lines are not comprehensive for any particular activity. Each situated activity system will have its own specific lines of history. It may include, for instance, lines of social history, environmental history or political history.

Historical development occurs through movement along the lines of history. This movement is filled with obstacles and tensions. Developments driven by a particular activity occur through a process of aggravating and resolving contradictions. When contradictions are resolved, activity moves forward at various levels. Resolving the contradictions and creating a qualitatively new thirdness leads to the transformation of an activity (Engeström, 2015b; Engeström & Sannino, 2011; Ilyenkov, 1982).

Resolution of the contradictions occurs through everyday actions, directed at transforming the object of activity. From the standpoint of historical development, the object of activity may be seen as an intermediary object (Vinck, 1999). The notion of an intermediary object was utilised here following Paavola and Miettinen's discussion of an intermediary object as an entity with a direction. The object of activity may be seen as a general object of historically developed activity and as a specific object for a given actor (Engeström, 2015b). A general object has various instantiations (Knorr Cetina, 2001; Toiviainen & Vetoshkina, 2016, 2018), as partial reflections of the object appear as a variety of socio-material entities. The general object of the historically developed activity of wooden boat building — wooden boats in general — is only partially reflected in the instantiations of this particular object along the lines of history. The instantiations can take different forms. They may take the form of a concrete material entity: a concrete vessel or the element of a boat. They may also take the form of a concept: a boat as an aspect of cultural and historical heritage. Looking at the specific lines of history, movement occurs by engaging with a certain intermediary object along the course of development of each line of history. In each of the lines, this intermediary object is not the general object of the activity system in question; it is a certain instantiation, a partial representation of the object of activity (Knorr Cetina, 1997; Toiviainen & Vetoshkina, 2018):

1) *the line of personal history*: tension between professional pride and the constraints of the trade; the intermediate object — a concrete boat or an element of a boat as an embodiment of skill.

2) *the line of community history*: tension between ‘self’ and ‘other’; the intermediate object — a boat as a product for a customer.

3) *the line of general history*: tension between replicating old and creating something new; the intermediate object — a boat as an aspect of cultural and historical heritage.

4) *the line of the object history*: tension between agency and rules of practice; the intermediate object — a boat as an embodiment of the contradiction between exchange and use value.

The contradiction between use value and exchange value, intrinsic to all of the commodities in capitalism, was specifically acute in these cases of historical wooden boat building. The whole craft appeared as being in a constant process of defining and re-defining both the use value and exchange value of wooden boats and ships in the market economy.

Interestingly, many of the contradictions present along the various lines of history specifically had to do with relationships with customers. In many ways, the boat builders’ relationships with customers were in line with the paradoxical ‘getting rid of the patients’ orientation, identified by Mizrahi (1985), in the process of socialising medical interns. The boat builders at both sites were trying to exclude the customer, each in their own way. For the Finnish shipwright, it is a ‘nicer way. I don’t have a customer. If I have a customer, it’s all right. But it’s better if I don’t. I build a boat ... as I want...’ (excerpt 6.3). The orientation of the Russian carpenters seems a bit more positive. They perceive themselves as being ‘outside’ the sphere of regular customer relations, having a ‘special’ customer: ‘our project is, sort of non-commercial. We will build it and use it ourselves. [...] NSF is like a customer, [though] they are not against extending the deadlines’ (excerpt 6.15). Customers are still an essential part of the boat building community. What Béguin (2003) calls activity exchanges are crucial for the mutual learning processes that take place between a designer and a customer. In this process of mutual learning, intermediary versions of artefacts emerge, serving as a vector of learning.

The puzzling ‘getting rid of the customers’ orientation, containing the aim of diminishing a key component, one without which the whole activity of wooden boat building would not exist, can be possibly explained by the pressing need to make a traditional and seemingly outmoded activity relevant today. This need to make the craft meaningful today, and in a way justify it, was expressed by the Finnish shipwright in the following way in our talk about the Indian boat builders: ‘Someone is using these boats. None is sort of using this ship that we are building here’ (excerpt 5.23).

The contradictions that became visible in this analysis make it possible to pose a hypothesis accounting for the primary contradiction in the craft of wooden boat

building: the contradiction emerges in the space between following tradition (techniques, means of working, historical vessels) and making an object meaningful for the current market. I will thoroughly discuss this contradiction in Chapter 7 with the support of the empirical findings from Chapter 5.

The four lines of history have their own location in the activity system, but they are heavily intertwined in the data. The profile of the overlaps reflects how the lines appear to be embodied in the object of activity, which acts as a material carrier of history. The object of activity in the current empirical analysis appears to be an intermediary object in the course of the historical development of the activity in question. The historical development may be traced along the line of the movement of history along the temporal dimension. The historical development of real activity systems resembles a vast terrain rather than a set of straight lines.

Objects determine and shape activities; objects drive subjects to perform certain actions with the object. By transforming the object through one's actions in the course of engaging in an activity, subjects are causing all history and the lines of history to move forward. Looking at the objects collectively as part of an intermediary object in the course of historical development reflects the constructive dimension of human activity, which includes the development of the conditions, instruments and resources of productive activity by subjects (Béguin, 2003). The productive dimension reflects the objective facet of activity. The productive and constructive dimensions of an activity co-exist in a dialectical relationship and are dependent upon each other: failure on productive level calls for new developments on the constructive level, which in turn impact the productive level (Rabardel & Béguin, 2005).

Now let us return to the metaphor of expansion from the previous chapter (Engeström, et al., 2003). The role of an object as a unifying factor across culture has to do with the fact that the object of activity, through concrete differences, was able to expand across boundaries and provided the grounds for constructing and conceptualising a virtually shared object. In contrast to expansion across boundaries on the cultural axis, the conduct of the object on the historical axis may be described as compression, at least at first glance. However, it represents a specific kind of compression, more like a pulsatory movement. The object of activity drives a subject's effort to transform itself, or in other words, it compresses a subject's actions to a certain point of activity in order to move the activity forward in time. Expansion across time here occurs through compressing a subject's efforts at a certain point of history. This is specifically the potential of the object as a unifying factor across history. The answer to the research question *what is the potential of the object in craft as a unifying factor across history?* may be formulated as follows: the object of activity, acting as an intermediary object in the course of the historical development of an activity, compresses the efforts of subjects at a specific point of activity, thereby propelling the historical development



of a specific activity across time. The object of activity drives human efforts at a given moment, in a given action, at a certain point in time and space. Unity here is about integrating the efforts of multiple actors at a certain point to make history go forward.

In the data, history does not occur as the movement of a giant flywheel, powered by some mystical powers. There is definitely a space for human agency in the history making process (Callinicos, 2004). Historical transformations embedded in a particular activity occur through everyday actions:

In reality it always happens that a phenomenon which later becomes universal originally emerges as an individual, particular, specific phenomenon, as an exception from the rule. It cannot actually emerge in any other way. Otherwise history would have a rather mysterious form. (Ilyenkov, 1982, p. 83)

Once innovative actions are recognised and adopted by others, they can break through into new forms of activities (Sannino, 2011). Routine historical transformations occur only through daily engaging with the objects and transforming the objects. This is in line with Hutchins's (1995) idea about that the sequences of development of a particular practice, while the developments made by practitioners are carried out through engaging in an activity, with the very actions constituting the practice. History is transferred in the forms objects, which invite humans to transform them, thereby propelling history forward.

## 7 Discussion and conclusions

This study began as part of a project aimed at understanding the process of concept formation in collaborative work, but it soon expanded into a study aimed at going beyond general interpretations of a recent turn to traditional crafts. As stated in the introduction, this monograph tells the story of the traditional craft of wooden boat building as the ‘simple desire of normal people to build a ship’. The story was told by following an object of craft activity. Utilising primarily the approach of cultural-historical activity theory with the aid of actor-network theory and the epistemic approach of Knorr Cetina, I analysed the potential of an object in craft-work as an intercultural and intertemporal unifying factor. The unity facilitated by the object was not uniform in nature, but instead brought diverse phenomena together to form a complete whole. *The main insight of the study is that the unifying factor behind the object in craft resides precisely in its diversity — specific cultural and historical features formed by specific local circumstances.* In this chapter, I will answer the research questions, discuss the main findings, reflect on the research process and provide general conclusions to the study.

### 7.1 Research Questions and Key Findings

The process of investigating the research problem proceeded in several steps. In the introductory chapter, I identified the dimensions for studying the object as a unifying factor: history and culture. History focuses on the chronological record of events embedded in a particular activity. Culture refers to shared features developed in the particular geographical locality in which the activity is situated. Based on the theoretical analysis provided in Chapter 2, the object was conceived as an entity having the potential to drive and expand across time and space. After discussing the historical and cultural features of the concrete activities under investigation (Chapter 4), I explored the intercultural (Chapter 5) and intertemporal (Chapter 6) dimensions of the object in question. First, I will summarise the findings from these empirical chapters. Then, I will answer the general research question of the study and revise the theoretical framework outlined in Chapter 2.

***RQ 1 (Chapter 5): What is the potential of an object in craft as a unifying factor across cultures?***

*The potential of the object as a unifying factor across cultures has to do with the fact that an object of activity is able to expand across cultures. The expansion of the object occurs through differences in the objects, which are essential for any attempt to establish understanding between practitioners from two different cultures.*

The potential of the object as a unifying factor across cultures was traced as part of an attempt to build object-oriented intercultural understanding between Finnish and Indian boat builders by means of photo-elicitation interviews. The process of building a sustainable understanding was conceptualised through a process of constructing a shared object. In this case of indirect communication, the object was virtual. The object being constructed was wooden boats, treated here as an object of the historically developed activity of wooden boat building. Photographs, as specific instantiations of local objects, served as boundary objects that were able to overcome numerous boundaries between boat builders from the two communities.

The boat builders also identified the interplay of factors behind these differences. Members of each community drew on one central organising factor that lay behind the variability in the virtually shared object: the shape of the hull in the Finnish case and technique in the Indian case. These factors were not stable in and of themselves, as they adaptively followed contradictions in a given activity system.

The contradiction behind the *shape of the hull* followed a contradiction between rules (governing the use of a boat and conditions of use) and community (customer needs). The *technique* followed a contradiction between rules (governing labour costs and the number of workers) and instruments (level of technology).

The two central organising factors interacted with each other in the process of constructing a virtually shared object: a certain technique results in a certain shape of the hull, and a certain shape of the hull requires a certain technique. The complementarity of these two factors accounting for the differences behind the objects was a key to the ultimate unity created by the craft object across cultures.

***RQ 2 (Chapter 6): What is the potential of the object in craft as unifying factor across history?***

*The object of activity, acting as an intermediary object in the process of the historical development of an activity, is able to compress the efforts of subjects at a specific point in the history of an activity. This compression powers the development of an activity across time. By working on an object, subjects propel history forward.*

The potential of the object as a unifying factor across history was studied by exploring the role of an object in the historical development of concrete craft activities. The analysis was based on interviews from two cases of historical wooden boat building in Finland and Russia, which provided a rich domain for understanding the historical dimension of an object in craft.

The historical development of craft activities in the data appeared as a heterogeneous intertwining of four lines of history. Movement across a line of history

occurs through resolving tensions and conflicts by working on an intermediary object — a certain instantiation of the general object of wooden boat building:

1) *line of personal history*: tension between professional pride and the constraints of the trade; the intermediate object — a concrete boat or an element of a boat as an embodiment of skill.

2) *line of community history*: tension between ‘self’ versus ‘other’; the intermediate object — a boat as a product for a customer.

3) *line of general history*: tension between replicating the old and creating something new; the intermediate object — a boat as an aspect of cultural and historical heritage.

4) *line of the object history*: tension between agency and rules of practice; the intermediate object — a boat as an embodiment of the contradictions between exchange and use value.

The lines of history overlap and are embodied in the object of activity, which appears to be a material carrier of history. The object of an activity is as an intermediary object in the course of the historical development of the activity. Objects drive, determine and shape activities, objects call subjects to act upon them. By transforming the object through their own actions in the course of engaging in an activity, subjects are making history and the lines of history move forward.

***General research question: What is the potential of the object in reviving and preserving crafts?***

*The object of activity in craftwork, instantiated differently in various concrete cultural and historical circumstances specifically through cultural and historical features that have accumulated across time and space, provides the possibility to compress human efforts at a certain point in time and within a particular culture, making it possible to expand activities across temporal and cultural boundaries. The unifying factor of the object in craft resides precisely in its diversity — in its cultural and historical features or differences, formed by specific local circumstances.*

The object appears as a concrete, complex, socio-material entity, one having different instantiations (for instance, a general object of a historically developed activity, an object of concrete activity and a specific object for a subject based on a given action). Local cultural and historical circumstances and the relations of any activity to others are manifested in the specific cultural and historical features of the object, or in the differences between the objects of similar activities. These specific cultural and historical features drive human efforts to change the object: by working on the object and changing once again its features, the historical development of an activity occurs — lines of history expand across the temporal dimension. It is the specific cultural and historical features of an object, formed in specific local circumstances, which allow the particular instantiations of an object

to overcome cultural boundaries and expand across spatial dimensions to form shared objects with other activity systems.

In the analysis provided in Chapter 5 and Chapter 6, the object of wooden boat-building activity appeared to be a deeply contradictory entity. The various instantiations of the object of activity contained different tensions and conflicts in the empirical analysis: movement across the lines of history occurred through resolving the tensions. Likewise, the central organising factors behind the differences in the activity were often contradictory. The craft object of wooden boat building itself resides in two different states, superimposed together: they range from following tradition to making the object meaningful in current circumstances. Looking at the general object of the historically developed activity of wooden boat building, the primary contradiction in the object of this activity — a contradiction between the exchange and use value — can be formulated as follows: the movement *between adhering to the old (following the ancient craft or even replicating history) and responding to the new (building an easy to construct and usable boat, market demands)*. This constant movement becomes visible in the everyday work of craftsmen in the form of certain tensions and struggles. This general contradiction appears in each case of craftwork:

- in the Indian case, it is between adhering to traditional skills and adapting to the economic constraints of the market;
- in Russian case, it is a movement between history, and the purpose and way in which the boat is constructed;
- in the Finnish case, it is balancing between the need to adhere to history and traditional skill and the needs of satisfying market demands.

The wooden boat builders face the need to redefine and justify their traditional craft and make it meaningful in current circumstances on a daily basis. This process occurs by constantly engaging with and transforming the object of their activity — wooden boats.

## 7.2 Discussion

The skill-focused approaches to conceptualising craft revival (Crawford, 2009; Sennett, 2009; Victor & Boynton, 1998), discussed in the introduction, provide a somewhat limited understanding of concrete cases of revival or marginalisation of craftwork. Indeed, skill is fundamental to craftwork and constitutes a significant part of a craftsman's identity; but craft does not appear as just quality-driven work (Sennett, 2008) or work with full engagement (Adamson, 2013). A craftsman must be engaged with another entity, as skill must be applied to a certain entity:

the subject does not stand 'beyond' his activity as a kind of mysterious 'thing in itself', whose manifestation in the world of phenomena has nothing in common with its essence (Kant and Schopenhauer). The subject

removed from his activity in objectivising, transforming and ideally reproducing the objective world is empty, meaningless and simply does not exist as a historical subject. (Lektorsky, 1977, p. 110)

Skilful performance is driven by a tension-laden object. A concrete material object, moulded in the course of skilful performance, makes human skill and identity durable (Vetoshkina et al., 2017). Latour (1996b) notes the importance of objects in framing human interactions.

In Smith's (1996) analysis, objects are the key to human intentionality. Occupying the middle ground between the physical world and intentional world, they and

not just their representations, are culturally, historically, and socially plural — and yet not just products of the imagination or intentional whim of a person, society, or community, either, but made of the stuff of the world, as resistant and wily and obstreperous as the rest of us. (p. 363)

Recent ideas of materiality with respect to learning and cognition, such as the embodied and extended mind (Clark, 2008; Menary, 2010, 2013; Shapiro, 2010; Sørensen, 2009), suggest the crucial importance of objects in skill learning, skill transfer and also skilful performance (Vetoshkina et al., 2017). Materiality in this case must be understood as a connection to other entities, both physical as well as social (Sørensen, 2009).

The importance of the object is recognised in craft theories, often as something that extends beyond its particular cultural and historical features. It is used as an entity through which craftwork is delimited and distinguished from other types of work and production (Adamson, 2007, 2013; Crawford, 2008; Kouhia, 2012; Risatti, 2007). Unity is apparently achieved through its practical physical function, through the almost purely material and physical features of objects (Bouillard, 2005; Risatti, 2007). The emphasis shifts depending on the way objects are produced and the material from which they are produced (wood, metal, ceramics, etc). In the analysis presented here, the physical features alone appear to be irrelevant without the proper cultural and historical component. It is the accumulated cultural and historical features that appear to be the unifying factor behind the object in craft. The physicality of the craft object does not exist without its culture and history, and vice versa.

Risatti (2007) also distinguishes between craft objects, placing them into a special group, and applied objects, with their functionality for a certain need. With the CHAT framework, such needs are not intrinsically social and practical; they are created and developed through the process of engaging in an activity (Leontiev, 1978; Davydov et al., 1983; Miettinen, 2005). Human needs are not purely

physical, with even biological needs being culturally mediated. As Marx (1973) put it:

the object is not an object in general, but a specific object which must be consumed in a specific manner, to be mediated in its turn by production itself. Hunger is hunger, but the hunger gratified by cooked meat eaten with a knife and fork is a different hunger from that which bolts down raw meat with the aid of hand, nail and tooth. (p. 92)

Transformation of needs occurs simultaneously with the transformation of objects:

the eye has become a human eye, just as its object has become a social, a human object — an object made by man for man. (Marx, 1964, p. 139)

Kopytoff (1986) claimed that things cannot be understood at a single point of their existence, as processes and cycles of production, exchange and consumption must be taken into account as a whole. Objects are complex entities, neither purely material, ideal nor social. Understanding the collective motivation behind objects of activity requires looking at them as embedded in a variety of relationships in activity, which calls for looking at objects as socio-material entities (Miettinen, 2005).

Socio-material approaches highlight the role of technology and different kinds of objects and artefacts in human interactions (Orlikowski, 2007; Leonardi, 2012). Developments pertaining to sociality, human beings and objects go hand in hand because, as ‘people and objects gather time, movement and change, they are constantly transformed, and these transformations of person and object are tied up with each other’ (Gosden & Marshall, 1999, p. 169). In the field of organisational studies, Groleau and Demers (2012) have analysed artefacts, both material and immaterial, as carriers of the historically grounded means and methods that provide organisational members with various potential ways to act upon them:

material artifacts, beyond their physical characteristics, are defined in relationship with other social constructs that make further means and methods mutually influence one another as they come together to constitute human practice around an object. (p. 6)

For Groleau and Demers (2012), objects as material artefacts constitute various socio-material configurations of certain professional practices. In the comparative description of the research sites provided in Chapter 4, we could see how different socio-material configurations emerge in similar contexts to create a similar object — a usable wooden boat. The object of activity of craftwork generates different

arrangements, which led to the construction of a usable wooden boat in each of the cases. These arrangements are different for each of the specific objects, as they are formed in a specific cultural, historical and geographical situation where a given activity system is evolving.

In studies of craft, scholars have recently become interested in the socio-technical arrangements of local craft activities. Kawatoko's (2017) analysis of the agency of a group of female weavers, based on actor-network theory, examines the formation of agency as a process of hybridisation of group members and socio-technical arrangements. She claims that understanding agency is possible only by grasping its continuous reshaping, which is brought about by the development of craft practices moulded via reconfiguring the socio-technical arrangements of people, artefacts and machinery. The process of reviving concrete craft activities is seen here as a process of hybridisation: humans with dynamically evolving needs encounter useful technologies and artefacts; they incorporate these technologies and artefacts into their activities, thereby changing and expanding such activities. This process of incorporation generates new needs and transforms activities and socio-technical arrangements; then the process starts again. This analysis thoroughly tackles the process itself, while the 'why' behind the process, the object of activity in the CHAT framework, remains undeveloped.

The more specific focus on objects, not loosely structured socio-technical arrangements, is presented by Hautala (2015) in an analysis of the role of objects in temporal and spatial interactions of knowledge creation among artists and craftworkers in Finnish Lapland. The creation or prevention of new knowledge and new arts and craft practices is understood here through moments of connections and disconnections of artists, object-cognitive space and the simultaneous dimensions of time. Objects are an important link in human interactions, transforming them from human-human to human-object-human interactions. The background behind the application of the notion of epistemic objects, usually analysed as centres of socialities with collaboration around a particular epistemic object or the work of individual artists with their own objects and how they communicate across spatial and temporal disconnections and connections, lacks a discussion on the interconnection between the objects of individual artists.

The notion of object is even more strictly outlined in Jalas's (2006) analysis of wooden boat building in Finland. Drawing on practice theories, he analyses how temporal orientations germinate in the process of interaction of humans with the material world via various practices. Jalas's understanding of craft revival is that craft practices offer a variety of temporal orientations, which are the result of the historical development of the craft in question. Craft practices themselves are understood as specific, historical and socially shared ways of interpreting the world and engaging with relevant objects. Wooden boats, as objects of use, appreciation and collective work, determine the practices around them by placing demands on individuals, whose desires are directed towards the wooden boats as objects. Craft



practices, in the case of wooden boat building, appear here as a form of resistance and as an alternative to other practices, suggesting specific ‘slow’ temporal orientations specific only to this craft.

In discussions on the nature of craft, the physical function of a craft object is what makes it unique and specific: it provides a certain function, a certain materiality, a certain temporal orientation and lifestyle (Risatti, 2008; Jalas, 2006). A craft object appears as an alternative to other means of production, a way of delimiting craft from other means of production. The present analysis has taken a different approach, with the object of craft activity being manifested differently in concrete cultural and historical circumstance, specifically through particular cultural and historical features that have accumulated across time and space; the approach adopted in this thesis provides the possibility to compress human efforts in time and space, thereby expanding activities. The object appears as a complex socio-material entity embedded in in specific cultural, historical, economic relationships, as well as other kinds of relationships, found in an activity. The craft mode of production, its physicality and manual means of production constitute aspects of these relationships as well as features of the object accumulated through the historical development of a local craft activity. An object of craft is intrinsically unique and non-unique at the same time. It is like light — both a wave and a particle in a state of quantum superposition. The uniqueness of craft objects is that they are the objects of traditional crafts. Their non-uniqueness is that they are objects, like any other objects with certain cultural and historical features, but ones in which the craft mode of production is one of the distinguishing features.

### ***The three theoretical approaches on the notion of object in craft***

The theoretical and conceptual framework for studying the notion of the object in craft was primarily grounded in the approach of cultural-historical activity theory, supported by actor-network theory and the epistemic approach of Knorr Cetina. Now, I will discuss certain empirical findings with respect to these three theoretical approaches.

The three approaches, each in its own way, emphasise the significance of materiality in the construction of the social by introducing the idea of object as a heterogenous socio-material entity. In the case of ANT (Latour, 1996, 2005; Law, 1999), such an entity is discussed using the idea of an actor-network, which operates symmetrically for both the humans and non-humans that comprise socio-technical networks. In the approach taken by Knorr Cetina (1997), epistemic objects serve as centres of socialities, mediating post-social relationship among humans. With CHAT, the object of activity constitutes the motive of activity. The purpose of the object of activity is twofold: it is both something given and something reproduced. The object exists independently and as the image of an object, with the

image being constructed by a subject through activity by reflecting on the properties of an object. This twofold nature of the object of activity provides the grounds for contextualising subjective phenomena in the objective world (Engeström, 1990; Davydov et al., 1983; Miettinen, 2005).

The three approaches emphasise a certain **complexity** of objects. In all of the cases, objects appear as complex socio-material entities. When dealing with the complexity of objects, CHAT distinguishes between a generalised object of a historically developed activity system and a specific object for a particular subject in a given action (Engeström et al., 2003). In the works of Knorr Cetina (2001), the complexity of objects can be more thoroughly tackled with the idea of the incompleteness and open-endedness of an object, which has a variety of instantiations. The instantiations are partial reflections of the object; they do not fully contain the whole object. The idea of complexity and the inner workings of an object are even further developed in ANT with the idea of a black box (Law, 1992) and the notion of an actor-network (Latour, 1996b). The objects, as actor-networks, themselves constitute a network — they consist of the smaller elements of a given network. The network of the elements forming an object becomes specifically visible when certain tensions and conflicts appear in practice; then, a black box is opened. The objects can also assume different forms — such as boundary objects (Star & Griesemer, 1989; Star, 2010) and intermediary objects (Vinck, 1999).

In this study, I have analysed both a general object from the historically developed activity of wooden boat building — wooden boats — as well as how such object was instantiated through the specific activity of wooden boat building as a concrete boat and elements of the boat. I have also analysed objects as intermediary objects in the course of historical development and as instances of the instantiation of concrete objects in the form of boundary objects.

The idea of **expansion and unity across cultures and spaces** can be interpreted differently when using the three approaches.

With the actor-network theory approach, the spatial dimension is addressed by the idea of a flat, heterogeneous or socio-technical network, one in which all possible actors — both humans and non-human actors — are taken into account. Movement across this dimension occurs through the process of translating between the different actors (Callon, 1986a). Latour (1996b) specifically discussed the importance of non-human actors in networks:

what makes human sociality distinctive, then, is that practices are not merely constellations of intersubjectivity; they are also constellations of ‘interobjectivity’. (p. 234)

Socio-technical networks, having no centre, are able to grow and expand almost endlessly, depending also on the principles of including something in a cer-

tain network. In ANT's understanding, relationships in a network need to be constantly performed; force should be transferred through multiple translations and transformations. One way to transfer the power between actors is to circulate tokens or quasi-objects (Latour, 1996b). The connections between networks and inside networks can also be made by the already mentioned boundary or intermediary objects. Unlike boundary objects (Star & Griesemer, 1989; Star, 2010), intermediary objects are modifiable, concrete and dynamic (Vinck, 1999). Intermediary objects are artefacts that move from one actor to another or circulate among them; they represent both the object under study and the specific perspective of those who designed and prepared it.

Unlike with ANT, the idea of centeredness along the spatial dimension is present in the conceptualisation of Knorr Cetina (1997). Objects become centres of socialities and make it possible for multiple actors to collaborate on a single object. Epistemic objects are complex, having different socio-material instantiations, allowing for multiple actors to work simultaneously on these objects. The ability of objects to support collaboration derives from their being experienced as 'epistemic things'. The communication and collaboration in this approach is addressed only by people working on a single, though complex, object, while the possibilities of movement across the spatial dimension and collaboration between people engaged with different objects are not taken into account.

With cultural-historical activity theory, the movement across cultures and spaces is addressed in two ways. First, objects drive, determine and shape activities, providing a horizon of possible actions for actors (Engeström, 1995, 2014; Leontiev, 1978). Objects represent the accumulation of human efforts at a certain point. At the same time, objects contain an expansive potential (Engeström et al., 2003). Objects themselves are expanding entities, providing the possibility for multiple actors to work on the same object (Engeström et al., 2003). Interactions across space and between activity systems are conceptualised as a process of constructing a partially shared object (Engeström, 2016).

In this study, the object were able to expand across cultural boundaries through its instantiation in the form of photographs, thereby serving as a boundary object between distant craft activities.

The three approaches also address in different ways the idea of **expansion and unity across time**.

Within the ANT framework, Latour (1996b) stressed the importance of objects in framing human interactions, bringing temporal components to such interactions in a way that causes objects move beyond the present situation. Movement across the temporal dimension is addressed by the idea that relationships in a network must be constantly performed in order for a network to exist and function. The nature of an object in such a network is fluid: in the process of performing relationships within a socio-technical network, objects can change their role in this network from intermediary object to mediator or token object, or even become

unfolded as a black box (Latour, 2005; Law, 1992; Nicolini et al., 2012). Paavola and Miettinen (2018) discuss the fluidity behind the notion of an intermediary object (Vinck, 1999) as cycles in the process of prolonged collaborative work on a complex object.

In the approach adopted by Knorr Cetina, the temporal dimension is addressed through the idea of a dynamic relationship between the subject and object: the matching of the structure of wanting with the open, unfolding character of epistemic objects (Knorr Cetina & Bruegger, 2002; Knorr Cetina, 2001). The subject never grasps the object, as the object is constantly changing and a sense of lack is experienced once again. The subject just reiterates and exchanges the sense of lack for something else rather than eliminating it.

With the CHAT approach, the temporal dimension is addressed in many ways: from objects accumulating histories (Engeström & Blackler, 2005) to them providing a horizon of possible actions (Engeström, 1995). In contrast to the two previous approaches, it is the idea of a temporally developed dialectical relationship between a subject and an object, where both are transformed and changed, that is most important here (Miettinen, 2005). An object is not directly and immediately given to a subject; it must be produced and reproduced through activity in the course of unfolding actions. A subject is not given directly and immediately self-evident and must also produce and reproduce itself through activity (Lektorsky, 1984). An object and a subject are constantly constructed and re-constructed through activity.

In this study, the objects of activity appeared as an intermediary object in the course of history. The object drives and determines human efforts, and by working on the object and transforming it, humans transform and move history forward.

The object of craft activity, instantiated differently in various concrete cultural and historical circumstance, specifically through cultural and historical features that have accumulated across time and space, provides the possibility to compress human efforts at a certain point, and through this action, to expand activities across history and culture. This general potential of the object concerns the issue of **intentionality** in the general deliberateness and purposefulness of human actions.

With ANT, the principle of generalised symmetry, treating humans and non-humans equally in the analysis of assembly of a socio-technical network (Callon, 1986a, 1986b; Latour, 1991, 1993), diminishes the idea of the intentionality of humans already at the theoretical level, as any understanding of the intentionality of humans intrinsically and necessarily requires assigning different roles to an entity as a subject and an object. Analysing the symmetrical relationships within a network is a powerful tool for understanding the connectivity between entities. In practice, any analysis of symmetrical relationships often becomes asymmetrical in nature as the voices of the salient actors are taken into account (Miettinen, 1999). The essential difference between a subject and object is reflected in this asymmetry.

In the works of Knorr Cetina (1997, 2001), she makes a distinction between humans and epistemic objects, which mediate human relationship, thereby creating the grounds for intentionality. The main feature of epistemic objects is their open-endedness, or lack of completeness of being. Specifically, this unfinished nature of epistemic objects drives human efforts to work on the object. This lack corresponds to the structure of wanting on the side of the subject. A focus on the structure of wanting as a striving for perfection and completeness appears to be a powerful tool for understanding the drivenness of the subject toward an object, giving less attention to human intentions.

With the CHAT approach, a distinction between the notions of an object and a subject is seen as part of a historically developed relationship between human and nature in which both are transformed and changed (Engeström, 2015b; Leontiev, 1978). The subject and object enter into a dialectical relationship through activity; they are not a given, rather they are created through the course of engaging in an activity. The notion of activity comes from the dialectical approach, which does not distinguish between a human and objective world. With the concept of labour, Marx (1964) transcends the dualism of human beings and nature: human beings cannot change themselves without changing the objective world. The notion of an object of activity refers specifically to that part of the objective world through which a human engages in activity and becomes a subject. The objective world is not only material, it is social and ideal as well. Non-human entities are promptly included into the analysis as the instruments and raw materials in an activity system. This distinction between object and subject is necessary for understanding human intentionality, both on the level of an activity and at the level of actions. Analysing the different roles of a subject and object via activity is crucial for understanding the specifically human type of consciousness, which is a reflection of the objective world (Leontiev, 1981). Rabardel and Béguin (2005) use an instrument-mediated activity approach to reject any equivalence or symmetry between a subject and an artefact. Asymmetry is essential, as these entities give each other their status. This distinction is also crucial for understanding the instrumentality of an activity: instruments are comprised of both a subject and an artefact (Béguin & Rabardel, 2000).

The three approaches provide powerful tools for including materiality in an understanding of the social world, each in its own way. Rather than contrasting the approaches, it is more beneficial to complement them, as each has a somewhat different focus. ANT and the notion of a socio-technical network are powerful tools for understanding connectivity and the connections between entities. The approach used by Knorr Cetina, with her notion of the sociality of an object, is quite useful for understanding the drivenness of a subject toward an object and collaboration around this object as well as the complexity of objects having different instantiations. CHAT and the notion of an activity provide substantial grounds for understanding human intentionality. There are many ways in which

these approaches can complement each other: for instance, when analysing a local activity system as a node in heterogeneous networks (Miettinen, 1999) or when seeking to understand the fluid and changing nature of objects in practice (Nicolini et al., 2012).

The approaches of ANT and CHAT focus on studying the potential of objects in a variety of practices and various kinds of settings. Knorr Cetina's approach (1997) distinguishes specific epistemic objects that are seemingly more sophisticated than other types of objects. In this analysis, an object of craft activity, an object produced through manual labour, proved no less complex or capable of driving change than objects of scientific inquiry in Knorr Cetina's analysis (ibid.). Wooden boats are complex socio-material entities with their own histories of design and creation. The specific cultural and historical features of these objects, their complexity and unfinished nature, motivate subjects to work on objects. The boats are moulded in a laborious process by boat builders, who face tensions and contradictions in their everyday activity. Wooden boats mediate the relationships inside communities and across communities of practitioners. They make history come alive and help translate it to future generations. Objects are anchors for craft, helping crafts remain stable and afloat in the restless sea of modern work.

Wooden boats as objects of craft activities need their creators. Understanding human intentionality, deliberateness and the why behind the human actions requires a certain asymmetry, making a distinction between subject and object. The asymmetry does not function as a contradiction, but rather appeals to their complementarity, their different roles and dialectical unity through activity. A subject does not exist without an object, and vice versa. They transform each other through the process of engaging in an activity. The notion of activity makes it possible to focus on the active component of what makes us human. Human beings deliberately change the objective world, creating new things, objects, artefacts; objects, in their turn, drive, shape and determine activity, changing humans in the process. Human beings become connected across space and time via objects created by humans for other humans (Lektorsky, 1984).

### **7.3 Reflecting on the Research Process**

In this section, I reflect on the research process, my role as a researcher and ethical and moral issues pertaining to this research project. I also address the issues of validity and reliability and the possibilities of generalising from the results. Lastly, I will summarise the potential practical contributions of the study.

#### **7.3.1 Overview of the Research Process**

My study of the craft of wooden boat building started in 2012 after joining the *Concept Formation and Volition in Collaborative Work* research project, as well

as taking part in the *Doctoral Program on Developmental Work Research and Adult Education (DWRAE)* at the *Center for Research on Activity Development and Learning (CRADLE)*.

When joining the project, I was at the start of my research career and had no particular experience in conducting research and writing articles, apart from minor trials as a part of my earlier studies when completing my bachelor's degree and master's theses, both of which I completed at the *Herzen State Pedagogical University of Russia* in St. Petersburg. My professional background is in the field of psychology, specifically counselling, educational and organisational psychology. Prior to research work, I mainly worked as a psychologist at a crisis hotline, in a school and at a business training company.

The process of active fieldwork lasted from 2012 to 2014. I was introduced to the Finnish and Indian research sites through the *Concept Formation* project, but in order to have a broader picture on the craft of wooden boat building I contacted another potential site in Russia, which became the third case in my study. After completing the active fieldwork phase of the project, I kept in touch with the participants from the research sites, either personally (Finnish and Russian sites) or through a research colleague (Indian site).

My knowledge of the craft of wooden boat building and its history increased during the process. I was a complete novice when I began, having difficulties with the names for boat parts and instruments. The boat builders were my teachers; they willingly explained and showed everything to me. They also opened up to me the history of wooden boat building generally and locally, as literature on it is relatively incomplete. I also had to study the process separately, spending time with Internet sources and with books on wooden boat building and its history.

As is typical with novice researchers, finding the focus of the study was a challenge. I had extensive ethnographical field data and a number of ideas, which were difficult or even impossible to implement. Many times I took the wrong path with certain ideas. Not only the focus, but also the mode of my study, changed during these five years, as the study evolved into a more ethnographic-friendly monograph from an article-based format. The process of finding the focus of the study was a laborious process, which continued until the very end of writing a coherent draft of the thesis. The support of my supervisors, my colleagues from the research projects, my fellow doctoral students and scholars and researchers from CRADLE and elsewhere proved to be a tremendous resource in this respect.

My skills as a researcher and scholar have significantly developed during the years of writing this doctoral thesis. The main forums for developing and enriching my theoretical and methodological knowledge were the DWRAE and CRADLE seminars as well as other courses and seminars at the University of Helsinki, conferences and summer schools. The main forums for gaining experience in conducting research, writing papers and overall project work were two the research projects that I have participated in while writing the thesis: the already mentioned

*Concept Formation on the Wild* and the *DigiPrintNetwork* project, in which I participated in 2016–2017. Though the focus of *DigiPrintNetwork* project lies in a different field from wooden boat building, namely digital printing and business network research, and no data from the project was used in this study, the project proved a helpful resource in developing certain theoretical ideas connected to the thesis and improving my research reporting skills. The final steps in becoming an independent researcher occurred when I joined a new research group, *Digital Learning and Work (DigIT)*, in 2018; the group taught me how to focus on studies of the potential of objects in various work activities through the lens of digitalisation-enhanced transformations in work activities.

This research journey was an extremely demanding and exciting learning process. It was a gradual process of constructing my identity as a researcher through engaging in work with practitioners and with support from the academic community, specifically CRADLE.

### 7.3.2 Reflection of the Research Ethics

I discussed the ethical premises of the study in Chapter 3. In this chapter, I will briefly review the ethical issues, which are extremely crucial when it comes to doing ethnographical research in work settings that are also unique, open and accessible communities.

My study followed the *Code of Ethics of the American Anthropological Association* and the *Responsible conduct of research and procedures for handling allegations of misconduct in Finland* (Finnish Advisory Board on Research Integrity), which corresponds with the *European Code of Conduct for Research Integrity* (European Science Foundation ESF & ALL European Academies ALLEA 2017). These ethical guidelines pay specific attention to issues of anonymity, informed consent, non-exploitation and avoiding harm. I have clearly following these principles in this study and regarded ethics as an integral part of research practice, as a set of skills and values (Resnik, 2005, 2011; Ritchie et al., 2013). Understanding ethics in this way means focusing on specific ethical choices, which are made with regard to the values and principles and peculiarities of each research project. I regarded ethics not just as a mere set of principles, but as the way of dealing with the challenges encountered and the choices made during the research process. I have already described concrete ethical measures and actions with regard to data collection and data analysis in section 3.1, Data Organisation and Data Management. Ethical choices and measures are always subject to making compromises, for instance between the openness and closed nature of the



data.<sup>96</sup> One compromise in this case had to do with using anonymised transcripts and translations during supervision sessions, which focused on data analysis, while at the same time providing a detailed description of the roles of the participants.<sup>97</sup> This detailed description was essential for robust analysis and making sense of the data. The participants were informed that the data would be used for the writing of a supervised thesis and serve as part of a larger research project.

The three research sites were unique, accessible communities, with it not being difficult to possibly identify the members. The challenge in the case of anonymity was to provide thorough background information while ensuring a certain degree of anonymity and reducing any possible harm. The choice in this case was to use the real names of the places, as anonymising the places proved practically impossible in this kind of a study in this type of a setting. The participants were informed of the ways in which the study would be reported. Anonymity was ensured by not using the real names of specific participants and blurring their faces in the photographs used to report the study.

My position as a foreign (in India a white and unmarried) young woman brought certain challenges at each of the research sites (already discussed in Chapter 4). I have seen this role as not only a challenge, but as an opportunity: I was not seen as a threat, and in this role I could ask certain ‘foolish’, but bold, questions.

Regardless, I was a representative of a different world, with a different background. As Erving Goffman (1961) wrote in his book *Asylums*:

that my view is probably too much that of a middle-class male; perhaps I suffered vicariously about conditions that lower-class patients handled with little pain. (p.x)

In doing ethnography, one must always be aware of whose point of view is presented in the text. The balance between showing and interpreting is extremely crucial in writing up ethnographical research (Colin, 2005). My solution for bringing in the voice and perspective of the participants was the extensive use of excerpts from the data, which let the reader encounter not only my perspective, but also the perspectives of the boat builders as well.

The role of a researcher when employing the CHAT framework is often seen as active and interventionist, as cultural-historical activity theory is an activist and

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<sup>96</sup> With regard to the openness of the data, I primarily followed the principle currently advocated by the Guidelines on FAIR Data Management in Horizon 2020: ‘as open as possible, as closed as necessary’ (p. 4): [http://ec.europa.eu/research/participants/data/ref/h2020/grants\\_manual/hi/oa\\_pilot/h2020-hi-oa-data-mgt\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf) (accessed 04.09.2018).

<sup>97</sup> Providing more details than in the articles and the thesis.

interventionist approach at its core (Sannino, 2011; Toiviainen, 2003). In this study, unlike in many other cases of applications of CHAT, a deliberate change or intervention was not the goal of the research, even though going out into the field and doing ethnography is an intrusion in the daily lives of the participants in and of itself (Emerson, 2001; Ravitch & Carl, 2015). Intervening was not seen only from the standpoint of an intrusion, but as a way to show the worthiness of the work of boat builders for scientific research and making their voices heard in academic circles. The active role of the researcher was reflected by including it in the unit of analysis in Chapter 5 (Figure 5.3). Avoiding any possible harm caused by the act of intrusion was also ensured by being open and clear about the nature of the research and how the data would be managed and reported. It was not only about obtaining informed consent, but also about being open about the research and providing extra information in the process of communicating with the participants.

I managed to establish a relationship of trust and mutual respect with the boat builders, one based on a genuine interest in and appreciation of their work. I was regarded not as an intruder, but more like a fellow collaborator, who in her own way was helping to support the revival of the craft of wooden boat building. For instance, at the Russian site the nickname ‘CIA agent’ that I was given by the carpenters only reflected a certain initial, but minor fear; mostly they used the nickname in a warm, friendly way to reflect my constant presence in the field. Participants from the Russian case also asked several times for help in translating something from English. They also had a plan to publish an English-language article about their project in a professional journal, and they asked for my help in doing it. Unfortunately, the article project has not yet been realised. When I was leaving after my last field visit, the head of the crew gave me a round piece of the deck of the ship that he had sawed out and shaped as a reminder of my time there. I still use it as a trivet for my coffee cup at work.

The recent academic race to publish more papers and obtain funding often causes researchers to take shortcuts with regard to research ethics (Cerulo, 2016; Resnik, 2005; Smith, 2012). In my research, in addition to following the ethical rules, I constantly learned ethical conduct by making certain choices based on the nature of such a demanding real-life research process.

### **7.3.3 Validity and Reliability**

The notions of validity and reliability were developed in the natural sciences as part of a positivistic and quantitative approach. Their application in qualitative research practices is still subject to debate, but I will utilise them as indicators of the quality of the research. Ritchie et al. (2013) emphasise that validity and reliability may be interpreted, understood and applied in multiple ways in qualitative inquiry.

**Reliability** is understood as replicability of the research findings. It is the extent to which the research findings can be repeated if a similar study is undertaken. Overall, reliability may be understood as the ‘trustworthiness’ of the study. **Validity** of the findings usually refers to the correctness and precision of the data used in a research project. Validity is often explained through internal validity, investigating what one claims to investigate, and external validity, the possibility of applying the findings to other groups. In general, validity is a synonym for the word ‘truth’ (Ravitch & Carl, 2015; Ritchie et al., 2013; Silverman, 2011).

The whole essence of qualitative and ethnographical research makes it not only challenging, but almost impossible to apply traditional methods to ensure validity and reliability, e.g. to suppose the possibility of full replication. The approach to validity in this ethnographical study did not aim to ‘reproduce the object of the study completely’ (Becker, 2001, p. 326), but rather to explicate the research processes (Emerson, 2001). The appropriate level of openness was achieved by being consistent and extremely open about the conduct of the researchers and the choices made during the course of the research. Another way it was achieved was by providing a relatively thick description of the research cases (as in Chapter 4) to ensure the proper balance between interpretation and description in writing up the ethnography (Colin, 2005; Emerson, 2001; Geertz, 1994). Yet another way of enhancing the openness of the data was by ensuring multivoicedness, which is one of the key principles of CHAT-based research (Engeström, 2015). At the stage of data collection, I attempted to include all possible and available actors in the process, while at the stage of analysis and reporting the results I provided extensive excerpts from the data to let the readers ‘interpret’ the data for themselves.

Validity and reliability were also achieved via constant quality control and verification — **validation** — during all stages of the research process. The validation process was carried out both internally and externally (Ritchie et al., 2013).

*Internal validation* was carried out by constantly employing a comparative method (Silverman, 2011), which meant constantly checking and comparing the hypothesis and ideas at different points in time, at different sites and among the different participants. I utilised multiple research sites, the principle of multivoicedness and a prolonged data collection process as the means to internally validate the quality of the data and the research.

The process of *external validation* followed the principle of triangulation (Denzin & Lincoln, 2011; Ritchie et al., 2013), which means utilising different sources of information at different stages of the research process to improve the clarity and precision of the research. The following forms of triangulation were utilised:

- *Triangulation of sources*, which means comparing the data from different qualitative methods. In conducting ethnography, utilising supportive qualitative methods, such as interviews, is extremely important for finding a balance between interpretation and description (Collin, 2005). In this study,

ethnographic methods were enriched by conducting and recording semi-structured interviews and making video-recordings of the key moments and processes in the craft of wooden boat building (Williams, 2007).

- *Triangulation of multiple analyses*, which means using different observers, interviewers and analysts to double-check the data collection and interpretations. Part of the data for this study were collected and managed jointly with the other research group members. Data analysis was carried out in constant dialogue with my supervisor, who was able to evaluate the overall coherence of the analysis.
- *Triangulation of theory*, which means looking at the data from different theoretical perspectives. The theoretical and conceptual framework of this study is based on three theoretical approaches: ANT, the approach of Knorr Cetina and CHAT. There is, though, a danger in theoretical plurality (Nicolini et al., 2012). My way of dealing with such a danger was to use one theory, namely CHAT, as the primary theoretical and methodological framework and the other approaches as a means of enriching and challenging the main theory. Using one primary theoretical and methodological framework was also a way to ensure coherency between theory, methodology and methods.
- *Triangulation of the data*. The data came from different sources, three research sites, which was a way to follow how the craft object is currently developing in different craft communities. Data was also collected in different forms, ranging from observations and interviews to collecting artefacts and documents. To ensure the robustness of the versatile ethnographic data, which may be chaotic, I created a unified content log for the data at the start of the data collection process.
- *Triangulation from peers or respondents*, which means bringing research evidence for evaluation to peers or back to the research participants. It is a way to validate research through dialogue. In addition to the already mentioned communication with the supervisors, the quality of the research was checked by presenting the intermediate results at academic conferences, in doctoral seminars and in university courses. Unfortunately, I was not able to obtain coherent feedback on the results from the participants, as data analysis primarily began after the data collection phase and most of the research participants are located a long distance from each other.

The limited feedback from participants was one of the **limitations of the study**. This leads us to another potential limitation, one which is rather common to ethnographic research: a research bias. As simply put by Chambers (2000): Should an ethnographer be regarded as the advocate of the people he or she studies? The research bias also covers the issue of gender with respect to the researcher. I partly covered the issue of gender in subsection 7.3.2, when reflecting on the research ethics. Females are indeed a minority in the craft of wooden boat

building. Being a female researcher in a predominantly male field of work created both obstacles and opportunities. As a certain degree of research bias is impossible to overcome, I treated them both as an essential part of the research process, regarding them critically and identifying their possible impact on the choices made during the research process.

The broadness of the definition of the object, which guided this study, may be seen as a theoretical limitation of the thesis. Defining the concept broadly — both as a general object or a problem space directing activity and as a specific object in a given action or materiality of a certain artefact — may lead to analytical slippage. This slippage comes from the use of the same word to designate different aspects of the notion. In the analysis, I have tried to incorporate concepts from other theoretical approaches, such as intermediary object (Vinck, 1999), boundary object (Star, 2010) and the idea of instantiations of the object (Knorr Cetina, 1997), to focus on certain aspects of the notion. The use of these complementary notions — theoretical operationalisation — was primarily driven by the data and at some points lacks general theoretical and methodological coherency. The weakness in coherency is not the problem of this thesis — it reflects the lack of overall conceptual and lexical coherency in defining the notion of object when using different theoretical approaches. This challenge calls for further discussion of the conceptual and lexical apparatus to understand the versatility behind the notion of object.

The timeframes were another limitation of the study. I was not able to follow the whole processes of boat construction, starting from the birth of the idea and design to its implementation and use. These processes are practically impossible to follow in the three cases of wooden boat building under investigation, as the timeline for the boat's design, construction and use were scattered across time and space. The various stages, which can last for years, were simply impossible for one researcher to trace. I had to rely on the interview data to gather the information about the different stages of boat construction that I was not able to follow. I had to rely on the stories and explanations of the wooden boat builders and, at times, on the secondary data.

I did my best to include all possible voices for the activities in question, but the changing nature of the boat-building teams and my rather temporary presence at the research sites did not allow me to include all the voices, just all the possible representative voices. These limitations were quite practical in nature, stemming from the realities of the research sites and the realities of the research work.

In this study, I regard ethics and research quality as being clearly and deliberately reflected in my choices throughout the research process, which I reinforced by always seeking support from supervisors, peers and research participants when needed. Also, I always sought to strike a balance between description and interpretation. Combining ethnography with other qualitative methods appeared to be an effective way to study the potential of an object in the work of craftsmen, to

see how people are actually engage with an object in their work and to establish how they make sense of such an object in the interviews. I managed to establish a relationship of trust with the boat builders, which gives me confidence in my data.

### 7.3.4 Generalisation of the Research Findings

**Generalisation** refers to the means by which it is possible to make generalisations about the findings from one context to another, which gives rise to a number of challenges for qualitative and ethnographical enquiries (Emerson, 2001; Denzin & Lincoln, 2011). Generalisation in the positivist tradition aims at identifying the general patterns behind the studied phenomena and expanding it to similar fields (Ritchie et al., 2013). Following the dialectical understanding of generalisation proposed by Davydov (1990), Pereira-Querol (2011) discusses two possible types of generalisation in science. Traditional abstract-empirical generalisations are useful for establishing cause-effect relationships when the relationships between variables and factors are stable. This type of generalisation is challenging for qualitative paradigm and ethnographical inquiries, where many variables become intertwined in unexpected ways. Another type of generalisation is theoretical-genetic generalisations. This way of making generalisations focuses on revealing the roots of phenomena and the functional relationships behind the phenomena. The aim in this case is not only to develop solutions, but to apply a new principle in a different context, which may be beneficial specifically for qualitative inquiry. In my research, I have seen the potential of generalisation more in expanding and applying the principles and ways of thinking to other fields of study.

Traditionally, the following types of generalisations can be identified (Ritchie et al., 2013):

**Representational generalisation:** whether the findings can be generalised or applied to the parent group from which the sample is drawn. In the case of this research project, the parental field may be the studies of work and work life. The question here is whether the conceptualisation of a craft object can be applied to other types of production and other work settings. In this analysis traditional, craft appeared not as alternative or critical mode of production or type of work. The craft mode of production, physicality and manual means of production are all parts of various relationships, accumulated through the historical development of local activity. The potential of the object in other types of work and production can be understood by focusing on its cultural and historical features; an object of concrete activity, aggregated over time and adapted to local circumstances, is of potential benefit for various studies on work. This study is also potentially beneficial for studies utilising work ethnography (Czarniawska-Joerges, 2007), as it shows the advantages of utilising multi-sited ethnography (Marcus, 1995; Coleman & von Hellermann, 2011) for the study of work.

***Inferential generalisation***: whether the findings can be generalised to other settings beyond just the sample setting. In this study, inferential generalisation applies to making generalisations about the findings that can be applied to other types of craftwork and for understanding the concrete cases of revival of craft. The potential for generalisation here is that there is a possibility to see how the primary contradiction in craft activity — *between adhering to the old (following the ancient craft or even replicating history) and responding to the new (building a boat that is easy to construct and use and that satisfies market demands)* — is manifested in concrete craft activities and how it is dealt with. This also requires looking at craft historically, understanding the concrete cultural and historical circumstances that lie behind an object used in a concrete craft activity.

Interferential and representational generalisations together form an ***empirical generalisation***.

***Theoretical generalisation***: which means formulating theoretical principles or statements from the findings of a study for more general application. This study was an attempt to apply cultural-historical activity theory to studies of craftwork, specifically wooden boat building. The field of crafts has the potential to serve as a new and rich field of social practice for activity theorists (Kawatoko, 2017).

In the CHAT methodological framework, theory is always enriched with the use of data (Engeström, 2015a). Studying each new practice in this manner provides new theoretical insights. The object of activity appeared as a complex socio-material entity having different instantiations (for instance, a general object of a historically developed activity, an object of concrete activity and a specific object for a subject engaged in a given action).

I have addressed the issue of needing to understand the historical development of an activity, wherein the object of activity appeared as an intermediary object. The specific cultural and historical features of an object drive human efforts towards changing the object: by working on an object and changing it, the subject changes objective reality and moves history forward. Historical development is depicted in the form of lines, which at any given moment come together in an object of activity.

I have addresses the issue of the prerequisites necessary for achieving intercultural understanding across boundaries between different activity systems. It is these specific cultural and historical features of the object, formed in the local circumstances, which allow certain instantiations of the object to overcome cultural boundaries and expand across spatial dimensions to form shared objects with other activity systems.

This study was also an attempt to build a dialogue between three theoretical approaches: cultural-historical activity theory, actor-network theory and the epistemological approach advocated by Knorr Cetina. The main insight gained from

such an attempt was that the use of several theoretical approaches requires constructing a discussion between them and finding complementary points and ways in which they can enrich each other.

The approach of cultural-historical activity theory is also deeply activist and interventionist and includes a number of applications, such as *Developmental Work Research* methodology and *Change Laboratory* method (Sannino, 2011). In the French tradition, ergonomic work analysis utilises an ethnographic way of studying work for solving concrete problems. The focus is on using artefacts to provoke discussions and activity exchanges in a work setting (Béguin, 2003; Béguin & Pastré, 2002). Vygotsky (1977), in developing the approach, conceived of the initial experiment and the experimental-genetic method as a way to study the process of development, not the fossil remains of a development. Although this study was not a formal developmental intervention, neither was it a study of fossils; it was a study of ‘phenomena in movement’, as a real-life object of activity was unfolding during the course of persons engaging in the activity in question.

### 7.3.5 Potential Contribution to Practice

The questionnaire, administered by the Finnish Forest Research Institute in 2000 to members of the Finnish Boat Sculptors Association (Puuveneveistäjät ry), reflected a tension in boat building between those who want to preserve the ecological traditions of wooden boat building and those who want to develop the craft with new techniques to answer market demands (Elovirta, 2002).

The contradiction *between adhering to the old (following the ancient craft or even replicating history) and responding to the new (building a boat that is easy to construct and use and that satisfies market demands)* has created major problems and challenges for the historically developed craft of wooden boat building, as well as for many other types of traditional craft. This study have seen this contradiction not only as a challenge, but as an essential part of craftwork, indeed at the core of craftwork, without which such work cannot exist. The nature of traditional crafts resides precisely in the constant movement between adhering to the old and responding to the new.

Elovirta (2002) also asks whether any of the small boat-building workshops can operate at an industrial size or whether there is at all a need for such a development. Regarding the results of this research project, it is a matter for each concrete workshop to decide. In order to understand the developmental needs of the craft, practitioners need to understand the historical development of the activity system and identify how the primary contradiction has manifested itself in the specific cultural and historical circumstances in which an activity has develop by identifying and following an object of activity.

The craftsmen need to understand that it is not an ‘either/or’ situation. In order to survive in the modern economy, traditional crafts need to constantly strike a



balance: they must heavily draw on history and also respond to current market needs. Traditional crafts, in this case wooden boat building, cannot survive without history, but they cannot survive only with it.

## 7.4 Conclusions

This research project consisted of an activity-theoretical study of the potential of the object in craft activities based on ethnographical fieldwork. The study focused on craft as work, having traditional wooden boat building as an example of craftwork. Based on Marchand (2009), traditional craft was understood as being primarily direct and un-alienated work.

This monograph addressed two seemingly opposing trends in the scientific conceptualisation of craft: eliminating the object from skill-focused analyses of crafts (Sennett, 2008) and eliminating the cultural and historical potential of an object in craft (Risatti, 2007). The object of craftwork was therefore analysed as an intercultural and intertemporal unifying factor. History was understood as a chronological record of events through activity. Culture here referred to the shared features developed in a specific geographical locality where the activity in question took place.

The *general research question* for the study was as follows:

What is the potential of the object in the revival and preserving of crafts?

This general research question was analysed through two *specific research questions*:

1. What is the potential of the object in craft as a unifying factor across cultures?

2. What is the potential of the object in craft as a unifying factor across history?

This study moved beyond general interpretations of craft revival using the approach of cultural-historical activity theory by analysing the potential of the object of craftwork as an intercultural and intertemporal unifying factor. In this study, the notion of the object was used as an entity for anchoring crafts — as a way to understand concrete cases of craft revival.

The main framework for studying the potential of the object in craft was cultural-historical activity theory, wherein object-orientedness is the core principle of the approach (Leontiev, 1978; Engeström, 2015b). The object of activity underpins such an approach and is studied to understand why people do things (Leontiev, 1978, 1995; Engeström, 2015b; Kaptelinin, 2005; Miettinen, 2005). This approach was put into discussion with two other theoretical approaches that have similar aims of understanding the role of objects in the emergence of social and subjective phenomena. Actor-network theory (Latour, 1996a, 2005) deals with humans and non-humans as actor-networks in heterogeneous socio-technical networks, while the epistemic approach of Karin Knorr Cetina (1997) deals with epistemic objects as centres of socialities.

The general methodological framework for the study was that of CHAT (Engeström, 2015a, 2015b). The data were collected by means of longitudinal, multi-sited ethnographic fieldwork (Coleman & von Hellermann, 2012; Falzon, 2016; Marcus, 1995). The interviews extended present-focused participant observations into the past and the future by introducing subjective and historical perspectives (Gubrium & Holstein, 2005; Ravitch & Carl, 2015; Warren, 2002). Photo-elicitation interviews (Harper, 2002; Hurthworth, 2004) were used as an instrument to establish dialogue between two distant groups of boat builders. Qualitative data analysis methods, specifically thematic analysis, were utilised to analyse the data (Braun et al., 2012; Ritchie et al., 2013).

The study utilised data from three wooden shipyards in Finland, Russia and India, collected between 2012 and 2014. All the shipyards were producing usable wooden vessels.

The Finnish research site is situated in a shipyard in the Suomenlinna Fortress. The professionals working on the premises of the dockyard as entrepreneurs include a shipwright, several skilled boat builders and a number of apprentices. Different kinds of vessels — from small boats to an old galleass — were being repaired, restored and constructed on the premises of Suomenlinna shipyard. One of the more recent major construction projects was the construction of a replica of an 18<sup>th</sup>-century rowing gunboat named *Diana*.

The Russian research site is situated in a Solovetsky shipyard, situated on the Solovetsky Islands in the White Sea. The shipyard is part of the Maritime Museum, where a replica of a 17<sup>th</sup>-century historical ship named the *St. Peter* was a central part of the exhibit. All of the work, including the wooden, metal and electrical work, was carried out by a group of mostly amateur carpenters.

The Indian research site is situated in the village of Frasergunj, in state of West Bengal, in India. The study followed one of the building crews, which was constructing large wooden fishing and cargo boats following traditional techniques and design. The building crew, consisting of up to ten men, is hierarchical and the knowledge and skills are transferred in a traditional master-apprentice manner.

The potential of the object as a unifying factor across cultures was traced in the process of exploring the prospects for building object-oriented intercultural understanding between the Finnish and the Indian boat builders by means of photo-elicitation interviews. The process of building sustainable understanding was conceptualised through a process of constructing a shared object. The potential of the object as a unifying factor across cultures was that the object of activity was able to expand across cultures. The expansion of the object occurred precisely through differences in the objects, which were essential for an attempt to establish understanding between practitioners from two different cultures.

The potential of the object as unifying factor across history was studied by looking at the role of an object in the historical development of an activity. Anal-

ysis was based on interviews from the two cases of historical wooden boat building in Finland and Russia. The object of activity, acting as an intermediary object in the process of the historical development of an activity, is able to compress the efforts of subjects at a specific point of the activity. This compression powers the development of an activity across time. By working on the object, subjects propel history forward. The historical development of craft activities in the data appeared as a heterogeneous intertwining of four lines of history. Movement across a line occurs through resolving tensions and conflicts by working on an intermediary object — a certain instantiation of the general object of wooden boat building.

The potential of the object in craft is that the object of activity in craftwork becomes instantiated differently in concrete cultural and historical circumstances, specifically through these cultural and historical features, which have accumulated across time and space; it provides a possibility to compress human efforts at a certain point of history and culture, and through this, to expand activities across temporal and cultural boundaries. The unifying factor in the object of craft is precisely in its diversity — the cultural and historical features or differences formed by specific local circumstances.

The primary contradiction in the craft of wooden boat building was the movement *between adhering to the old (following the ancient craft or even replicating history) and responding to the new (building a boat that is easy to construct and use and that satisfies market demands)*. This constant movement becomes visible in the everyday work of craftsmen as certain tensions and struggles. Wooden boats mediate the relationships within communities and across communities. They make history come alive and help transfer it to future generations.

Further potential continuation of this research may well lie in analysing how digital technologies are utilised in craftwork and how they transform the intentionality and socio-materiality of traditional crafts.

### ***Why study craft academically?***

In 1914, Vladimir Mayakovsky, a Russian Soviet poet, wrote the following words in his poem *Poslushayte!* (Listen!):

*Listen,  
if stars are lit  
it means — there is someone who needs it.  
It means — someone wants them to be,  
that someone deems those specks of spit  
magnificent.*<sup>98</sup>

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<sup>98</sup> V. Mayakovsky, (2013), *Selected Poems* (Northwestern University Press).

By the seemingly useless stars, he meant the numerous new talented poets appearing on the Russian poetic scene at the beginning of the twentieth century. For young Mayakovsky, the stars existed because they had a purpose and were useful for someone. The same holds true with traditional crafts: if they exist, they possess a certain purpose in people's lives and the world of work. Going deeper, Wilkinson-Weber and Ory deNicola (2016) ask a further question: Why study craft academically and theoretically at all? Studying craft from a critical standpoint as a critical mode of production in relation to other types of production does not appear to be fruitful in their argument. Global capitalism is characterised by the co-existence of different forms of production and different forms of work. This world must be understood in its entire complexity. Work based on craft production and traditional crafts should be studied for its own sake to provide insights into other types of work and production precisely because it is 'a vital and fertile means to understand relationships between places, people, and time' (Wilkinson-Weber & Ory deNicola, 2016, p. 1). Craftwork done by amateurs and professionals is also part of a wider creative economy (Gibson & Carr, 2018).

The historically developed contradiction *between adhering to the old (following the ancient craft or even replicating history) and responding to the new (building a boat that is easy to construct and use and that satisfies market demands)* in the craft of wooden boat building creates both challenges and chances for craftsmen. In order to stay afloat, crafts have to constantly search for a balance between traditional and modern. Craft is not something purely romantic and old-fashioned: constant innovations and changes are taking place (Jalas, 2006; Marchand, 2009). Craftsmen and workers have always appropriated available contemporary technologies in the process of doing craftwork to the extent that technology is a necessary part of creative making processes (Gibson & Carr, 2018).

The need to strike a balance between history and modernity calls artisans to constantly produce new innovations and make traditional crafts deeply innovative activities. Specific traditional crafts turn into something that can be called 'hybrid practices' (Tuunainen, 2005), which emphasises their fluidity and complexity. The fluid and changing nature of crafts, embodied in craft objects, calls for the development of agency (Hopwood, 2017), which makes craft activities a rich domain for understanding the role of agency in the development of professional practices and learning.

Traditional crafts appear as deeply innovative practices by their very nature. Innovations may be analysed as applications of a novel and/or better solution to a problem to meet new requirements or existing market needs (Miettinen, 2012; Oslo Manual, 2005). Paavola (2001) sees the paradoxes and tensions in craftwork as openings for new discoveries. This is situation faced by craftsmen on a daily basis. They face numerous tensions and need to come up with novel solutions. Innovations are created while searching for a balance between following tradition

and replying to market needs. Every time a new wooden boat is built, it goes through a long process of negotiations and compromises. Boat builders actually possess what Levi-Strauss (1962) call bricolage — the skill of using whatever is available, recombining it and creating something new. All activities may be seen as situated between the given and the created. Through activity, subjects make use of what is already given and utilise invariants (Clot & Béguin, 2004). This borderline position of activities is particularly vivid in craft activities, where drawing on the old and introducing the new is a key to inventiveness and innovation. Novel practices are evolving around wooden boats all the time (Jalas, 2006). This is another possible answer to the question of why study craft academically: the study of traditional crafts can give new insights into how innovations emerge.

The epigraph of my monograph is a poem by Gichin Funakoshi, a world-renowned karate master and the father of modern karate. He was one of the main figures who popularized karate, traditionally an Okinawan martial art, throughout Japan, giving new life to this traditional art of fighting. For me, this poem reflects the complexity and fluidity of traditional craft as a constant balance between the old and the new. It also illuminates the thorny aspect of human volitional actions, intentionality and purpose: *The Way: Who will pass it on straight and well?* Humans are extremely powerful and vulnerable at the same time: they are able to mould and create objects so strong that are able to drive and direct their actions and provide grounds for the intentionality of their actions.

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# APPENDICES

## Appendix 1

### Key actors

List of the main actors for each of the research sites, including abbreviations used in the text and brief descriptions of the actors.

**Table 11.** Finnish Research Site. Key actors.

Abbreviation	Meaning	Details
S	Shipwright	One of only the remaining shipwrights in Finland. Mainly works as a private entrepreneur building new boats for sale and repairing old vessels. Occasionally engages in boat-building projects, where he often has apprentices under his supervision
M1	Manager 1	First manager on the gunboat project. Boat enthusiast, spokesman for Suomenlinna shipyard
M2	Manager 2	Second manager on the gunboat project, licensed skipper
BM	Board Member	Board member for the gunboat project
A1	Apprentice 1	A recently graduated apprentice, employed during the major wood-working phase of the gunboat project. He was also involved with production of the oars. He helped S with restorative works on other ships
A2	Apprentice 2	A student-apprentice involved during the impregnation and the caulking phases
A3	Apprentice 3	A student-apprentice involved during the wood-working and caulking phases. He was also involved in the final stages of construction
A4	Apprentice 4	A student-apprentice involved during the caulking phase of the gunboat construction
A5	Apprentice 5	An apprentice involved during the caulking phase of the gunboat construction. She was the only female and non-boatbuilding student (painter student)
A6	Apprentice 6	A student-apprentice involved during the minor wood-working phase of construction (oars)
BB	Boat Builder	Boat builder, caulking specialist for the gunboat project. Private entrepreneur who works as a boat builder on the premises of Suomenlinna shipyard

**Table 12.** Russian Research Site. Key actors.

Abbreviation	Meaning	Details
H	Head of the Crew	Head of the construction crew. Previously worked as an apprentice with a skilled boat builder in Arkhangelsk
C1	Carpenter 1	One of the leading carpenters doing the woodwork. Prior to the project, had almost no woodworking skills; left his work as a sales manager and started following his passion — woodwork
C2	Carpenter 2	A skilled painter primarily responsible for the design, appearance and colour of the ship
C3	Carpenter 3	A carpenter with previous experience from the Petrozavodsk shipyards. During construction of the <i>St. Peter</i> , he was primarily involved with metal and mechanic works
C4	Carpenter 4	A carpenter with no previous woodworking skills. He joined the project as a helper and learned the craft during several short-term stays
C5	Carpenter 5	A carpenter involved with maintaining the shipyard's premises and some mechanic works
C6	Carpenter 6	A carpenter responsible for electric and mechanic works on the ship
C7	Carpenter 7	A carpenter involved primarily with woodwork
App	Apprentice	An apprentice studying to become a joiner. He was doing his internship while working on the <i>St. Peter</i>
M1	Member of the fellowship	Funder of the project
M2	Member of the fellowship	A historian, scientist.

**Table 13.** Indian Research Site. Key actors.

Abbrevia- tion	Meaning	Details
L	Crew leader, highly experi- enced	The head of the building crew. Originally from Bangladesh, as were many of the crew members. Never went to school; started working as an apprentice at boatbuilding sites, learnt fast, became a skilful craftsman and made his way to crew leader
O	Boat owner	The owner of the boat under construction (at the time of field-work). Head of the local fishermen's union, technically a savvy individual who is in contact with the Marine Science Department at one of the universities in Kolkata
B1	Builder 1	One of the most experienced builders on the team. In 2014, he went to the Middle East to work at repairing roads.
B2	Builder 2	Young, but skilful builder; emigrated from Bangladesh with family when he was young. Since the family lost everything, including their status, he had to start all over and work at low-paid jobs
B3	Builder 3	A regular crew member, an experienced carpenter. Went to work in the Middle East in 2015
B4	Builder 4	A regular crew member
B5	Builder 5	Regular crew member. In 2013, he went to work in Bombay
B6	Builder 6	New crew member who joined the crew in 2013. Crew leader's nephew from Bangladesh. Had previous boat building and carpentry experience
B7	Builder 7	A regular, experienced crew member
B8	Builder 8	New crew member who joined the crew in 2013. Previously worked in Kerala in different jobs (e.g. plumber, carpenter)
App	Apprentice	A young apprentice



## Appendix 2

Table 14. Description of the field visits

Indian Research Site			Russian Research Site			Finnish Research Site					
Date	Duration	Activities	Participants	Date	Duration	Activities	Participants	Date	Duration	Activities	Participants
Jan– March 2012 (secondary data)	2 month	Photo –elicitation interview	L, O, B1- 5, App	17– 25.06. 2012	8 days	Interviews with head of the crew and carpenters	H, C1- C6	09.12.20 11 (sec- ondary data)	1 day	Interviews with shipwright and manager; installing beams	S, M1
		Keel establish- ing ceremony	L, B1-5			Colour selection process with col- oured plates	C2, C3, H	12.03.12	1 day	Interviews with shipwright and ap- prentice; collecting data for the photo-elicit- ation interview	S, A1
17– 20.01.201 3	4 days	Installing the ribs inside the boat	L, B1-3, B5-7			Cutting a window on the side	C2	27.03.21 02	1 day	photo-elicitation in- terview Major woodwork	S, A1
		Repairing and making tools	L			Decorative and small woodworks on the deck	C1, C7, App	04.09.20 12	1 day	Planking; visit of the Indian Researcher to the Finnish site	S, A1, A3



## Appendix 3

### Photographs from the Photo-Elicitation Interviews at the Finnish Research Site

The faces of the shipwright and apprentices are blurred to protect their identity.

#### THE BOAT AND ITS REPRESENTATION

1.



2.

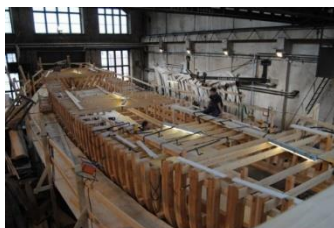


3.



#### WORKERS, COMMUNITY AND DIVISION OF LABOUR

4.



5.



6.



7.





8.



TOOLS AND TOOL USE

9.



10



11



12



13



14



15



16



17



## Appendix 4

### Photographs from the Photo-Elicitation Interviews at the Indian Research Site

The faces of the boat builders are blurred to protect their identity.

#### THE BOAT AND ITS REPRESENTATION

1



2



3



4



#### WORKERS, COMMUNITY AND DIVISION OF LABOUR

5



6



7



8



TOOLS AND TOOL USE

9



10.



11.



12.



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15.



16.



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18.



## Appendix 5

### Account of the Interviews Analysed in Chapter 6

**Table 15.** Finnish research site. List of interviews.

No	Date	Description	Duration	Speaking turns
1	09.12.2011	Interview with the manager (M1) of the gunboat project	02:50	11
2	09.12.2011	Joint interview with M1 and the shipwright (2)	29:30	319
3	12.03. 2012	Interview with S, with a special focus on tools and working processes	18:35	128
4	27.03. 2012	Photo-elicitation interview	55:22	454
5	04.09. 2012	Interview with S and apprentices (A1, A2, A3), conducted during the visit of the Indian researcher to the Finnish site	57:19	447
6	08.03. 2013	Interview with an apprentice (A1) during reparation work on a galleass.	17:39	391
7	08.03. 2013	Interview with S during reparation work on a galleass.	23:49	541
8	08.03. 2013	Interview with the S at his workshop.	34:37	738
9	30.05.2013	Interview with the second manager (M1) on the gunboat project.	1:13:46	1042
<b>Overall</b>			<b>5:13:32</b>	<b>4071</b>

**Table 16.** Russian research site. List of interviews.

No	Date	Description	Duration	Speaking turns
1	18.06.2012	Interview with the head of the crew (H)	29:06	74
2	19.06.2012	Interview with H	36:59	86
3	19.06.2012	Getting acquainted with carpenters and an apprentice (H, C1, C2, C3, C5, C6, C7), App)	41:13	236
4	19.06.2012	Interview with H	36:10	261
5	20.06.2012	Interview with a carpenter (C2)	13:09	79
6	20.06.2012	Interview with H	06:03	54
7	21.06.2012	Interview with App	02:30	40
8	22.06.2012	Interview with a carpenter (C1)	02:26	43
9	22.06.2012	Interview with H	10:24	131
10	22.06.2012	Interview with C1	02:26	21
11	06.06.2013	Interview with a member of NSF (M1)	25:06	227
12	06.06.2013	Interview with a member of NSF (M2)	28:22	137
13	06.06.2013	Interview with a carpenter (C4)	25:28	237
<b>Overall</b>			<b>4:19:22</b>	<b>1626</b>

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