Mikko Jalas

BUSY, WISE AND IDLE TIME

A STUDY OF THE TEMPORALITIES OF CONSUMPTION IN THE ENVIRONMENTAL DEBATE

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ABSTRACT

This study addresses the multifaceted and contradictory temporalities of consumption in the environmental debate. The dominant ideas of ecological modernization approach consumption using the conceptual tools of household economics. That is, consumption is perceived of as production, and regarded as instrumental. The critics of ecological modernization frequently draw on Romanticism, and put forward sensibilities different from that of a rational economic agent. For them, human action – also modern consumption – is imbued with meanings and significant as it takes place. These claims are gaining currency in the form of widespread requests for improved quality of life as opposed to further economic growth.

In this study these debates are reformulated by referring to the different temporalities of human action. The temporality of economic action constructs time as a scarce resource to be allocated optimally. However, it is equally conceivable that human action unfolds as intrinsically meaningful and self-legitimizing action. Furthermore, these different temporalities are subject to a constant struggle.

Busyness and the scarcity of time are deeply rooted in modern societies. They are manifest in convenience technologies, in labour relations and as the prevalent ideology of making good use of one's time. They are also embedded in economics and the management sciences. Hence, this study argues that the institutionalizing policy field of sustainable consumption depends on the capacity to deliberately deconstruct busyness and to counter-imagine the abundance of time as a political utopia. The study points to two different alternatives.

Firstly, the study focuses on accounting methods. It utilises time use survey data to develop and carry out a decomposition analysis of the societal energy flows. This analysis matches the time use categories of non-market time with the use of respective products and services. The central methodological problem is the pairing of consumption expenditure data and time use survey data. Allowing such pairing, it is possible to study how changes in time use are linked to changes in the structure of the economy. On the other hand, this accounting frame also addresses busyness. It constructs all time use outside of market work as intrinsically meaningful and positions non-market time as a final source of utility.

Secondly, drawing on practice theories and on empirical material on wooden boating, the study points to the way that the object world configures human temporalities. It shows how individuals end up dedicated, and willing, even obliged, to give time to boats and serve other interests than their own apparent well-being. On a more abstract level, it is argued that social practices establish their own criteria for efficient means and proper ends, and that they thus also fragment the reasoning about time.

Finally, the study argues that the environmental debate itself reinforces busyness as an ideology. The apparent urgency of the environmental problems calls for better management and for radical innovations in technology. Hence, these problems solidify the position of science and the assumption of scarcity. By no coincidence then is the environmental debate a highly modern field in the contemporary societies. Nevertheless, emerging concerns over quality of life imply that the policy field of sustainable consumption faces a clash of temporalities and must increasingly arbitrate between them.

Key words: *ecological modernization; sustainable consumption; decomposition analyses; Romanticism; time use; wealth-in-time; busyness; social practices; non-human agency*

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This study is a collage of thoughts from various disciplines and straits of everyday life which I have come across, become acquainted with and sought to adopt as parts of a coherent treatment. Accordingly, naming the constituent elements and the key persons involved is a difficult task.

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The key theoretical resources upon which the central arguments of the final thesis are built come from practice theories and particularly from my association with the work of Mika Pantzar at the National Consumer Research Centre and Elizabeth Shove at Lancaster University. This thesis is woven together with the strings that Mika and Elizabeth spun at the HSE apartment in fall 2003. In addition, Mika has acted as one of the formal supervisors of my work, and Elizabeth as a pre-examiner with many highly valuable comments on the manuscript. My sincere thanks to you both.

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Helsinki, May 1, 2006 *Mikko Jalas*

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PROLOGUE

Why is it that eco-efficiency thinking appears alien to the ways with which I ponder the environmental impacts of my daily activities? Why is it that I find many of the approaches offered in this literature deaf and insensitive towards the issues that I value and obtrusive towards the ways in which I lead my life? These are questions which arise from my personal everyday experiences and with which I have been occupied during the last six years while writing the texts of this thesis.

The Senate Square in Helsinki is white in the winter. Snow covers the ground and the white church rises on the north side: plain and bright white against the dark blue winter sky. This scene was so uplifting that I regularly took the longer route on my way from work to home. Rounding the corner to enter the square was a ritual of purification. Open space, little or no traffic, quiet and, yes, a beautiful scene. There was the rhythmic sound of cold snow squeaking under my boots as I worked my way steadily through the scene – bodily and earthy, a timely pleasure of the finest grade of which I never got enough of.

It is at the Senate Square where I have first met the puzzle of this thesis. Thriftiness in me goes back a long way. Strong contributions have surely been made by my longstanding environmental concerns, as well as my engineering education. The result of this merger has been an efficiency ethos. The bright lights illuminating the white church, the scene which I so frequently visited, were surely unsustainable, argued the thrifty in me. But to turn them off, as was the case on some evenings, is to render the city dark and the human effort meaningless. Indeed, the survival and reproduction of the human population as such is a grim and dark project for the ecological future. It is empty of joy and meaning, I contended. Survival is not worth the effort, if the only thing that survives is thriftiness. Anthropocentric, isn't it?

Places like the Senate Square are vivid as worthy human achievements, but not exceptional. The built environment, the object world and the social world all constitute places and spaces for worthwhile human existence. Yet the endowed meanings are under continuous threat by instrumental reasoning. Efficiency engineering surely has merits and can claim successes, without second thoughts. Who would, for example, long for the poor fuel-efficiency of old automobiles (in fact some do). But amidst the successes, there are other aspects of humanity to safeguard – those of aesthetic experiences, social relations and, to map all dimensions, meaningful life. Policies on eco-efficiency need to balance between thriftiness and the other virtues of human life, I often contended when exiting the square.

Apart from my experiences at the snow-covered Senate Square, the texts of this thesis have a beginning and an ending in very practical matters. At first, while engaged in repairing an old wooden yacht, I occasionally took on my other role of environmental expert in a large multinational corporation and started to evaluate which is the more eco-efficient or environmentally friendly building material: wood or fibre glass? The answers were inconclusive, but more importantly, I started to think about utility. Moreover, I started to argue that the efficiency engineer should simply leave this scene. Nobody had really called upon the engineer!

The motivation of my activity was something that I had not thought of, but after an honest attempt, I identified various reasons. While I was motivated by the end-result of having a boat in good condition on the water during the summer, I was also enjoying the work itself and the rehearsing of my skills although my dusty outfit surely led occasional observers to regard me as unfortunate. I was there with a purpose, proper tools and skills, and the world around me seemed silently to agree with me that repairing the boat was sensible.

Efficiency optimizations such as my personal pondering about how to minimize the environmental impacts of my desire for sailing, somehow miss what is most important in life: the brief moments when the world appears sensible, fun, inviting and thrilling. I, for my part, was neither able nor willing to demarcate between toil and pure pleasure in my personal life or to construct goals very far into the future in order to guide and control the present. The ultimate source of utility is time, I contented. Pushing to the extreme, I thought to play a game of imagination and, for a change, to represent products as stages of meaningful being and action. It is along these lines that the core ideas of this thesis were first put on paper in 1997 in the *Finnish Journal of Business Economics*.

1 INTRODUCTION

Ecological modernization is the prevailing, dominant paradigm of environmental policy-making and management in the wealthy industrialized countries. Although first put forward as a process of restructuring production, the concepts of ecological modernization are being used increasingly to address consumption as well. Hence, the promoters of ecological modernization and eco-efficiency have emphasized the need and the possibility to derive novel and innovative ways of organizing consumption and everyday life in less environmentally detrimental ways.

Ecological modernization and eco-efficiency thinking portray a rationalizing representation of consumption. In this thesis I focus on the issue of consumption and time and ask what the premises of the environmental debate are for discussing consumption and consumers. Is there an implicit misalignment between the premises and the everyday life experiences, and does environmental policy overlook a crucial point while advocating rationalizing approaches to everyday life and technologically advanced solutions to environmental concerns? Is it possible to explicate some reasons for such a bias in the discussion? Furthermore, what kind of interventions might I achieve by focusing on time and insisting on the possibility that human life is intrinsically meaningful rather than a mere resource to be optimized for the sake of future utility.

These questions are not unheard of, on the contrary. The Enlightenment and the scientific enterprise raised criticism early on in the form of the ideas of holistic knowledge and Romanticism in the 18th and 19th century (Wheeler 1993; Richards 2002; Taylor and Hansen 2005). Illich (1973; 1978) and Gorz (1982), as well as Paul Lafargue in his call for the "Right to be lazy" a hundred years earlier (see Darier 1998), echo this scepticism in their concerns about how to transfer technological progress into more genuine forms of human well-being. The critical contemporary environmental debate taps on these discussions directly (e.g. Darier 1998) and reformulates them in the various counter-modernist shades of deep ecology (Mol 1995; Dryzek 1997).

The attitudes towards science and technology create tensions within the environmental debate (Jamison 2001). Interpreting such tensions Rom Harré and his colleagues (1999) argue that, on the one hand, the environmental debate is a radical protest movement against the ways nature has been subordinated and made a servant of the human kind. On the other hand, they maintain, it is a reformist input for redirecting development and for wiser monitoring and managing of the environment. Thus, while environmentalism implies a critique of the very project of Enlightenment, human improvement and scientific knowledge, the discussion never-

theless builds upon the very same means in its efforts towards change. Despite the co-existence of the critical and the reformists strands of debate, the field of environmental policy-making and management have been and remain dominated by a rationalizing world-view, by a tight managerialistic grip and by the disciplines of engineering and economics (Cohen and Murphy 2001a; Jamison 2001).

This confrontation can be rephrased according to the ways consumption practices and related material objects are treated in the environmental debate. On the one hand, the proponents of deep-ecology emphasize the kind of human existence that is not centered on material objects. This view is supported, perhaps surprisingly, by the eco-modernist stand, which equally downplays the intrinsic and constitutive meanings of the acts of consumption and the related objects in order to open up possibilities for consumption innovations. Other discussants praise intrinsic meanings as culture and as sources of contentment. Within this mode of the discussion, we also find an odd pair of positive evaluations of modern consumption coupled with radical anti-capitalistic growth-criticism. The confrontation in the environmental debate thus exists between the managerial problem-stating and problem-solving mode of the debate on the one hand, and science criticism, the proliferating notions of quality of life and alternative sources of wellbeing on the other hand.

This discontinuity of the debate hinges on the time horizons of human action. Hence, and bearing on the alliance of critical environmental thought and the appreciating views on consumption, we can see parallels between environmental protest movements and the various "slow"-movements[1], which all seek to evoke new ideas about the proper pace of a good and enjoyable human life (Sanches 2005). On the other hand, the eco-modernist analyses of consumption that are built on a rationalizing model of human action, economize consumption and deploy an instrumental representation of "time-as-a-commodity". My central argument is thus that the policy field of sustainable consumption faces contradictory temporalities and depends on various ways and discursive resources to deconstruct busyness as a prevailing ideology, and that such a project also challenges the axioms of ecological modernization of consumption.

[1] Slow-movements resist busyness and consequent impoverishment of the quality of life. Prominent examples include the following.
- 'Slow Food' is an international organization promoting culinary food, local food traditions and the joys food culture (www.slowfood.com) (see also Parkings 2004).
- 'Slow Cities', or Citta Slow, is a network of small cities that embrace local foods, hospitality and rootedness (http://www.cittaslow.net/).
- 'Slow Design' is a designer movement informed by works such as Papanek (1972), but which also explicitly addresses the tempo of architecture and the object-world (http://www.slowdesign.org/).
- 'Society for the Deceleration of Time' (http://www.zeitverein.com/framesets/fs_zeitverein.html).
- '07-06-05', which is a Norwegian initiative referring to the centenary of Norwegian independence. It seeks to raise a personal struggle for time, proper pace and good life (http://www.07-06-05.com/765/381.htm).

The deconstruction of busyness implies various ways of bringing the time horizons into limits. Such an aim thus shares a common ground with the time protest movements in attempting to localize, contextualise and socialize the abstract economic time. Hence, my intention is to take those growth-critical notions of the environmental debate that address the issues of working hours and the tempo of consumption as a starting point (e.g. Paehlke 1989; Schor 1991; Darier 1998; Reisch 2001; Sanne 2000; Shove 2003), and to elaborate on how meaningful time arises in everyday life but yet is conceptually excluded in environmental management and policy. In this attempt I resort to the sociological literature on time and the temporalities of human activity as well as to the notion of intrinsic "process-benefit" in the field of economics. Idle and proper time are characterizations of temporal frames of action that counter the economizing of time in these debates.

In the appended papers, I ask how utility is constructed in the environmental debate and what the consequences are. More precisely, I explore the prevalent forms of cost-benefit calculus in everyday life, and endeavour to construct the possibility of intrinsically meaningful human action within the environmental debate. On a slightly different and more qualitative track, the last paper on wooden boating dwells on the questions of what are the sources of a preference for, or a duty and a desire to participate in consumption, and how practitioner identities and autonomy are created in and through consumption. However, although I draw on both economics and on sociology of consumption, the subject of this thesis is environmental policy and management. Consequently, the theoretical contributions and the practical relevance of the thesis also lie within environmental policy and management.

Although utility is a central and well-elaborated concept in economics, a deliberate focus on the different formulations of utility provides an opening within the environmental debate. The discourse of ecological modernization frequently takes the form of a cost-benefit calculus and is rich in different notions of how to account for the environmental costs of human activity. At the same time, the notions of utility within this debate remain less articulated. Thus, while ecological modernization has relied on simplistic models of utility, this study contributes towards a variety of formulations and expands the discursive resources of the debate.

To the extent that the potential alliance of meaningful consumption and critical environmentalism has not reached the agenda of environmental policy-making, this study seeks to intervene and has a normative point to make. I have been devoted to aligning the positive, constructive and constitutive elements of consumption with the sustainability debate. More precisely, I have sought to make visible the double-edged nature and the counter-effects of the productionistic and problem-solving bias and argued that by emphasizing the intrinsic meanings and the process-benefits of consumption, it is possible to make an intervention and open up room for a more balanced environmental *politics* of consumption.

However, despite these reformist aims, I regard the environmental debate as fundamentally contradictory and claim that there is a temporal clash involved. It is commonly acknowledged that wise environmental policies should expand their temporal horizons to span future generation and climatic changes. Yet, they should simultaneously also appreciate the intrinsically valuable short moments of everyday life. What is thus evident is that the environmental debate accommodates a clash of contradictory temporalities. However, such an observation does not exclude arbitrating on the level of environmental policies.

The structure of the summary text

This summary text continues hereafter by first delineating how consumption is addressed in the mainstream contemporary environmental debate informed by ecological modernization. Chapter 3 puts forward an epistemological critique of ecological modernization. I introduce an aestheticized view on consumption and consider how it connects to critical environmental thought and environmental romanticism. In the same chapter, I develop the idea that consumption is a temporal act, and argue that not only does consumption "require" time, but it implies engaging with the material world, and configures, articulates and "makes" time. Chapter 4 is devoted to exploring different times of consumption and pointing out that an economizing perspective on time as a scarce commodity is a narrow and contestable abstraction of everyday life. Hence, chapters 3 and 4 justify the fundamental starting point of this thesis that *time is made and appears in and through acts of consumption*.

Chapter 5 brings the discussion closer to the environmental debate again. The task of this chapter is to elaborate on the consequences of the idea of non-instrumental time for the environmental debate. In particular, I consider how one can account for the use of natural resources if, indeed, much of consumption is intrinsically meaningful as opposed to being instrumental and oriented towards an external goal. In chapter 6 I continue this line of reasoning from a policy-making perspective and elaborate on the persistence of the modern agenda in the environmental debate and on a policy perspective that unfolds alongside intrinsically motivated and meaningful consumption.

The key theoretical resource which I use to pin down the contribution of the papers and to structure this summary text is an ensemble of practice theories (Schatzki et al. 2001). This theoretical framework is most fully treated in chapter 4 in the discussion of the time of practical action. However, prior to that in chapter 2 I note that the sociological critiques of ecological modernization draw on practice theories, and in chapter 3 I link practice theories to Romanticism and aesthetics. In chapter 6 I consider the implications of a practice-centred social reality for the policy field of sustainable consumption.

2 ECOLOGICAL MODERNIZATION AND CONSUMPTION

Ecological modernization – the dominant paradigm of the environmental debate

The era of progressive environmental politics is frequently addressed with the title of ecological modernization. This concept refers both to a theory of societal change and to a particular setting for environmental policy-making, which is committed to finding feasible solutions to the environmental problems within the context of free market economies. First put forward in Germany by Huber (1982, cited in Mol 1995 and Buttel 2000), ecological modernization has achieved the position of the dominant social theory of environmental change.

While ecological modernization is for Huber a rather technical continuum from industrial societies into more ecologically aware and sustainable societies, superindustrialization as he calls it, later authors have continued detailing the underlying processes that work towards such an outcome. Most importantly, innovations in both the technologies and the regulative framework in the industrialized countries are said to enable a new path of "green" capitalism in which increasing prosperity and environmental well-being can be reconciled (e.g. Mol 1995; Spaargaren 1997). In more detail, Mol (1995) argues that ecological modernization implies the emancipation and re-embedding of environmental concerns – a new ecological rationality – under which economic actors become self-regulative and internalize environmental concerns. Consequently, innovations are said to increase *resource productivity* and *eco-efficiency* both on a societal level and on the level of specific products and services, and to lead to a *de-linking* between economic growth and the use of natural resources.

Since the introduction of this argument in the early 1980s, the proponents of ecological modernization have been successful in gaining support and claiming successes in the name of this theory or, rather, a broad movement. The landmarks of progress in ecological modernization are many. On the one hand, empirical studies have documented a de-linking between economic growth and many important natural resources (Jänicke et al. 1989; Wernick et al. 1996; Matthews et al. 2000; Hoffrén et al. 2000; Mäenpää et al. 2001). On the other hand, studies of environmental policy and management have identified many contributing institutional changes: the ongoing greening of corporate practices, innovative ways to improve the eco-efficiency of products, and new integrative environmental policies, such as the EU Integrated Product Policy, which shift the policy focus from mere remedy and end-of-pipe solutions to more "fundamental" sources of the current problems. All these observations fit under and contribute to the core ideas of ecological modernization.

The production oriented thinking of ecological modernization has increasingly been in use also when addressing consumption and private households. Broadly, one of the consequences is that businesses have been called upon to derive new eco-efficient solutions for everyday life. Heiskanen (2000) points out a related process in which a life cycle approach, and the more specific management tool of Life Cycle Assessment (LCA) have been institutionalized in environmental policy and management. Accordingly, innovations and product improvements should be viewed in respect to the whole product life cycle, from cradle to grave, and as a result product life cycles or value chains should be optimized in their entirety. Life cycle thinking thus affords attention not only to specific manufacturing processes and large industrial polluters, but equally to the different functions the products perform and the uses that they enable in everyday life. In short, the institutionalization of life cycle thinking has integrated production and consumption, and also lent emphasis to functional representations of everyday life.

Another way of representing consumption has gained popularity through research aiming to assess the macro-level outcome of ecological modernization, namely the de-linking economic growth and the use of natural resources. This line of research represents consumption in the form of monetary consumption and focuses on the structural changes of the consumption expenditures. Accordingly, researchers in this tradition have been interested in the different lifestyles of consumers, as represented by consumption expenditure, and the prospects for de-linking through lifestyle changes (e.g. Vringer and Blok 1995; Biesiot and Moll 1995; Biesiot and Noorman 1999).

In the following, I will detail some of the major tenets of these two different ways of representing consumption. I continue first with the theme of expenditures and then return to the notion of eco-efficiency as functional innovation.

[2] The reasoning for the U-shape of the curve and for the causality from economic growth to environmental improvements is versatile and it builds upon the theories and hypotheses of ecological transition, restructuring and modernization. On the one hand, the transition of agrarian economies into industrial economies is thought to be continued towards more high technology products and followed by another transition from an industrial economy to a service economy (e.g. Bell 1976; Labson and Crompton 1993; Baldwin 1995; Grossman 1995) or to an information society, in which knowledge becomes an ever more important factor of production (e.g. Shapiro and Varian 1999; Windrum and Tomlinson 1999). Technological development and the

Structural changes in consumption expenditure

The phenomenon of the de-linking of economic growth and environmental impacts is also known as the environmental Kutznets-curve (eKc). This more specific formulation implies that the environmental load of mature economies starts first to decline in relative terms but later also in absolute terms. The de-linking is attributed to both the technological development in production and to such structural changes in consumption that are due to saturation of materialistic needs and to changes in values.[2] Hence, de-linking is perceived to a large extent as a consumption-driven phenomenon, and the patterns of private final consumption expenditures of households are posited as significant drivers of structural changes in the economy.

Such positing follows the logic that consumers steer and guide the economy. However, there are more particular bases for a focus on consumption expenditures. Household activities cause both direct and indirect effects; for example the studies of societal energy use the show that both the direct and indirect energy consumption is relevant, both accounting for roughly half of total consumption (Nurmela 1996; Biesiot and Noorman 1999). The former consists of purchases of energy carriers such as fuels and electricity, while the latter consists of the sum of the embodied energy in all the other goods and services purchased from the markets and is subject to change according to the allocation of disposable incomes of households.

The notion of the indirect or the embodied environmental "harms" such as energy use or CO2-emissions of the purchased goods and services – the shadow of the product – firmly link household actors to the economy. The Dutch tradition of studies on energy and structural changes has coined the term "*household metabolism*" to indicate these interlinkages; it is argued that

> *... the wide range of lifestyles and their dynamic features influence, directly and indirectly, the throughput of energy flows and material cycles throughout the entire economy. By adopting the household metabolism metaphor, a picture is obtained that relates the use of natural resources to the very basis of economic activity: consumption in households.*
> (Biesiot and Noorman 1999, 369–370).

accumulation of knowledge that leads to greater efficiency in using environmental resources is another suggested reason for the U-shape (Johnson 1997). It is also suggested that as societies accumulate wealth, they can afford and will start to value a clean environment (e.g. Baldwin 1995). Further causes of ecological transition that are mentioned are the worsened state of the local environment and the consequent change in preferences (Bradford et al. 2000; de Bryun 2000) and the relocation of polluting industries in less developed countries (de Bryun 2000; Baldwin 1995; Bradford et al. 2000).

The household metabolism perspective relays on a specific methodology of economic input-output tables. Making use of such data, empirical studies have allocated all resource use in the economy to the respective categories of consumption expenditures (for an introduction for the application of input-output tables, see van Engelenburg 1994 and Biesiot and Moll 1995; applications with Finnish data include the works of Hoffrén et al. 2000 and Mäenpää and Juutinen 2001). What results from such studies are figures of *the energy and materials intensity of consumption expenditures*, which describe the direct and indirect resource needs of a certain consumption expenditure category and respond to a question of, for example, how much energy is used in the whole economy to produce a financial output of one euro in the car manufacturing industry. Equally, from a consumption point of view, the figures detail the energy requirements of a euro spent on a given expenditure category.

The sector-specific data on the energy intensity of economic output allow the specification of two kinds of de-linking potential. Firstly, they measure the technological improvement in production as a reduction in the energy or material intensity of a sector. Yet, the way the input-output tables interconnect all production activities with household consumption has portrayed consumption and life-style changes as a strong and effective lever for altering the use of materials and energy in the economy. Consequently, the political aspirations to contribute to de-linking by the enhancement of the economic sectors with high labour-intensity and low resource-intensity, recur particularly to the latter factor of structural change (e.g. KULTU 2005, see also ch. 6).[3]

The idea of structural changes towards lower resource intensity has received only vague and modest empirical support. In respect to indicators such as energy use and CO2-emissions, households seem tightly coupled with increasing energy use, and significantly limited in enacting lifestyle changes towards lower resource intensity (Vringer and Blok 1995, Munksgaard et al. 2000, Biesiot and Noorman 1999; Vringer et al. forthcoming). Furthermore, the availability of outlets with low resource-intensity for further economic growth in the service sectors is also questioned (Jespersen 1999). Hence, the leverage for structural changes – the causes and scope of such alternations in the structure of the economy and the political feasibility of striving for such changes – is under question.

Consumption, in this debate, is represented as an individual, cognitive process of information-processing and choice, and accordingly progress along the environmental Kuznetz-curve is merely sought after through educational campaigns and price subsidies. The eKc as a restructuring of the economy is thus rather a normative description of a post-industrial society than an explanation of macro-level changes in consumption expenditures. Hence, although consumption is given credit for being the major driving force of change, this version of ecological modernization is shallow from a policy perspective.

Eco-efficient consumption innovations

The notion of eco-efficiency has captured wide interest across the participants of the environmental debate. Originally, eco-efficiency is a business-oriented concept – a business response to sustainable development in the words of DeSimone and Popoff (1997). As such it has promoted the possibility that profitable efficiency gains exist within and between businesses along the value chains. The idea of market failures constitutes the central theoretical basis for eco-efficiency discussion (Reinhardt 1999). Accordingly, innovation and an "engineering-take" contain the promise of win-win situations (Weizsäcker et al. 1997), which is a central tenet of ecological modernization. Technological progress and organizational alignment for increased resource productivity and improved eco-efficiency are seen as possibilities for green growth and for profits in sustainable development (Hawken et al. 1999).

Eco-efficiency thinking addresses consumption as a set of more or less objective needs rather than treating it as a black-box for realizing individual, subjective preferences. Hence, innovations in eco-efficiency are perceived to be equally feasible in private consumption. Schmidt-Bleek (1994, cited in Heiskanen and Pantzar 1997) has even argued that the prospects of innovation are greatest in final phases of value chains.

In the literature on eco-efficiency, this imperative for consumption innovations is often reformulated as a claim that consumers do not want the products, but the end-results and functions these service-producing-machines yield (e.g. von Weizsäcker et al. 1997). A shift of focus from products to services is indeed central for the eco-efficiency debate. Heiskanen and Jalas (2003) elaborate on the service debate; they make a distinction between traditional service sectors, the growth of which may contribute to a less materials intensive economy as a whole, and, on the other hand, services which seek to replace existing products, extend the life time of the products, or organise their shared use. It is this latter kind of services that has been thought of as novel means to improve eco-efficiency and that also implies new ways of conceptualising consumption.

The focus on the end-services implies a particular, highly functional view of consumption. On one extreme, Hirschl and colleagues state that "*The core idea is very simple: Products fulfil certain functions, e.g. by taking us from A to B, by washing our laundry, or by drilling a hole in the wall."* (2003, p. 873). What can be inferred based on this stream of thinking is that in order to achieve radical changes

[3] The use of input-output tables does not, however, imply a prescription of a structural, "lifestyle" change in consumption expenditure. Nurmela (1996), for example, has used such data to model the consequences of demographic changes on energy demand.

in the environmentally detrimental patterns of production and consumption, we *must* fundamentally question the ways we strive for and derive utility while consuming, focus on the end-services of consumption and pursue radical innovations in (the technologies of) consumption. Framed in this way, the notion of products as service-producing-machines promises to unleash great innovation potential and has proven persuasive and rhetorically successful.

The debate surrounding eco-efficient services has frequently been interpreted to depict new business models and to open up opportunities for entrepreneurship and for new value creation in product chains. Such business models have been conceptualized as functional orientation (Dobers and Wolff 1999), servicizing (Reiskin 1999) and service-orientation (Heiskanen and Jalas 2003), or captured with the notion of product-service-systems (Mont 2002). These notions imply that the supplying companies take more responsibility over consumption activities and enter everyday life as rental companies, fleet managers or more active providers of services and end-results (Stahel 2001; Mont 2002 and 2004a; Heiskanen and Jalas 2003; Behrendt et al. 2003; Halme et al. 2004). Heiskanen and Jalas (2003) further point out that service-orientation resonates with other business trends such as customer-orientation and outsourcing not driven by environmental interests. Yet, the feasibility of service-based business models is not obvious. Mont (2004b) and Halme et al. (2005), for example, have endeavoured to specify the conditions for and locate potential providers of new household services.

Empirical research on service-orientation and functional sales on the consumer markets has proliferated as well. Car-sharing is probably the most widely documented case of eco-efficient services (e.g. Mejkamp 1998; Prettenthaler and Steininger 1999; Schrader 1999). However, also leisure and sports equipment (Hirschl et al. 2003), white goods (Goodkoep 1999; Weaver et al. 2000; Schrader 1999) and durable household goods such as tools and garden equipment (Littig et al. 1998; Mont 2004a and 2004b) have been investigated with the concepts of the service-orientation debate.

Service-orientation is a concept that is also increasingly present in the policy documents. A report published by the United Nations Environmental Programme focuses on product-service-systems and exhibits many core ideas of service-orientation. Accordingly:

> *Promoting an understanding and greater use of life-cycle thinking provides significant opportunity for change … Within this context, the concept of Product-Service-Systems (PSS) – promotes a focus shift from selling just products to selling the utility, through a mix of products and services while fulfilling the same client demands with less environmental impact.*
> (UNEP 2002, 3)[4]

In a similar vein, a working group lead by the Finnish Ministry of Trade and Industry reports that

> *In a service society consumers can increasingly utilize services that are produced elsewhere. For example, the alternatives for purchasing a car are public transport, taxi-services, or car rentals. Laundry services can replace washing machines, and a summer cottage can be rented instead of owned.*
> (KTM 1998, 36 translation from Finnish by the author).

The requests to question current patterns of consumption and ways of striving for well-being could also be read as a radical critique against the creation of "false" and artificial needs. Indeed, for example Schumacher while strongly opposing "materialist" values, argues that "*The ownership and the consumption of goods is a means to an end, and Buddhist economics is the systematic study of how to attain given ends with the minimum means."* (1974, 48). However, the current service debate has obviously been subject to *a specific interpretation* that is conducive to wide interest in the business world and in environmental policy making. The convergence of interests of environmentalists, policy-making and business has provided leverage for the service debate. However, it has also resulted in a growth-oriented interpretation of the service debate.

The thoughts of service-orientation, servicizing and product-service-systems also bear a close resemblance to the words of the household economists in the 1960s who theorised consumption as household production (Becker 1965; Lancaster 1966). When summing up his approach, Lancaster states as his first point that, "*The good, per se, does not give utility to the consumer; it possesses characteristics, and these characteristics give rise to utility"*, and secondly that *"In general, a good will possess more than one characteristic, and many characteristics will be shared by more than one good."* (1966, p. 134). Based on these principles, Lancaster argues that utility is detached from market-produced goods and calls for a focus on the efficiency of consumption. As I will highlight when discussing time and temporality, it is crucial to note that these ideas and their heirs in the eco-efficiency debate represent consumption as instrumental and goal-directed production as opposed to the intrinsically meaningful craft-like orientation that Schumacher (1974) advocates. By no coincidence, Dryzek (1997) has also proposed that *tidy, far-sighted, well-managed households* might serve as a metaphor for ecological modernization.

[4] Indicative of the particular economising view of consumption, the words customer, consumer and client are used as synonyms in this report as in many others of this genre.

Rebound effects as a form of self-criticism

Before continuing with more critical strands of ecological modernization, it is fair to note that even the above versions of ecological modernization, which we might call the economic and the engineering points of view, have internalised some critique. This internal reflection has been framed as *rebound effects* that undermine any efficiency gains of new technological innovations or new ways of organising the systems of provision.

The rebound effect is a notion originally from Khazzoom (1980) in energy economics, with which he argued that any efficiency improvement will cause increased demand for the same product, possibly even out-weighting initial gains. Later it has been added that in a general equilibrium state, an efficiency improvement will create increased demand not only of the very commodity, but also for the various other commodities being offered in a market through an income effect (Greening and Greene 1997; Greening et al. 2000). However, rebound effects are also a label for a much wider phenomenon in the environmental debate. Within the broad discussion around eco-efficiency, the concept of rebound effects refers to any such tendencies that increase the environmental effect of human activities and thus counter and dilute the net effects of efficiency improvements.

Taking into account the rebound effects as a logical consequence of any efficiency improvements, it has been commonplace to prescribe a sufficiency revolution in addition to an efficiency revolution (von Weizsäcker et al. 1997) or a twin-track road towards sustainability (Sachs 1999), and to call for direct attention to the quantity of overall demand in addition to efficiency (Princen et al. 2002). What has received less attention in this broader discussion is that efficiency improvements and growth of overall demand do not only both contribute to the phenomenon of aggregate environmental impacts, but are interlinked. The economists' version of rebound effects hence addresses the structure of the economy, but hardly the volume – asking questions such as where the money will be used that is saved by efficiency improvements? The engineers' notion of rebound effect is even more eclectic noting only that efficiency improvements and economic growth coincide.

This internal criticism has thus been rather impotent from the point of view of critical writers in the environmental debate. To scrutinize the economic orthodoxy of the assumption of insatiable needs and to start asking about the origins of preferences is to attack the very premise of ecological modernization. Hence, the notion of the rebound effect has served as a safe form of moderate self-criticism and as a way to stage the questions of demand as separate from and peripheral to those of efficiency. In the discussion of consumption expenditures this narrow focus materialises in questions about conceivable *shifts* within the household budget. In the engineering discussion, there is merely a call for both an "efficiency revolution" and a "sufficiency revolution", excluding the dynamic connections between

the two and disregarding the difficulties of pursuing both tracks simultaneously. In contrast to these interpretations, I examine a more critical notion of a time-use rebound effect in chapter 5.

Eco-efficient innovation and the socio-technical structure of consumption

Sociologically oriented academics have developed more far-reaching critiques and theories of ecological modernization of consumption. Coming from different disciplines, many voices unite in opposing the instrumental representation of the human action in economics. It has been repeatedly stated that one fundamental and problematic assumption underlying eco-efficiency thinking is the dominance of individuals who are guided by instrumental rationality and seek to maximise their own utility (e.g. Cohen and Murphy 2001a; Moisander 2001; Hobson 2002; Dolan 2002; Southerton et al. 2003; Carolan 2004; Schaefer and Crane 2005). The authors of this genre argue that the responsibility for a change towards sustainability is consequently placed, unfairly and unrealistically, on individual consumers at the expense of more structural accounts.

Spaargaren has used the theory of ecological modernization as a sociological appraisal of consumption (1997, 2003; Spaargaren and van Vliet 2000; Mol and Spaargaren 2004). In his early work, Spaargaren (1997) delineates the program to correct the productivist orientation of the theory of ecological modernization. Essentially, what Spaagaren seeks to establish is a mediating position between the technical and functional view on consumption and a symbolic and post-modern account, in which consumption items are mere signs and completely lack reference to the real world. Bearing on the latter self-referential condition, Spaargaren points out that such critiques do not allow any powers to consumers and consumption and treat the phenomenon as an outcome of the structures of production.

What, then, are the sources of power and agency in modern consumption that Spaargaren refers to? His crucial step is to argue that consumption is not simply a black box in which the output of market production is simply destroyed. Rather, he draws on the work of Otnes (1988) and attends to the uses of products in everyday life. In such a way, he establishes the possibility of skilled and practical action in the domestic sphere and, following Giddens, of practical consciousness. In other words, in his frame of analysis, technology scripts and configures domestic consumption, but yet it also grants individual citizen-consumers the power to enact and reproduce the very same technologies (Spaargaren 1997). The agency of consumers follows from that for socio-technical systems of provision to exist, there have to be skilled users and proper uses.

Spaargaren is explicit in his efforts to try to make use of the practice-account of everyday life in environmental policy-making. He asks how the practice-based view of everyday life can be put to use in promoting sustainable lifestyles (Spaargaren 1997). In other words, Spaargaren seeks to specify the conditions for adopting more sustainable lifestyles, and explores the ability of households to adopt a lifestyle provided that they are willing and environmentally conscious actors. Spaargaren has thus elucidated how green consumption choices are constrained, first, by the availability of alternatives and, secondly, by the mutual compatibility of such technologies and arrangement in everyday life. Yet, albeit working a long way from an individualistic paradigm of free choice, these ideas of the ecological modernization of domestic consumption nevertheless echo the basic theory of individual choice; the choices take place in an imperfect market and on a level of choosing between lifestyles rather between individual goods or specific socio-technical systems (see Southerton et al. 2003 on the latter point).

The notion of constrained choices has been incubated in the field of science and technology studies, where technological development is regarded as an evolutionary and a political process in which the historical lock-in effects result in "inefficient" systems. The notion of the "best", or the "most efficient" design is arbitrary. Hence, the language of these disciplines emphasises the constraints and discusses technology as path-dependent trajectories (e.g. Geels 2002). However, in line with Southerton and colleagues (2003), I argue that even such elaborate and historically-informed ways of contextualising eco-efficiency potentials are an incomplete answer to the pleas for a more interpretive approach to consumption. Although these theories recognise the social embeddedness and the historical contingency of economic and technical systems, economics remains as the dominant paradigm. In other words, they discuss choices as constrained, but not as constructed.

Thoroughly sociological accounts of consumption seek to account for the *emergent* nature of consumption as opposed to consumption stemming either from individual preferences or necessitated and enabled by the development paths of the technical infrastructure. For example Heiskanen and Pantzar (1997), after painting a picture of a revolution in service efficiency, take a step back and argue for a much more complex picture in which *needs arise in use*. Thus, products do not only fulfil but also create needs. Among others Dolan (2002), Shove (2003), Southerton et al. (2003), Warde (2003), Shove and Pantzar (2005) and Pantzar and Shove (2005) take up social practices as loci of the integration of technological infrastructure, cultural expectations and routinised behaviour, and as the mechanisms through which new needs and raising expectations of convenience emerge.

More radical socialising of individual actors has several important implications for any thoughts on consumption. Proper ends and efficient means are called into question and consumption is relativised. Efficiency, and optimal systems for the provision of human needs, are thus not only imperfect because of the historical

path-dependency or the political power of the established technologies. Rather, efficiency is more or less a social construct, an arbitrary notion which keeps changing along with new technologies and new ways and modes of product use. When completed, such a project shifts the focus away from individual consumers to the processes of integration which give rise to the (new) needs. Practice theories also purport a "disintegration of the human mind". Instead of a single mind, which would coherently apply, for example environmentally friendly attitudes, human action, reasoning, wanting and ethical considerations are departmentalised into separate practices in which the individual participates as a carrier of a specific practice.

While dissolution of the rational and environmentally aware "strong individual" may not be appealing for environmental policy, I want to suggest in this thesis that the doubts of the integrity and sovereignty of the individual and the multiplicity of practical identities can better be appreciated as an epistemological critique towards ecological modernization and the related dominant disciplines. In the following, I introduce treatments that depart radically from engineering and economics. Yet, as will come apparent through the exposition, environmental policy and, more widely, green politics also have gains to make on such a critical track.

3 A ROMANTIC EPISTEMOLOGY AS A CRITIQUE OF ECOLOGICAL MODERNIZATION

Radical critics in the environmental debate argue that ecological modernization as a brand of progressive environmental politics is deemed to fail, that it is, in the end, impotent in the task of regulating and managing sustainability. I have myself already hinted at such a possibility when discussing the rebound effects. However, such moderate self-criticism overlooks the difficulties of a dual agenda of progressive technological development and wiser environmental management on the one hand, and the pursuing of contentment and sources of non-material well being in life on the other hand. But what are the obstacles for the dual agenda? Or is the contradiction only apparent?

This chapter will direct our attention towards the broad and often unspecified anti-science front of the environmental debate. At the same time, I will point to particular developments of scientific inquiry into both nature and everyday life and consumption as particular causes of the inherent tendencies of ecological modernization to back-fire upon its own objectives. Hence, unlike for example eco-Marxists, I will not focus on the organization of production but rather look at the knowledge constellations that render human action as anxious at the cost of inherently meaningful and content dwelling in the material world. These developments concern not only how we view everyday life and acts of consumption, but equally our moral faculties. The treatment is by necessity shallow in substantial terms, but it nevertheless serves to document my rising personal interest in the intellectual history of our views on consumption and everyday life.

I shall begin by taking onboard some of the ideas of Romanticism and by taking notice of how the core idea of Romanticism – the intertwining of human reasoning and the external world – feeds contemporary post-modern or -structuralist critiques. This is the intellectual history which bears on my initial claim that time is made in and through acts of consumption, and that the object world configures our thinking and desires. The rather intuitive thoughts in the appended papers, that goods stage meaningful life, and that consumption can be represented as engagement with the material world, can be perceived and better understood as a more or less direct legacy of Romanticism.

After briefly suggesting the key intellectual outcomes of Romanticism, I will examine two questions. Firstly, what is the position of Romanticism in the environmental debate and, more particularly, what are the implications of the aesthetization of consumption and everyday life for the environmental debate. The more explicit treatment of time and temporality of consumption in chapter 4 merges with these efforts and substantiates the arguments presented.

Romanticism as a form of phenomenological knowing

Romanticism as an ideological movement is placed in chronological time as taking place from late eighteenth-century to the 1830s. The movement was brought about in Germany by a highly radical and multifaceted circle of philosophers, historians and scientists and equally poets and painters (Richards 2002).

The development of the core ideas of Romanticism are not, of course, limited to this short era. They drew on a Socratic basis of positive scepticism (Wheeler 1993) and on other aspects of the classical era, such as politics and gender relations (Richards 2002). Romanticism also has a distinctive role in later thought. Nietzsche, Dewey and Derrida have all incorporated, and in their turn substantiated, the ideas of Romanticism (Wheeler 1993).

The one story-line that emerges above others in Wheeler's (1993) account of Romanticism is the phenomenological opposition to the separation of mind and body, and the idea that the external world is not fixed and out there to be explored by the human mind. Rather than accepting such a position, Romanticism substitutes an active and engaged human mind as a creative source of emergent knowledge for the position of detached and disengaged observant, which is regarded as an obstacle to developing knowledge. In other words, what was at stake was a shift from a "spectator theory of knowledge" towards an ideal of humans as active participants in the making of knowledge (Wheeler 1993). Hence, another common interpretation of Romanticism is to consider it a school of thought that developed as a response to the broad swing of the Enlightenment or more particularly as a response to the idea of science as pre-linguistic, direct empirical observation (Richards 2002). A common misunderstanding, on the other hand, is to pass Romanticism as "emotional mysticism"; it was instead committed to self-reflectivity and to a union of progressive poetry and science (Richards 2002). Seen in this way, Romanticism was a reaction to the way in which Enlightenment philosophers had succeeded in "purifying" science and disengaged science from moral questions and from the probing of what makes life significant (Calhoun 1991). It was a model of re-engaged science and knowledge-making.

Language, and especially the use of metaphors, is the integrative device for knowledge-making within Romanticism; the Romantics would argue that all knowledge necessarily implies creative capacities, poetry. Creative language was to result from immersing oneself with the world as opposed to trying to acquire a position of distant observer. Furthermore, Romanticism implied a particular relationship between writer and reader, and artist and "audience". For the Romantics, there was no, or there was not to be, a passive reception of pre-given ideas. Rather, readers and observers were to be active participants in the process and to make new knowledge through reinterpretations (Wheeler 1993). Hence, the name of the movement derives form the French word *roman* and signifies the story-telling aspects of knowledge-making (Richards 2002).

The idea of active receiving and further interpretation of knowledge placed additional requirements on writing. The language needed not only be creative in terms of expressing new knowledge, it also needed to be provocative; it needed to shake perceived truths, to destabilize the reader or the observer and thus prevent straight-forward adoption of the truths of the author (Wheeler 1993). Reflexivity and purposeful deconstruction of previous knowledge were, thus, virtues of Romanticism.

Morality and irony

The purpose of engaging in creative and reflective interpretation of the world was not only to extend our knowledge (of the natural world). Instead the Romantic writers, and pragmatists such as Dewey after them, also emphasized the imagination and creative exploration as means for developing the moral and aesthetic faculties of humans (Wheeler 1993). Reflection and purposeful deconstruction of perceived truths was to be turned towards oneself, to contribute to self-criticism and ultimately to "self-overcoming" in the terms of Nietzsche.

Irony was the device that the German school of Romanticism developed and cultivated to take on the task of self-reflection (Wheeler 1993). Wheeler points to irony in a strong sense; not merely as satire, but as self-criticism. What was to be ridiculed, remade and expanded was not just knowledge of the external world, but also oneself (see Calhoun's (1991) review on the work of Charles Taylor). In other words, irony appears as a means to expose oneself towards and truly explore the external world, and to bring down the defences of received knowledge.

However, Romanticism offers more specific "tools" for self-reflectivity. Not only is irony a vehicle for stimulating imagination, but the effect goes both ways. Sensitive occupation and dwelling in the material world also contributes to self-reflectivity. Hence, the idea of emotional and aesthetic forms of knowledge is crucial for the Romanticism. As Calhoun argues Romanticism "… *introduces a focus on the aesthetic into the realm of ethics or morality. Sensual immediacy is a key Romantic ideal … and one in which the emphasis is not on the external qualities of an object, but on the quality of experience evoked.*" (Calhoun 1991, 255).

Apart from the legitimacy of purposeful irony, it is the notion of aesthetic knowledge that is central to my own endeavour. New knowledge about everyday life and new moral faculties result from acquisition and cultivation of aesthetic and emotional knowledge. One way of understanding such knowledge is the idea of "sensual immediacy". Indeed, in chapters 5 and 6, I will argue that a purposeful shrinking of the time horizon of human action is a form of irony that delivers new positions for environmental policy and management. Yet, it is still proper to stay with Romanticism and this form of knowledge.

Aesthetic knowledge

Aesthetics is a term that was launched by Baumgarten in the mid 18th century and which resonated with the development of Romanticism (Strati 2003, Gunn 1987). However, aesthetics was quickly appropriated as denoting institutionalized fine arts rather than harnessed for the critical cultivation of self-reflexivity (Gunn 1987).

John Dewey has addressed this distinction in his Art as Experience (1958). Wheeler (1993) argues that Dewey distinguishes between three kinds of criticism or evaluation of art. Firstly, one can discern authoritative evaluation of the worth or the correct interpretation of a piece of art. This constitutes the institutionalized form of art and art criticism. Secondly, Dewey points to subjective criticism, which is not able to explicate emotions or states of mind that relate to the piece of art, but resides on the level of primary emotions. Finally, there is a form of astute criticism, which involves the creative search for an interpretation of the piece of art.

Astute criticism and the word "experience" imply a merger of subjective and objective in which art is given an interpretation as a part of a whole. The whole is an arbitrary notion; there are many conceivable interpretations and no single one of them is the "right one". Experiencing art thus means expanding on it; it implies contextualizing the piece of art as an element of a unity (Wheeler 1993). Such aesthetic knowledge requires primary emotions and sensory data. However, the frames of interpretation, which the experience is perceived as a part of, are also equally constitutive for such knowledge. Hence, criticism, and approaching art as experience, becomes a creative act in itself, an art. Like the writer and the reader in Romantic accounts, in Dewey's Art as Experience the maker and observer are both creative positions.

Finally, the launching of the full blow of such thinking requires one to broaden the idea of what counts as art. Art as Experience denounces the concept of art as limited to institutional arts. Instead artistic representations and interpretations cover the ground from nature to science and everyday life. As Wheeler interprets, "*Any experience can take on aesthetic qualities when intelligent discrimination and unification of elements in an experience occur through imaginative participation"* (Wheeler 1993, 208). Consumption and various use situations in everyday life are thus also subject to creative interpretations. Such an idea of playful, artistic and self-reflective consumption is, as has become obvious, deeply romantic in its origins. This is, however, far from a burden.

Romanticism and the environmental debate

The origins of many of the critical perspectives of the contemporary environmental debate can be located within the rise of modern science. More specifically, they connect to Romanticism (Jamison 2001). The writers within the environmental debate who are informed by Romanticism argue that science has lost its focus; the goal of an improved human lot and a richer human life has gradually given way to scientific practice as such (Jamison 2001). Such instrumentalisation of science has implied science for the sake of science. True to its origins, Romanticism has been evoked in the environmental debate to question and query the constituents of a good and decent human life (Dryzek 1997, Jamison 2001).

These contradictory ideas of science have ramifications that cut across most of the environmental debate. Science, and the position of scientific knowledge, remains one of the issues that fragments the contemporary environmental movement and creates tensions within it (Jamison 2001). On the one hand, the movement is clearly dependent on scientific knowledge of the state of the environment; the problems that are continuously restated by scientists and in the language of science are fundamental to the movement. Furthermore, those with a science-based view are painfully aware of the scope and scale of environmental problems and thus call for more intelligent management of the relationship between societies and the bio-physical base on which they rest.

For others in the environmental debate, science and the managerial take on the environmental issues are rather the causes of the problem. The very attempt to control and manage the environment appears to be false and doomed to fail. The belief in human progress, in an open-ended development and in the innovative ability to constantly push the ecological limits is called into question. Environmentalism is thus equally a value-laden movement, which distances itself from instrumental science and has a keen focus on the rights of nature, equality in societies, spirituality, aesthetics and the elements of happiness and good human life. The intelligent management of the environment should not pass as an end as such, it is argued.

Ecological modernization has accentuated the polarization around science. Although there are many shades of eco-modernists – those who settle for technological fixes and those who call for institutional changes– what is common to all, is that the position of science is not challenged. Rather, ecological modernization has shifted attention from local perceivable environmental problems *towards* science and scientifically observable problems such as acid rain or global warming

(Hajer 1995).[5] Thus, the more radical sentiments of the environmental debate argue that eco-modernization and its constituencies have been co-opted in the destructive alliance of modern, instrumental science and capitalism, rather than having really found and articulated any openings or cracks that might lead to more sustainable societies.

While the eco-modernists differ in terms of how radical changes are needed, their critics are even more of a mixed bunch. Deep ecology is a label originally developed by Arne Naess and often used to lump together various critical environmental movements. It is, nevertheless, also possible to demarcate between different stands. Eco-feminists who view patriarchism as the central problem, deconstructivists who attack the validity and objectivity of the scientific enterprise, those who prefer aesthetic values over materialistic values, and finally those who look for traditional ways of life, spirituality and self-sufficiency, and long for a fundamental harmony with nature, all draw on the ideas of Romanticism.

Romanticism has contributed to the raising of new academic disciplines and political programs (Jamison 2001). From the point of view this thesis and my emphasis on the possibility of aesthetic knowledge, the Arts and Crafts movement of the late 19th century is most interesting. With the influence of its leading figure William Morris, the movement promoted a romantic idea of alternative forms of knowledge production, social organization and work, all based on craft identities and praise for the aesthetics of both working life and the object world (Jamison 2001). Morris himself was a utopian communist, the writings of whom resisted the idea of scientific socialism as a program and a solution (Thompson 1977). Arts and Crafts movement was a highly influential political movement. Jamison argues that Gandhi's India, the rise of the Swedish welfare state and the New Deal of Franklin Roosevelt were all significantly influenced by the movement. Furthermore, and not far from the contemporary environmental debate, Morris' view on human improvement and better technology enabled him to envision that technology could also ultimately benefit humans and gradually free workers from heavy toil (Jamison 2001).[6] The thoughts of the Arts and Crafts movement and the utopian thinking of Morris thus continue to radicalize the contemporary debate as is obvious in the prescriptions for qualitative improvements instead of quantitative growth.

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[5] Hajer (1995) argues that ecological modernization has rendered environmental problems as calculable and as issues that require good management. He does, however, also note the rise of systems ecology and the related ideas of non-linear systemic changes and the need for precaution. While these ideas cast doubt on the manageability of the environment, they are, nevertheless, overwhelmed by the optimism of environmental management.

[6] Darier (1998) explicitly considers the environmental legacy of Paul Lafargue's pamphlet 'Right to be Lazy' (1883). Lafargue was a contemporary and a social activist like Morris in the late 19th century. Jamison (2001), however, argues the Arts and Crafts movement was one of the most successful critical movements and points out that Morris' own background and skills in arts and design enabled him to articulate a very convincing critique and a particularly persuasive future utopia.

Aesthetic understanding of consumption and the environmental debate

Through the incorporation of romantic ideas, green politics is not only about natural resources, but equally about good and decent human life. Commonly, the environmental critiques address the sources of happiness, pleasure and meaningful human life and raise concerns about the ability of science and technology to further contribute to such goals. However, the adoption of Romanticism has been biased towards *nature* as the primary source of aesthetic experiences, and the critical capabilities thus remain underdeveloped.

Romantic critiques in the environmental debate often resort to aesthetic notions of nature and to envision a state of humanity that is not (highly) mediated by technology. The thoughts around the notion of deep ecology thus call for a new sensibility and appreciation of nature not as a mere resource to be engineered, but as an entity of intrinsic value and a source of aesthetic experiences (Dryzek 1997). In a similar vein, the bio-regionalists seek a sense of place and a sense of community as a source of aesthetic experiences. In these discussions, aesthetics and spirituality are frequently intertwined. Welford (1997) for example, only briefly mentions aesthetics and builds the critical chapter of his book on spirituality and derived notions of unity with nature.

> *Business should beware! ... Spirituality is migrating and moving. Buddhism, Shamanism and nature-based wisdom of indigenous cultures is mixing to produce a sophisticated ecological teaching which is powerful and appealing.*
> (Welford 1997, 214)

Although there is bias, nature is not the only source of the critical sensibilities upon which radical environmentalism draws. Bookchin (1980, cited in Smith 1998), when developing "social ecology", has emphasized fair and non-hierarchical social relations. The advocates of voluntary simplicity add to the list self-determination, small-scale technologies and the psychological pleasure of participating in production (Elgin 1981; Leonard-Barton 1981; Zavestoski 2002; see also Etzioni 1998). According to Zavestoski, the practice of voluntary simplicity implies, in various degrees, the minimization of the consumption of material goods and the cultivation of non-material virtues such as intellect, and personal opportunities to enjoy life. Based on a literature survey, he also argues that the concerns of self-creation and authenticity have become more relevant aspects and partly replaced the spiritual orientation of the early movement. He claims that self-realization and authenticity in consumption and in everyday life have become ever more important because such possibilities are increasingly scarce in working life. However, the participants in the courses on voluntary simplicity studied by Zavestoski find that this process of alienation, which defies the opportunities for meaningful action, increasingly applies to materialistic consumption as well.

While consumption may be void of meanings and feelings for many voluntary simplicists, this is not necessarily so for consumers in general. The Romantic idea of creative interpretation and engagement applies to the whole range of the object world, even if it is mediated and brought about through various market processes (Firat and Dholakia 1998). For example, cars, automobility and car-cultures have been elaborated as highly meaningful, emotionally loaded spheres of human actions (Sheller 2004). Nevertheless, modern consumption patterns as sources of meanings and sensory experiences have been treated roughly by environmentalism. Acknowledging the meanings of consumption is often passed, without a second thought as praise of increased consumption. Yet, if a fundamental critique towards an economizing and instrumental take on human life is to be pursued based on aesthetics, the meaning-making processes of modern consumption cannot be ignored (see also Dolan 2002). Thus, although Dryzek notes somewhat downplayingly that Romanticism tends resort to either "*a pre-modern Eden"* or to *"post-industrial playfulness"* (1997, 175), there is no need to eschew Romanticism. On the other hand, neither is there an obvious reason to argue that all consumption is necessarily meaningful and subject to creative appropriation and re-interpretation. Dolan (2002), for example, acknowledges the critical capabilities of Romanticism, but at the same time argues that much of this has been internalised and co-opted by capitalistic market production in the from of an romantic ethic (Campbell 1987) and an illusionary hunt of ever more experiences.

The possibility of consumption- and object-mediated aesthetic experiences is made more plausible by two interconnected claims of Taylor and Hansen (2005). Firstly, they rehearse the argument that aesthetic experiences are available not only in what we call arts, but across everyday life. Secondly, they claim that aesthetic knowledge resembles tacit or practical knowing of "how to" and may take the form of skilled performance. Accordingly, aesthetical experiences are not limited to a primitive nature context stripped of material goods and neither to the most abstract forms of art such as music, but frequently occur as mediated by the object world, in which skilled performances take place. Practical action in which material objects and tools are used and human bodies are moved gives rise to aesthetic and kin-aesthetic, sensory experiences (Reckwitz 2002; Sheller 2004).

The notion of a skilled performance implies a rather distinctive relation between humans and the material world. Such aesthetic experiences are not available in consumer goods and services as such, but emerge in human action. Furthermore, socially shared practices set the standards upon which both proper means and desirable ends of a particular action are derived (Reckwitz 2002). This is a theme that I will return in more detail in chapter 4. Suffice it here to note that such contextualization of human action is what Wheeler (1993) draws attention to in Dewey's "Art as Experience". Social practices constitute the array of socially shared contexts upon which the aesthetic interpretations of human action can take place.

Practice-based approaches to human action and social order connect to aesthetics and Romanticism not only through their view on human action, but also by allowing non-human agency. The cultivation of symmetry between human and non-human actors, and the idea that non-human actors configure human action is one of the basic tenets of post-humanistic versions of practice theory (Pickering 2000). Much in the same vein, Dryzek (1997) argues that Romanticism attacks the division of the human subject and nature as mere object, and writes that "*...agency is seen as existing in (external) nature too. Nature is not blind, unthinking, and unfeeling; instead it is truly alive with meaning and purpose.*" (Dryzek 1997, 165). While romantic thoughts of this kind easily pass as simple mysticism, practice theorists aim to be sensitive to the social processes in which non-human actors, including those of nature, acquire agency and voice, and are able to evoke feelings and make convincing claims on humans. The article on wooden boating (Jalas 2005) focuses on such a process.

Non-human agency points to the power that practices exercise on humans. Practices do not just avail themselves for creative play of interpretation in everyday life, but also force identities, configure and even dictate ways of being. We can appreciate the role of feminist thinking in articulating a social critique based on a practice ontology. Writers with a feminist position argue that classifications like gender are constantly done in and through repeated performative human action (Butler 1999, cited in Valtonen 2004). Gender, then, does not exist as a pre-given category, but re-emerges and reproduces itself in repeated doings. Romanticism hence feeds feminism, and feminism is but one example of building a critique upon aesthetic knowledge; the body and bodily action is a site in which aesthetic experiences take place, but also a location in which knowledge and classifications, such as gender, are reproduced.[7]

Practice theories, as a brand of phenomenological thinking and one distant outcome of Romanticism, appear as conceptual resources for critical environmentalism. Their reach extends beyond what is frequently made out of environmental romanticism. Equally, the scope of practice theories is not limited to the criticism that I reviewed in chapter 2; these ideas of the intertwining of human thinking and the object world reach beyond the notion of consumption being constrained by technological momentum and thus question the core assumptions of ecological modernization. At the same time, adopting these views assigns products quite a different role. As I argued in chapter 2, eco-efficiency thinking assigns products

[7] The central role of the body can be linked to the works of Michael Foucault. Cohen and Taylor (1992, 24) argue that Foucault 'explicitly favours an approach to the self which emphasizes the idea of creating one's life by treating it as an object to be given style and beauty' and quoting Foucault in an interview (in Rabinow and Dreyfus 1983) that 'the principle work of art, the main area to which one must apply aesthetic values is oneself, one's life, one's existence.' Foucault's ideas, then, manifest aesthetics of one's body and bodily actions and, as Darier (1999) claims, deliberately oppose the embedding of aesthetics in nature.

an instrumental role. On the other hand, in this chapter I have started to work towards non-instrumental object-relations and intrinsically meaningful consumption by arguing that it is conceivable that objects are also attended and appreciated as they are instead of what they can provide us with. Allowing, as it were, that the object world stages our actions and "speaks to us", but also forces, configures and genders our action, raises practice theories to the fore.

4 THE TEMPORALITIES OF CONSUMPTION AND EVERYDAY LIFE

> *By exploring problems of time one can find out a good deal about human beings and about oneself that was not properly understood before. Problems in sociology and in the human sciences in general that were not clarified by previous theories now become accessible.*
> (Elias 1992, 1)

Just as Norbert Elias suggests, a focus on time highlights new problems. However, time is also such an all-encompassing concept that any human activity is bound to involve it. Activities have a duration and a placement in a sequence of activities, and often comprise more or less routinised repetition of previous activities. Yet, humans obviously also reason about their use of time and treat time as a resource. Each activity is hence embedded in linear time, but linear time also winds up in intertwined loops following geo-physical, biological and social rhythms of repetition. There are thus different times of consumption and different temporal settings in which consumption takes place.

The focus of this study is on the (environmental) politics and management of consumption, and the different temporal settings and horizons that lay underneath such debates on the material facets of everyday life. Evidently, we encounter very different times. Times of consumption may include short-lived, instantaneous experiences, but also repetitious chores and long-term projects such as maintaining one's health. It is clear that homogeneous linear economic time is one possible, perhaps even prevailing, temporality of everyday life. However, it is also possible to qualify different times by referring to biological and social rhythms and to different mental and bodily states.

The purpose of this chapter is to introduce the core, time-related concepts that have been deployed in the papers of this dissertation, and to further elaborate on them. To set the stage, I first discuss two key dimensions, that of instrumental vs. non-instrumental, autotelic action and that of linear vs. cyclic time.

Intrinsic meanings and cyclicity as structures in linear time

While much of the time-related literature deals with the rise of a specific, linear notion of time in modernity, the other recurrent theme is the structuring of time and the different, plural qualities of time in modern societies. The strong technological and social forces that contribute to an abstract linear notion of time and to the economizing of time use thus serve as a background for discussing

the more pluralistic notions of times and the structures that create temporal patterns in modern societies. To summarise briefly this background, a linear time concept is seen to depend on 1) the exact measuring of time and in particular the mechanical clock first taken into use in the Benedictine monasteries (e.g. Mumford 1934/1963), 2) on the labour market and other opportunities to make use of one's times (e.g. Thompson, 1967/1974), and 3) on an ethos and moral imperative not to waste time, which was increasingly seen as a resource and as irreversible (Thompson 1967/1974; Zerubavel 1981; Cross 1993). Hence, linear time is made through technologies, embedded in work-relations in the markets, and put forward as an ideology.

Intrinsic, non-instrumental meaning of time and the cyclicity of reoccurring, routinised human action constitute major breaks in the ideology of linear time. I will in the following introduce these temporal dimensions following Szerszynski's (2002) discussion on the temporalities of environmental politics and lifestyles, and summarise the discussion in the form of a two-by-two conceptualization represented in the figure below. Each of the specific temporalities will then be discussed subsequently in more detail. Household economics is addressed with the question of how and with what consequences do instrumental representations of everyday life take place. Thereafter, I turn to the notion of autotelic, intrinsically meaningful practical human action, and to the cycles of collective rhythms. I close chapter 4 by considering the possibility of slow and fast time.

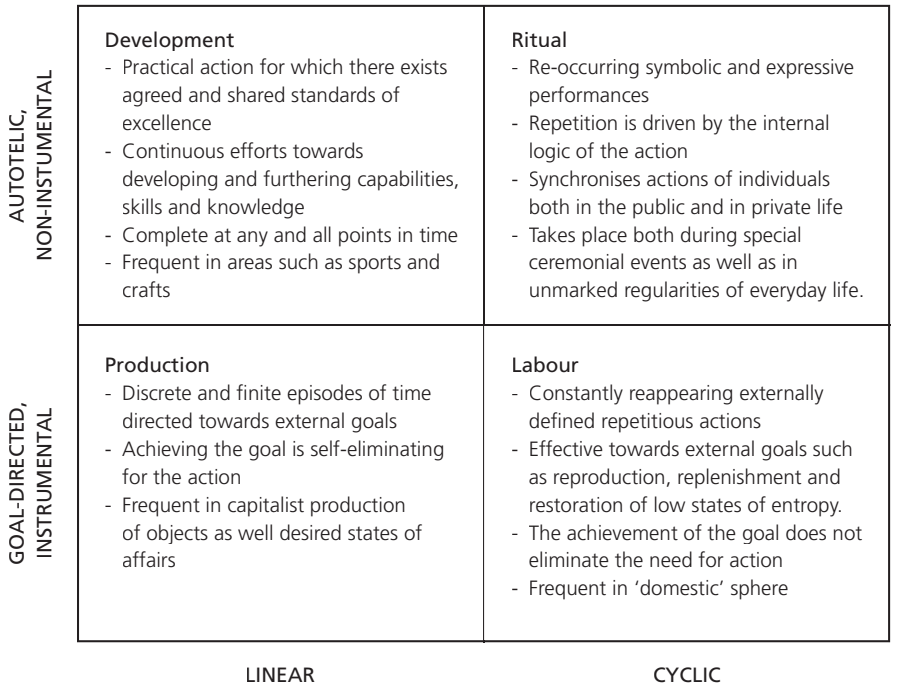

Figure 1: Temporal orientation of human action (based on Szerszynski 2002).

To begin with, Szerszynski (2002) distinguishes goal-directed actions, which take place in the discrete and limited time periods and are oriented towards an external goal outside of the activity itself. Economic activities, according to Szerszynski, frequently take the form of goal-directed actions within limited episodes. Characteristic of these activities is that a feasible goal is fundamental for such action and that achieving the goal renders the action no longer valid.

However, not all goal-directed action takes place in a frame of linear time. Szerszynski (2002) points to a field reproduction, in which human action is directed towards affecting the outside world and maintaining low levels of entropy. Because the subsistence base of human existence is in need of constant replenishment labour, such goals are self-reproducing. Thus action takes a cyclic and instrumental form since repetition is driven by external necessity.

Autotelic activities constitute a sphere of action, in which the goals are included in the very action and not outside of it. According to Szerszynski, autotelic actions in a linear time frame follow a logic of praxis in that they are performed to develop capabilities, skills and knowledge of the actor. Thus while the goal does not lie outside of the action nor is it destroyed by successful accomplishment of the task, time is, nevertheless, linear as the action is organized along a continuum of a progress in skills and knowledge – or along the career of a carrier of a practice, to use Shove's (2003) vocabulary. However, skilled performance is a virtue as such instead of an external goal of acquiring and possessing the skills.

As a fourth distinct temporal orientation, actions which are embedded in a culture and take place as part of social rituals are cyclic but at the same time autotelic as they are not necessitated by the outside world or by nature. This last distinction by Szerszynski immediately raises the question of whether social reproduction through various rituals cannot be just as external for individual action as biological reproduction, and whether they are not in fact highly intertwined. For example, the efforts on cleanliness, which Szerszynski uses as examples of reproductive labour, stem from both biological needs and culturally based expectations (Schwartz Cowan 1983; Shove 2003).

Despite such ambiguities, I argue that while discussing temporalities in the context of the environmental debate, such a distinction is appropriate and useful. Firstly, according to Szerszynski, the distinction between externally necessitated reproduction and reoccurring social rituals is based on the argument that ritual action is symbolic and expressive and thus self-legitimating and autotelic. To further the distinction, it is possible to view reproduction as the drudgery of replenishment, the reappearing need of which we are well aware. The self-legitimating nature of ritual action, on the other hand, arises from the fact that ritual action follows relatively strict codes of conduct, to which we align more or less smoothly in order to create social order. The work of Valtonen (2004) also helps us appreciate

the difference between reproduction labour and ritual action. She uses the notion of performing and play when discussing rituals. For her, most ritual action has an essential temporal dimension, even though it also "serves" the function of replenishing social and cultural order. Hence, as opposed to reproduction, the time of ritual acting is not subject to economizing scrutiny.

The distinction between ritual and practical action is delicate as well. Both of them imply repetitious performance. Ilmonen (2001) associates habits, conventions and routines with practical action, which is guided not by the conscious mind, but by the trained and remembering body. Such habitualization leads to the internalization of the formal external rule; as in the process of learning to ride a bike, traffic rules and steering moves are internalized. On the other hand, Valtonen discusses repetitious rituals between, for example, work and leisure as border practices. The essential distinction is, however, that by practices Szerszynski refers to *skilled* performance.

Rituals, like the Friday rituals that Valtonen describes, can be performed effectively or so poorly that they cease to be understood by others. However, ritual action does not imply skills to same extent as practical action; we are seldom aware of or take pride in our Friday-skills even though in a given context the ability to read and perform Friday is surely critical for social functioning. Thus, practices, as they are used in my work, exceed both the notion of unreflective routine and the signaling and acting out of borders in the flow of time. The association of routinised, more or less unconscious conduct with practical action, runs the risk of underestimating the potential meanings of practical actions and the moral loading of skilful and proper practicing, as well as the practical and aesthetical form of sensory consciousness, which I put forward in chapter 3. Allowing these distinctions, it is possible to distinguish between economic considerations of *why* something is done, the ritual and symbolic naming of *what* is done, and the practical question of *how,* and *how well,* something is done.

The key distinction from the point of view of this study is that the goal-directed actions are instrumental and that time for such action is a mere resource to be optimized against other resources such as capital or market goods and services. In other words, time for goal-directed action is represented as money, not having any value itself but merely a scarce means for other aims. Contrary to this, autotelic action is not directed towards an external goal, but has an internal logic. Even if, for example, practical action praises the virtue of skill, and fluent and efficient performance, such skilled action embroils value in itself and not merely as a means towards an end. *The time of autotelic action is thus not a resource to be allocated, but rather it is made and enacted in performative human action.*

A final point to make about the two-by-two is that despite the use of labels such as "production", my intention is not to claim that "production" is confined to paid action at the market, or in any other way to fix the distinctions of Szerszynski (2002) to realms of market and non-market activity. Rather, the blurring of the categories is quite obvious. For instance, it is likely that individuals engage in "production" during their free time, that market action is organized around professional identities confessing to a "right" and proper conduct, that reproduction is not mere drudgery, and that ritual action is approached instrumentally in managing contemporary organizations.

Economics as a study of goal-directed instrumental human action

I have thus far noted that economics forms the back-bone of the way consumption is addressed within ecological modernization and also hinted at the obvious possibility that such commitment has specific outcomes in terms of how consumption is addressed. One of the outcomes is a bias towards representing human action as goal-directed, instrumental work-like action. Economics as a science is committed to purposeful and goal-oriented, instrumental human action, and to state it very broadly, both disinterested in autotelic activity and poorly equipped to perceive reality in such terms. While the time frame of human action is flexible in economics and manifest in notions such as discounting rates of future benefits, autotelic action in which time frames are extremely short or non-existent, is problematic within economic theories.[8]

Household economics is particularly relevant for this study as it appears to have a strong role in the way that consumption is discussed in the environmental debate. Thus a closer look at how, and for what reasons, instrumentality is produced within household economics is relevant for current purposes. In a seminal work in the field, Becker (1965) argues that non-market time can be viewed as production. Hence, goods and services purchased by consumers are inputs which, combined with labour and human capital, yield commodities or final satisfactions. Unlike in traditional theory, goods as such are not seen as sources of utility, but enter as inputs into the production functions of households. As a result, domestic activities and non-market time, which were previously regarded as an area of subjective preferences and thus outside of economic thinking, are opened up, and conceptualized as rational action and as such subject to economic description and consideration. If the Beckerian project is completed, all human time is represented

[8] There is a tendency for economic analysis to expand and cover an ever more versatile set of everyday phenomena, and such is also the case of autotelic activity. Stiegler and Becker (1977) exemplify this while representing addiction as increasing marginal utility.

as production time, and the commodities which are the output of such production condense to states of mind or body. Stiegler and Becker (1977) talk of a full stomach as an example of an end-result. Similarly viewing a theatre play is for Becker (1965) an act of producing an atemporal experience of having seen a play. Essentially, all human action and the flow of everyday life is economized.

What is the motivation for producing such an odd, even alien, representation of everyday life other than an elegant reduction? Becker (1965) and Lancaster (1966) appear to be chiefly motivated to point out that it is possible to develop a notion of the efficiency of consumption. This motivation, as I pointed out in the chapter 2, has been reincarnated in the environmental debate, in which, for example Schmidt-Bleek (1994) argues that consumption innovations imply major opportunities to increase the eco-efficiency of providing for the (final) needs of consumers.

However, technological progress in everyday life has not been the only aim of household economics. Rather, these theories and empirical data from time use surveys connect to an emancipatory project of demonstrating the economic value of the reproductive domestic labour of women. Within this field of research, housework and leisure have been strictly demarcated, housework including all such activities which could, in principle, be performed by someone else (Gronau 1977). While some activities have been regarded as leisure and autotelic in that participation in the activity is a main purpose of the activity, many other domestic activities have been represented as work. Yet, there is a degree of arbitrariness and counter-intuition in this classification: for example child rearing and pet-care has been included as productive work, while in principle it is possible to outsource them. Furthermore, while being motivated to reveal the economic value of non-market activities, household economists have most likely been keen on deriving a productive description over a leisurely one, and thus ended up with a bias of goal-directed human action over autotelic action. While seeking to represent non-market tasks as (re)productive and keen on sounding out the market value of non-market activities, the tradition of household economics has polarized gainful, but dull and necessary production, and hedonistic play. It has crystallised a distinction between goal-directed, as it was, mindful, pursuits on the one hand and idle and mindless leisure on the other hand.

Plural times in economics

Despite the paradigmatic assumption that time is a scarce resource, which, furthermore, is more or less readily interchangeable with money, decisions about the allocation of individuals' time are also recognized as a complex problem within economics. Etzioni (1991, 22), for instance, argues that time *"is much more 'social' and less 'economic' than many other factors, and it falls particularly under the influence of moral judgement"*. van der Bergh and colleagues (2000) on the other hand note that the assumption of utility maximation of individuals is more problematic than the assumption that firms maximize profits. Hence, the time use of individuals appears as a domain in which the economic ideal of rational decision-making against an unambiguous utility function is questioned even within the discipline of economics.

One criticism of the neoclassical model of utility maximation builds upon a claim that consumers do not only gain utility from the good itself, but also from the way the good is used (Georgescu-Roegen 1968, cited in van der Bergh et al. 2000). Common sense suggests that while action may be goal-directed, people are nevertheless not ignorant of the conditions under which they labour towards those goals. Rather, the processes of production and consumption evoke physical and mental states, carry intrinsic meanings, and yield process-benefits. However, such a distinction between *goal-* and *process-benefits* (e.g. Juster et al. 1981; Dow and Juster 1985; Gershuny and Haplin 1996) implies a departure from the assumption of the rational allocation of linear, commodified time. Pollack and Wachter (1975) note that the Beckerian ideal of rational allocation of time assumes that people take no interest in how the end-results are achieved. If consumers also have preferences over what kind of activities to engage in, that is over technologies, this implies joint-production (Pollack and Wachter 1975). Ruuskanen (2004) follows up this debate and points out that joint-production and process-benefits of consumption run against the basic axioms of the theory of household production. Yet, the issue of process-benefits and non-instrumental human action seem pivotal for the debate on sustainable consumption. Reisch (2003), for example, argues that when developing theories of consumption for ecological economics one fundamental need is to acknowledge and make room for process-benefits and intrinsic meanings of action. Against such an aim, attempts to monetarise time use stand for counter-productive reductionism of incommensurable wants. The orthodox application of the theory of household production is, to say the least, questionable in the policy field of sustainable consumption, which is – more or less explicitly – concerned with quality of life, happiness and contentment.

As a way to wrap up this discussion, it is ironic to note that the understandable need to appreciate the significance of the non-market activities has undermined the inherent meanings of these activities. While domestic reproductive labour has been equated with market production, the inherent values of this work have been

conceptually abolished. At the same time other non-market activities have been forced into the residual category of leisure, and therefore are only valuable as phases of recovery and enclaves of escape. Thus, while driven by a "good" cause, household economics has contributed towards a market logic of non-market activities.[9] It is much in the same vein, I argue, that the eco-efficiency discussion with its reference to household production risks contributing to a market and growth logic in consumption. The deliberate blurring of the division of housework and leisure, which the appended articles pursue, can thus be seen as an attempt to make a rhetorical effort to balance the bias.

The time of skilled practical action

While economics as a discipline is committed to viewing time as an abstract, one-dimensional resource, which humans optimise across various productive and pleasure yielding activities, the sociological notions of both ritual and practical action (see figure 1) oppose such a reductionist claim about time. To put it briefly, these approaches deal with the various notions of how *time is not money* in that its use is embedded in routines and conventions, highly regulated and socially synchronised, equally distributed, at least to begin with, and personally omnipresent and yet also political.

[9] There is an emerging procedure of accounting for the economic value of non-market production in the so-called satellite accounts of national accounting (Varjonen and Aalto 2005). The reasoning around these efforts is indicative of the complexity involved. Proponents of satellite accounting argue that the official measures of GDP do not recognise the process-benefits of paid work. Hence, the argument runs, such a 'failure' in the accounting scheme does not impede the estimation of the productive value of non-market pursuits either. Furthermore, the proponents of satellite accounting argue that without satellite accounts, the outsourcing of domestic activity shows up as an unwarranted increase in official GDP as long as declining non-market production is not accounted for. To take a different stand, one can claim that the broad exclusion of process-benefits contributes to an increased market-bias in production as there is, so to say, nothing to lose in moving production into markets.

There are many reasons to question the merits of this market bias; firstly, while there are certainly also process-benefits in market work, one cannot miss the point that market time is, nevertheless, commodified to greater extent than non-market time. Secondly, a market bias implies further division of work and deskilling. Thirdly, the efficiency gains of outsourcing domestic activities are not obvious (Cogoy 1995 and 1999).

Practical action and ritual action can be distinguished as two separate spheres of autotelic action. While the rituals in Szerszynski's (2002) work take place in a cyclical time, practices are characterised by linear time. Furthermore, while rituals imply the existence and following of explicit rules, practical action is oriented by internalised ways of identifying, naming and going about in a social and material context. These distinctions help avoid conflating practices with rituals and to develop a more specific interpretation of consumption practices in respect to the wide literature associated with the so-called practice turn (Schatzki et al. 2001). Hence, in this chapter my aim is to develop a view of practical time as time involving and marked by the skilled performance of human bodies.

As I argued earlier, conflating practices with routinised, unreflexive and unconscious behaviour runs the risk of underestimating the way time is meaningfully constituted in and through practical action. Schatzki (2001) reflects this concern while arguing that the human mind is actively present in recognising and creating meanings around and about *the arrangements of humans and the material world*, which he denotes as a context of human action. However, he points out that such cognitive processes do not add up to a view of rational action. Rather, what he calls practical intelligence is about making sense of situations and finding out reasonable arrangements into which one can embed both perceived and relevant goals as well as emotions and moods. Hence, he argues that "practical intelligibility is teleologically and *affectively* determined". (Schatzki 2001, 52, italics added). The role of repetition and routinization in practical action is thus to be recognised as the bases for skilled action. The process of gradual skilling implies that some ways of performing, thinking and desiring are routinised: however, at the same time, skilling also gives rise to practical intelligibility and to a continuum of time in the form of a *career* of a practitioner.

Theories of social practice attend to the everyday life as ongoing temporal human action. Hence, also consumption has been approached in terms of action and uses (e.g. Spaargaren 1997; Shove 2003), instead of, for example, purchasing, decision-making or symbolic signalling. Practical consumption involves coping with a given context of action, making sense of it and creating context-specific understandings to support and evaluate proper action. Through such contextualization of the purposive action of humans, practice theories thus link the human mind with the body, the object-world, and with space and nature. The mind is contingent upon context and, to take the issue further, rationalities, emotions and desires emerge in a process of in which the various elements are forcefully mangled and meshed together (Pickering 2001).

Meshing implies continuous synchronization. Shove and Pantzar (2005) refer to the integration of practices on meta-level, arguing that objects, competences and signs or symbolic meanings together constitute practices that are capable of capturing human actors and acting on them. On the other hand, at the level of actual

doings, it is the human actors who reproduce this integration: the human mind is entangled with the other constitutive elements of practical action – bodies, objects and symbols – and thus the integration is solidified and repeatedly enacted. Integration results in "arrangements" (Schatzki 2001), "socio-technical alignments" (Suchman 2003) and "co-determination of means and ends" (Shove 2003), that is, in social entities, in which opportunity for competences and skills emerges.

Practices are constitutive of social order. They refer both to the context of meaningful and purposeful human action and to the action itself (Schatzki 2001). According to Schatzki, social order emerges out of the constant remaking of arrangements in which human actors with both purposive goals and affective states of mind place themselves into arrangements and thus both make use of conventional arrangements, reinforce them and, to a degree, change these very arrangements. During such placing, the engaging humans then reproduce the networks of other humans, the meanings and proper uses of objects and relevant moral orders. In the same vein, there is no contradiction in arguing that while practices constitute social order, practitioners are, nevertheless, aware and able to reflect upon their performance *within a practice*.

Practical intelligibility is thus about perceiving a situation – its human and non-human constituencies – and acting in it. However, the cognitive processes of reasoning are back-grounded, and effective action in the given situation is brought forward. Practical intelligibility is consciousness of the body-mind, not that of the pure mind, and the reasoning of how to perform well submerges questions of why to engage in activity.

Reckwitz (2002) argues that practice theory, as opposed to other cultural theories, raises the object world and the bodily experiences into the fore at the expense of language or human interaction. It can be further argued that interpreting practices as skilled action or use in a given context puts forward a materialistic, post-humanistic version of practice theory (Pickering 2001). A materialistic and bodily interpretation of practice theory also aligns with an interest in aesthetization. As Taylor and Hansen (2005) argue, aesthetics is based on presentational knowledge and sensory experiences as opposed to propositional knowledge, and that aesthetic experiences are available through the spectrum of everyday activities. Hence, practices as skilled ways by which human bodies are moved (Reckwitz 2002) give rise to practical and aesthetic intelligibility, knowledge and being in the world of the socially and materially enmeshed human body-mind.

What then are the characteristics of practical time? Warde and colleagues (1998) and Shove (2003) have taken up the notion of convenience. For them convenience refers to the technically mediated shuffling of activities and more fluent scheduling of everyday life. Convenience appears to also refer to one aspect of practical time, namely that of flexible and apt going about in everyday life and effective

action on and within the requirements set by it. However, this is a specific interpretation, which puts forward an association of practical action and economizing behaviour. To counter such an interpretation of everyday life, Shove, for example, notes that even such a "mundane" task as doing laundry connects to self-identity, self-respect and aesthetic evaluation.

Szerszynski (2002) associates practical time with sports and crafts. Following this lead and substituting a more actively involved and practically intelligible human body-mind, I want to suggest that practical time can be a time of body aesthetics. Just as a crafts person would value the active making and carving out of objects over the mere results, equally a skilled player of football is performing with her body. While both convenience and body aesthetics incorporate the idea of efficacy and fluent flow of human action, the former hardly connects with the idea of autotelic time. Rather, the notion of convenience appears difficult to place on the map of Szerszynski – it refers both to comfortable, easy and unproblematic going about in everyday life, but also to economic rationalising and planning of time use. The idea of body aesthetics and performance, on the other hand, puts forward effective and skilful action as the virtue of human existence, a reference of good and meaningful human life, and a source of hedonistic pleasure. Skills and skilling give rise to aesthetic appreciation, and fill and furnish time.

As a result, there is no single way to define practical time and practical action. Practical action may imply fluent "non-time", during which the time and duration only surface because of unexpected ruptures in the necessary constituents. However, no matter how mundane the chores, there always appears to be scope for practical intelligibility and even aesthetization.[10] Practical time can thus be time for knowledgeable skilful action, which is made possible by the existence of shared criteria of excellence and through repetition, training and routinisation. In such action, time is "on the surface" and more readily accessible through sensory and tacit knowledge, and the very action is appreciated as performance.

[10] Dewey (1958) argues that aesthetic experiences imply interaction between a living creature and the environment, and that all such experiences necessarily include some form of undergoing, struggling and even suffering.

Socio-temporal ordering through reoccurring rituals

Socio-temporal order is established through a patterning of temporal qualities of everyday life. Essential for such patterning is the use of the calendar and the clock, which synchronise the action of individuals and assign names and qualities to time (Zerubavel 1981). The fact that all members of a society recognise that it is Saturday evening or Monday morning gives these particular time slots a specific meaning. Synchronisation of activities and the naming of times enable and underlie ritual rule-following in the society.

Social expectations of the ways of acting and the consequent different qualities of time have themselves a structure. Since Durkheim, rituals are argued to function as clear markers of the sacred and the profane (e.g. Zerubavel 1981; Ilmonen 2001; Valtonen 2004). Clock and calendar time is thus defined and characterised by rhythms between different times be they between sacred and profane in the religious sense, between leisure and work, between private and public time, or between the time for recharging batteries and that for charging and rushing in everyday life.

Other than by their location in the repetitious cycles of shared calendar and clock time, events are structured by their expected duration, by their sequential structure, and by their rate of recurrence (Zerubavel 1981). Hence, not only the calendar and the clock, but also other internal ways of patterning give rise to more or less rigid expectations of what others in the same society will do and what one is expected by others to do. For example, a visit by a friend is expected to be responded to with a visit in due time, and the duration of the visit is regulated by both not being too short or too long. Such shared expectations of action thus strip some of the individual agency from one's decisions about time allocation.

What is ritual time like? Szerszynski (2002) argues that ritual time is symbolic, self-referential and autotelic. Zerubavel also points out that "liminal, sacred non-time" exists as separate from the continuous flow of normal time. Furthermore, citing Eliade he notes that religious sacred time is cyclic, indefinitely repeatable, whereas profane time is linear (Zerubavel 1981, 113). When discussing the Jewish tradition of the Sabbath, Zerubavel notes that discontinuity is displayed with physical items, but also in pace. Furthermore, according to the canon, the Sabbath should result in different ways of thinking and a different soul as opposed to the soul of the profane days. The abstract and uniform nature of time is thus broken ultimately by a continuing cycle of enacted identities and ways of thinking, which reflect social expectations and resonate with the cyclic flow of socially qualified time. According to Zerubavel, such expectable oscillation of temporal systems is constitutive of societal functioning and well-being.

In modern societies the distinction between the sacred and profane is increasingly articulated as a distinction between free time and work or between consumption and production. It is the oscillation between these social spheres that is critical for contemporary consumers (Valtonen 2004). Clocks and calendars are by themselves rather weak ordering devices of pace and of time in general. Rather, temporalities are constructed alongside consumables and the physical artefacts, and particular ways of engaging with them. Valtonen (2004) has pointed out that consumables such as coffee and alcohol serve to symbolically mark (the transitions between) different qualities of time and reproduce temporal order. In a similar vein, Zerubavel argues that the Sabbath candle is one of the clearest markers of sacred Jewish time, and Chaplin (1999) points out that making a journey to a second home also implies a transition to a different temporal zone, where the conventional relations towards nature and the object world reverse and run havoc. Bearing on the way temporalities and object relations intertwine, oscillate and order society, any totalizing attempts to rationalize consumption with economic models derived from the realm of production are, thus, inherently problematic.

Slow and fast time

Practical skilled and autonomous professional time, and the ritual and sacred non-economic time are ideal types, which do not exist as such. The pure and calm economizing of time is equally a distant abstraction of everyday life. As a way of adding some flavour to the discussion I want in the following to develop more subtle and contingent ideas about the tempo of human action and to try to locate further qualities of slow and fast time. While these categories are certainly elusive and escape any firm definitions, notions such as "quality time" and "my-time", and – on the other hand – "harriedness", "time famine" and "time squeeze" have nevertheless become increasingly popular in contemporary societies. Time management literature and self-help guides cover the topic of keeping leisure and work separate (for a review see Larson and Sanne 2005), and concerned voices arise out of citizen activism in a growing number of local and national initiatives promoting downshifting and slow living (see the footnote in chapter 1 for details) . Pace is, thus, an issue.

Concerns over the proper pace and tempo of human life closely resemble the claim of anthropologists that distinguishing between the sacred and the profane is one of the key task in social life. The risk of sliding into constant, homogenous busyness and to a prevailing lack of time, and accepting an extending list of things to do, is clearly a risk of the contemporary society. On the other hand, the risk that is facing practical time is deskilling and instrumentalisation of human actions and the lack of professional autonomy. But how are these categories maintained, and do the terms slow and fast suffice at establishing and representing essential differences in the quality of time?

There are fundamental ambiguities in these notions about the pace of human life. While economists such as Linder (1970) convincingly argue that time is becoming an ever-more valuable asset as labour productivity increases, and assign humans with increasing harriedness, there are others who argue that the prevalent (post- or late-) modern condition is that of boredom and more or less futile escape attempts (Cohen and Taylor 1992; Haatanen 2005). Busyness, the constant collection of experiences and active leisure, for these authors, only masks modern time which goes on unbearably slowly. Hence, both boredom and busyness exist at the same time.

What also becomes evident is that temporalities do not neatly fit into the two-by-two presented above, or to any other categorization for that matter. Rather, interpretations of time are subject both to internal shuffling and social conflicts. The simple polarization of fast and slow and the related efforts to manage time and put up a struggle for slow time bring forward a central idea that temporalities are contested. The following treatment of slow and fast time thus also elucidates the persuasiveness of busyness and the harassment of autotelic intrinsically meaningful time.

Slow and fast in clock and calendar time

In the above I have argued that one form of self-referential "slow" time takes place in the reoccurring social rituals in specific slots of socially shared clock and calendar time. However, the power of clock and calendar as anchors of ritual-like activities of fixed place and duration is declining. Shove (2003) argues that various convenience technologies have contributed towards more flexible organisation of tasks as, for example, laundry "days" have been fragmented and scattered and turned into short but numerous moments of loading and unloading washing machines and dryers. It is not only individual goods that constitute flexibility and free us from clock time, but a similar change towards concurrent multitasking and 24hour/7day availability is taking place in the social organization as a whole. What results is, according to Shove, is a *society of scheduling*. Such scheduling implies that time is fragmented into an indefinitely malleable collage of short moments and detached from the collective rhythms.

The feeling of being rushed and the need to make use of all available convenience technologies is thus not attributable to mere time reckoning or time consciousness. Rather, such time management techniques that detach scheduling from the collective rhythms underlie the constant "lack of time". Clocks and calendars are increasingly made use of in the scheduling and coordinating of human actions, but they have less to say in terms of how to organise or fill one's time. In other words, as Macnagten and Urry (1999) claim, modern clock time is eroding at the cost of the instantaneous time of scheduling.

Modern versions of the sacred emphasize the free and unregulated nature of the non-normal time. Sacred time is no longer the time of obeying (the rules of) god. Yet, the freedom of free time frequently proves illusionary (Valtonen 2004). Rather, non-normal time as opposed to "profane" and normal market time gains its content in form of gainful serious leisure (Stebbins 1997) or as deliberate contesting and opposing the rules (Rojek 2000).

What results is a paradox. Free time, as a programmed and intentional pursuit to avoid wasting time, does not constitute a sacred zone as opposed to the realm of market work, but rather blurs the essential shift from "profane" to "sacred". However, the alternative of seeking for empty or deregulated free time is equally vain. Csikszentmihalyi (2000) argues that consumers in modern societies have learned and internalized a fear of empty time and are discontent with idle moments. One of the purposes of consumption, according to him, is to fill time.

Despite the rise of the society of the schedule and the hunt of illusionary experiences, calendars still do mark fast and slow times. Southerton (2003), for example, documents the attempts of British households to run through all required tasks during Saturday in order to enable non-harried Sundays. In the same vein, Valtonen (2004) describes Friday rituals which mark the beginning of the weekend. Slow and fast time, or rush and calm thus resonate and are purposefully managed according to the rhythms of the calendar.

Slow and fast apart

Hochschild (2005) has focused on family time and market time. She works with a metaphor from Polonay that families are "islands" – realms of different time – surrounded by (expanding) markets. What is at the heart of such market time is the notion of scarcity and efficient management of time. What we can infer from her work is that fast time is market time, which is governed by various, more or less deliberate management techniques. She also argues that a way of seeing time implies and is implied by a market way of seeing social relations. Hence, within the realm of fast time, social relations are also approached through a market culture of monitoring effectiveness. On the other hand, the (in)appropriateness of such instrumentalism in social relations, for example within a "family" or between "friends", defines the realm of fast time. *In short, temporalities fuse with personal relations.*

Hochschild notes that some of her interviewees accept and endorse efficiency at home as a solution while others are sceptical about the opportunities for it, or the moral virtue of time management in private life. She also argues that the harried work-life at the upper ladders of corporate organizations easily translates into a management-approach towards private life. In such positions there is a powerful

twin-lever of being harried, and being familiar with and exposed to management techniques.

Nowotny (1994), on the other hand, resists such a straight-forward analysis of capitalist market expansion towards private life, but rather focuses on changes in private life. She operates with a post-modern notion of "world-wide condition of simultaneity" referring to a post- World War II condition in which the modern idea of time-is-money is increasingly substituted by harried, disorganised, self-accelerating time. As Nowotny herself writes *"With the end of an age in which, by means of the time-structure of industrial production, both linearity and the belief in progress were sustained, the category of the future is losing much of its attractiveness"* (Nowotny 1994, 11). Her argument is based on two broad claims. Firstly, the increasing ecological problems and growing social injustice lead to fundamental doubts about the possibility of human progress. Secondly, the present is expanding and taking over the future as information and communications technologies develop. The possibilities of the present abound and thus concentrating on one piece of information implies dismissing another piece, or as she writes, *"Every decision which is made is a destroyed possibility"* (Nowotny 1994, 135). What results is an "aging of the idea of progress" and a social condition of an "extended present", in which the future is no longer relevant as a space for human improvement and perfection, or to say the least, it becomes "compressed and narrower" (Nowotny 1994). Spatial integration of the world overwhelms the temporal continuum of past-present-future.

In the reign of global simultaneity, the contest about time no longer revolves around collective attempts to reduce working hours as an objective measure of temporal well-being, but around local and internal, privatized "proper" time, or Eigenzeit as in the original German version of Nowotny's work. This individualization of the time-struggle brings forward the bourgeois claims of keeping some of one's own time separate from public time. Furthermore, the demands of one's own time focus on the present. The future is non-existent, and thus no longer legitimises the sacrificing of present time.

Nowotny's work gives rise to yet another interpretation of slow and fast time. Slow time is organised and ordered time as opposed to a disorganised extended present. *The ordering of time requires particular discursive and practical resources.* To begin with, Nowotny finds the position of slow time unbearable and marginal; the part-taking in the harried simultaneity is a requirement of social existence (1994). Yet, she also argues that the struggle is dependent on social status: *"Meaningfully appropriating proper time is dependent on the – unequal – initial social position, on the social hierarchies of power and income, in which people find themselves"* (1994, 133).

Nowotny uses the concept of *uchronias* as collections of ideas and solutions to overcome the temporal malaises of contemporary societies, the frequent hyperventilation amidst the expanding possibilities of the post-modern world. She notes that one prevalent solution is just to long for an abundance of time, or more specifically to plan work-time reductions. However, according to her this is insufficient: *"The uchronia which only demands more time does not escape the quantitative logic of money and its accumulation. Money and time remain substitutable ... More can also be got out of living time and more can be made of life"* (Nowotny 1994, 139). The ideology of busyness thus remains intact. Instead of quantitative changes in available time for living, what Nowotny is looking for in her third, cultural uchronia is temporal autonomy and self-determination.[11] Spontaneity, playfulness and creativity are what she calls for, while acknowledging that such attempts can never avoid manipulation or be truly autonomic. Attempts to locate personal, proper time involve other people, necessarily take place against a background of public time, and frequently embroil commercial interests. However, it is particularly this feature of any escape attempts – their inbuilt futility – which makes them a political force and part of an enduring political utopia (Cohen and Taylor 1992). Reoccurring and failed attempts to achieve private proper time are never private, but become political through their failure.

Before concluding the discussion of slow and fast time, let us take into account one more point of view from the literature. In her study of young adults and idleness, Øian (2004) argues that idle or slow time can be constructed either as a qualitatively different part of one linear continuum or as detached, meaningless and fatalistic passing and killing of time. How is such a difference brought about? Essentially, Øian argues that linear time must be understood as some kind of continuum and accumulation process, which is always socially constructed. The construction and communication of such a continuum requires cognitive and discursive resources. In a successful construction, the future exists as the place of rewards and a point of reference. Autonomous time and autotelic action is thus located as a niche in-between a safe continuum, as a sabbatical in between the years of hard work. On the other hand, fatalism, for her, refers to the future as being out of control, but yet as something that can be thought of as it should be managed. Fatalism, Øian argues, is due to a lack of means to establish continuums, and is not equal to slow time.

[11] At this point, the reader may appreciate the way that William Morris and the Arts and Crafts movement also emphasised creativity and aesthetics as a content of satisfactory human life both in the factories and outside of them as opposed to mere radical requests for reduced working hours (see ch. 3).

The integrative role of social practices is most evident when contrasted with the condition of extended present and fatalism which both lack references. As I have argued before, the notion of skilled practical performance implies a linear continuum of increased skill. As such, practices integrate time over and through the extended present. At the same time they legitimise the present as skilled action. To appreciate this difference, we can contrast practical intelligibility and identity against what Baudrillard has called event-based subjectivities of the post-modern condition (1983, cited in Odih and Knights 2001). Practices exist in and are reproduced through the repeated enacting of them in individual action, whereas in the case of simultaneity, individuals are rather thrown into ahistorical events which exclude the possibility of skilled action. Much in the same vein, practices also imply autonomous professional time, which is governed by internalized criteria of the proper and effective ways of acting and thinking, and not subordinated to external goals. Yet, to return to the question of pace, few practices embrace idleness per se and few professions take pride in being slow. For example, in her study of the Slowfood movement, Parkings (2004) notes that the culinary action that the movement appears to praise is also described as careful as opposed to careless instead of slow as opposed to fast. This is however, not to say that autonomy of careful time and professional identities are not threatened, just as the freedom of free calendar time.

The dichotomy of fast and slow time does not capture the essential qualities of time revealed by the above few short excerpts from the literature on time and temporality. What is advocated as slow time variously turns out to be time for non-managerial social relations, repetitious Friday time, time for piety and professional pride, intermediate breaks in a reassuring continuum of linear time, time for despising the finitude of the body, and various intertwined mutations of these qualities of time. While it has served the argument of this thesis to elaborate on these different interpretations of slow time and substantiate them, from here on these various notions will again be bundled together under a wide heading of non-instrumental time. In the following, I move closer to the environmental debate and start to elaborate on the consequences of the ideas about non-instrumental time for this particular debate.

5 THE CONTRIBUTION OF THE PAPERS: INDICATORS AND RESEARCH APPROACHES FOR THE ENVIRONMENTAL DEBATE

Creating room for a different environmental politics of consumption

In chapter 2 of this summary text, I argued that ecological modernization dominates the contemporary environmental debate, and that there is a purposefully rationalising view on everyday life in this debate that seeks to derive new eco-efficient innovations. However, the policy-makers in this field are also increasingly faced with the need to accommodate the critical perspectives of the debate. In the policy documents these aspirations are frequently framed as concerns about rebound effects, which undermine efficiency gains. However, the stride is deeper and involves disciplinary differences and ideas such as aesthetic knowledge and the process-benefits of everyday life activities.

It has remained difficult to create a dialogue between ecological modernization and the critiques around it. Among others, Jamison (2001), Cohen and Murphy (2001a), Dolan (2002) and Schaefer and Crane (2005) identify reasons for such a difficulty and for the related disapproval and distaste of the traditions of anthropology and cultural studies towards environmentally oriented debates on consumption. Firstly, Schaefer and Crane (2005) explicitly argue that the environmental debate frequently moralises consumption and does not appreciate the constitutive and positive role of consumption in modern societies. More fundamentally, all of these authors locate an epistemic obstacle. There are relevant differences in research methods; whereas researchers involved in the environmental debate often draw on quantitative data and individualistic theories, those with a more sociological orientation commonly use more qualitative data and more interpretative methods.

In the following I introduce the separate publications of this dissertation and suggest two different approaches which seek to undo some of the tight rationalizing grip of ecological modernization and mediate the adoption of more critical perspectives. The underlying purpose of these articles has been to make room for a new kind of "cultural politics of the environment" – following the wording of Jamison (2001).

Under the heading "Intrinsically meaningful time in the accounting schemas of societal energy and material flows", I first work on this divide by using statistical data on consumption and everyday life within three separate papers. All of these papers link consumption expenditure and related energy demands with respect-

able categories of time-use. They take literally the idea that consumption stages human action and "makes" time, and query the energy demand associated with different ways of spending and disposing of time.

These three papers enable two different kinds of interpretations. Firstly, they can be viewed as directly connected to the field of economics. In such a role, they contribute to a more thorough understanding of how goods are used in everyday life. The linking of time use and expenditure data presumes "production functions" and thus it lies close to the interest of and draws on previous work by household economists.

However, there is also a critical and provocative track in these papers. I refuse to distinguish between housework and leisure, which then leads to absurd questions such as how much energy is needed per a unit of time while eating or how energy-intensive is the "hobby" of cleaning the house or washing clothes. These papers also blur the above mentioned methodological dichotomy. They are founded on the premise of, and subtly argue, that consumption is not rational instrumental action. Rather, in these quantitative analysis consumers are represented as conforming to norms and expectations, aligning with socio-technical systems or being caught up with existential questions, and as a result of all these orientations, much less driven by cognitive processes of reasoning. The irony then matches the sociological accounts of the collective setting of standards, for example, in washing and cleaning (Schwartz Cowan 1983; Shove 2003).

Prior attempts to link time use and expenditure data have not noticed or concentrated on this ironic aspect. For example, in the most recent study of this kind Gronau and Hamermesh (2006) investigate the "goods intensity" of non-market activities, i.e. expenditures per unit of time. The radical point in this analysis is that there is no hierarchy of and no intermediate outputs in non-market activity. Each activity requires various inputs of time and market goods, but the only output is time. Each activity appears legitimate as itself and not instrumental towards other activities. The process-benefits of activities are thus not cornered in a separate sphere of leisure, but rather overwhelm in non-market action at the cost of instrumental reasoning. However, as mentioned Gronau and Hamermesh do not reflect upon this aspect – the endorsing of time as the ultimate source of utility, to cite the title by Zeckhauser (1973), another economist.[12]

[12] The provocative and even ironic stand on everyday life results from a middle position between traditional economic thought and the extreme of household economist. The former have regarded goods as sources of direct utility and thus the entirety of everyday life as a single black box, which economic thinking cannot pervade. The latter, on the other hand, have thought to open the black box representing household activities as production with the tools of economics. The work of Gronau and Hamermesh (2006) as well as the appended articles of this study stand in the middle. With the aid of time use statistics they distinguished separate activities of everyday life, but nevertheless leave them un-economized.

The fourth paper represents an attempt to take some careful and small steps towards re-introducing purposive action. In the boating article I ask how people come to desire objects and what are the processes that evoke responsibility or duty – in other words how does the object-world order, and make time. Relating to time, this article also has a more specific point. I focus on how time-hungry practices such as wooden boating come to be viewed as feasible and desirable, and on the other hand, how and why does the rosy façade of wooden boating so often turn into stress and harriedness.

A few moves are distinctive to these approaches. Firstly, they all imply a short and fragmented time perspective. This is not to claim that our presents are not outcomes of historical development, but rather to adopt a hedonistic view. What is possible for the individual is to try to squeeze aesthetic enjoyment and happiness out of isolated moments. The second related move is to ridicule human purposive action and raise objects to a more constitutive position. Thus these approaches undo the anthropocentrism of managerial environmentalism and substitute the meaning-making capabilities of objects and the natural world for the reign of the pure and crystal-clear human mind.

These efforts should be understood in terms of the prevailing ideology of busyness to which I have hinted in the previous chapter. The imperative to economize one's time use is deeply rooted in contemporary societies and to oppose it, to regard time as abundant instead of scarce, is really to think the unthinkable as Foucault urges us to do (cited in Darier 1998). Time is a scarce resource our daily experiences and our minds reassure us! Yet busyness is a social construct just as gender. The papers below exemplify and adhere to an attempt to think and carve out abundance and contentment, and to place them to feed the environmental debate.

In line with such aims, I concentrate more on the constellation of the quantitative analysis rather that the data sets and the empirical result of those studies. However, this need not be the case. The papers are also significant in accounting for societal energy use in substantial terms. They describe the activity-patterns of everyday life through which energy carriers pass – virtually or in substance – and point out such significant changes in patterns of time that call for further explanation. Equally, they put forward new research questions about linking time use data and expenditure data. To indicate these possibilities, I will point out questions for further research at the end of following section.

Finally, it is important to bear in mind that ecological modernization provides a background for this study. It is a theory of environmental change particularly in the wealthy industrialized countries. Criticism of growth, and attempts to grasp and account for the high levels of material well-being have a very different status in these countries as opposed to developing countries. Furthermore, to take a critical stand on economic growth is not equal to a call for undoing current technolo-

gies and cancelling out progress. The time use approach, which I introduce, must be understood in the conditions of – at least in material terms – wealthy societies.

Intrinsically meaningful time in the accounting schemas of societal energy and material flows

The papers that I introduce in this section are as follows:

> Jalas, M. (2002). A time use perspective on the materials intensity of consumption. *Ecological Economics* 41: 109–123.
>
> Jalas, M. (2005a). The Everyday Life Context of Increasing Energy Demands. Time Use Survey Data in a Decomposition Analysis. *Journal of Industrial Ecology* 9(1–2): 129–145.
>
> Jalas, M. (2005b). Sustainability in everyday life – a matter of time. In: Reisch, L. & Röpke, I. (eds). *The Ecological Economics Of Consumption*. Cheltenham: Edward Elgar.

The two first papers make use of Finnish time use surveys and argue for a time use approach towards the energy or materials intensity of consumption. In the book chapter "Sustainability in everyday life – a matter of time", I briefly describe this tradition of collecting time use data. More importantly, this text elaborates on one of the central problems of the previous articles, namely the problem of matching expenditure data with the specific activities recorded in time use statistics. In the following, I will introduce the main questions and arguments of the papers.

A time use perspective on the materials intensity of consumption

This paper introduces the idea of service-orientation and highlights the functional view of consumption on which the concept relies. Furthermore, it examines the notion of rebound effects as a source of criticism against such a functional view of consumption. Hence, in the paper I argue that

> *The focus of the eco-efficiency discussion does not match the reality of ever diversifying and escalating material consumption, and to fill the gap, the discussion frequently mentions rebound effects that undermine efficiency improvements (e.g. Meijkamp 1998). However, being preoccupied with a functional view on consumption, the discussion has not concentrated on understanding the phenomenon.*
> (Jalas 2002, 110).

It is a populist claim to simply state that technological progress towards improved efficiency in specific technologies and overall economic growth has opposite effects on aggregate resource use. The first qualification on the notion of rebound effects is that it assumes a causal relationship from efficiency improvements to increased demand and economic growth. Secondly, while there are principal mechanisms that give rise to rebound effects, the qualification of the nature and extent of such effects is an empirical question (Schipper 2000).

This paper is not primarily occupied with the quantification of rebound effects, but rather attempts to point out a specific mechanism – *a time use rebound effect* – through which efficiency improvements may affect overall demand. Within the context of the engineering-minded eco-efficiency discussion, the notion of the time use rebound effect has served to point out that there is a time budget within which any new eco-efficient technologies operate in and, furthermore, that such a budget is especially relevant for the idea of service-orientation, which, in prudent terms, implies the outsourcing of domestic activities and an increased market bias in providing for human needs.

The idea of the rebound effect of outsourcing is not novel. Greening and colleagues (2000) note that energy efficiency improvements give rise to changes in consumer preferences, social institutions and in the organization of production, and label such rebound effects as transformational. Hence, the notion of time use rebound effects in Jalas (2002) can be classified as a *transformational rebound effect*. Indeed, Greening et al. (2000, 391) also point to very similar phenomena and argue that *"... many technological advances, in addition to fuel efficiency improvements, have resulted in changes in the allocation of time. This is reflected as a change in labour force participation rates and occupational structure"*. However, in their review of empirical work on rebound effects, Greening and colleagues conclude that the effects of such transformational changes in aggregate energy demand are difficult to identify and quantify because of a lack of suitable data.

Service-orientation can be regarded as an organizational innovation that results in efficiency gains, but also in changes in labour force participation, and thus in other *consequent* effects on aggregate energy demand. In the 2002 article I make an attempt to start to quantify the effects of the transition of domestic activities to the markets. What results is a suggestion and an attempt to match the categories of time use and the energy requirements of these activities. Adding up both the direct energy demands of household activities and the indirect energy demands of purchased products and services, this article introduces a novel notion of the energy intensity of household activities measured in MJ/hour of activity.

In the first article (Jalas 2002), I do not formulate any potential substitution mechanisms between the various activities and thus leave the notion of time use rebound effect as no more than a suggestion. Economists discuss rebound effects in

monetary terms. Hence, when considering the rebound effects of different ways of organizing production, the work in household economics is of central importance. Within this field, Becker (1965) has argued that time should be treated as a resource which consumers allocate between market work, non-market work and various forms of leisure. The idea of a time use rebound effect is compatible with this basic assumption of household economics: instead of focusing on the monetary budget and dynamic effects between different expenditure categories, the notion of time use rebound effects implies construction of a time budget constraint, and the explicit linking of energy use to time use.

The content of the article can be summarized in the three following points. Firstly, the paper argues that service-orientation as it is discussed in the eco-efficiency literature can be understood as a broad label for organizational innovations that seek to improve energy and materials efficiency through changing the organization of production and in particular through extending the participation of market actors in household production.

If we accept, in general, that labour productivity is higher in the realm of markets than in household production, such a transition leads to free slots of time to be allocated between market work and non-market activities. Following Greening et al. (2000), this "unintended" time use rebound effect can be labelled as a transformational rebound effect.

Thirdly, if the goal of environmental policy instruments such as service-orientation is also to address the quantity of overall demand in the economy, it is necessary to represent consumption as a series of temporal acts that are intrinsically meaningful rather than merely instrumental. Hence, the economizing language of the eco-efficiency discussion may be counterproductive for its ultimate goals.

The Everyday Life Context of Increasing Energy Demands. Time Use Survey Data in a Decomposition Analysis

The journal article "The Everyday Life Context of Increasing Energy Demands. Time Use Survey Data in a Decomposition Analysis" was published in a special issue on sustainable consumption in the Journal of Industrial Ecology. In this article, I make use of the concept of the energy intensity of activities, which was developed and demonstrated in the 2002 article. This concept is advanced in two distinct ways. Firstly, there is a methodological question of using time use survey data in decomposition analyses, which have frequently been used in the debate around economy-wide restructuring and the de-linking of economic growth from pollution and resource consumption (see chapter 2). Secondly, there is a new empirical question to be addressed in the article. Using two sets of time use and expenditure data, it is possible to look at the changes in the energy requirements

of private consumption in Finland during the 1990s. More specifically, I ask in the article whether the changes in aggregate energy consumption are due to more time allocated to energy intensive activities or to the activities in general requiring more energy inputs. In the following I will detail the contribution of the article in respect to these two aims.

To begin with, this article catches upon a concern raised by Jackson and Clift (1998) that industrial ecology threatens to be reduced to mere study of efficiency. Within this context I argue that

> *... consumption should be regarded as a set of temporal activities in which consumers utilize or engage with the various products of the industrial systems and through which the resource flows pass, virtually or in a sense of induced, indirect flows. Accordingly, resource flows enable the various ways in which consumers desire or come to spend their time and should be analysed in respect to time-use.*
> (Jalas 2005a, 132)

To argue for such an approach I claim that while there is a distinct field of literature that addresses the links between consumption and time, these considerations have not been put into use in studies of social metabolism in the field of industrial ecology. Thus, I note that

> *Schipper and colleagues (1989) point out in their early article that the patterns of time use can be used as one explanatory factor of changes in the aggregate use of energy. Godbey (1996) follows the line of Linder (1970) and further explicates the environmentally-relevant outcomes of time-famine. He claims that time-famine and the resulting search for time-saving technology prompts the use of resource-intensive products and implies higher levels of municipal solid waste. Røpke (1999) and Binswanger (2001) address the issue of time-squeeze with a different argument claiming that time-saving technologies are themselves essential constituents of increasing levels of consumption. Furthermore, the consumer society as a whole has been seen to depend on a deliberate or forced choice of work-and-spend (Schor 1991; Cross 1993; Aronowitz and DeFazio 1994; Sanne 2000) and on the choice of material wealth instead of wealth-in-time (Reisch 2001). However, these observations on the founding elements of the consumption-oriented society have rarely been translated into studies of societal energy and materials flows.*
> Jalas (2005a, 130)

Based on such claims, the article develops a new modification of a decomposition analysis, which introduces time use of non-market activities as a central focus of the analysis. Many of the decomposition analyses used in energy studies stem from or resemble the IPAT-formula of Paul Erlich (see Chertow 2000), in which

Impact	=	Population	x	Affluence [GDP/capita]	x	Technology [Impact/GDP]	[1]

The equation has been further broken down into different factors within "Technology", which has resulted in formulations such as in Hoffren et al. (2000), in which the term affluence is broken down into overall size of the economy and its composition in terms of economic sectors.

Resource use	=	Size of the economy	x	Shares of the sectors in the economy (a vector)	x	Resource intensity of the sector (a vector)	[2]

In the article (Jalas 2005a), a similar decomposition is performed, not from the production point of view, but from the point of view of everyday life. When approaching societal energy and materials use the corresponding factors are as follows.

Resource use	=	Population	x	Time use in different activities (a vector)	x	Resource intensity of the activities (a vector)	[3]

Gershuny (1987 and 1999) has been keen on demonstrating that combined with input-output tables, time use data can be used to model the whole society. He argues that "*... if we are to understand the processes of structural change in 'the economy' [referring to the 'formal economy'], we need to consider evidence about behaviour outside it: we need to know more about the detail of daily life.*" (1987, 57). Following these lines, I also argue in the article that that such an everyday life point-of-view forces one to situate economic growth in the changes of everyday life and elucidates the conditions of structural changes in the economy.

However, there is a more radical point in the suggested decomposition frame. The frame conceptualizes technological changes in everyday life as changes in the ratio of time as an output and needed resource. In other words, it follows the logic that time itself is an ultimate source of utility, and creates a very different view of technological improvement than that commonly used in decomposition analyses. As I point out in the article, the technology of, for instance, driving can be improved – in addition to fuel efficiency and to joint use – by simply driving the car more slowly in order to take or "make" more time. What is crucial, and to which

I will return in chaper 6, is that this formulation [3] does not include de-linking of economic growth and use of natural resources as a factor, which could cause changes in the aggregate level of resource use.

Empirically, the article expands on the previous work first by including two points of reference, and secondly by including different types of households as opposed to the focus on two-person households in the previous article (Jalas 2002). Data that are specific to household types enable the isolation of the impact of demographic changes on energy demand as opposed to equation 3. In addition to the factor for demographic change concerning the size of households, the empirical analysis includes a factor that is labelled as household infrastructure. This factor counts for all such energy consumption that cannot reasonably be allocated to any specific activities. With these additional factors included, the empirical analysis of the paper decomposes the gross change in the energy requirements of private final consumption in Finland from the late 1980s to late 1990s into following factors:

- Population growth
- Changes in relative share of different household types
- Changes in time use within the analysed time use categories
- Changes in the energy intensity of these time use categories
- Changes in household infrastructure

There are difficulties in managing and matching of the various sets of data, and in the article I suggest that only tentative conclusions should be drawn on the basis of this work. Some of the difficulties stem from matching the expenditure data and time use data, which is an issue I address in the subsequent article (Jalas 2005b). Furthermore, the data for allocating direct energy use such as electricity use for different activities is rather sparse, outdated and sporadic. However, in this decomposition article (Jalas 2005a) I point to some results that appear robust.

Overall, demographic changes have led to an increasing demand for energy while the demand for energy for household infrastructure declined during the 1990s. In terms of the time-related factors, the results show that both the time use and intensity factors have contributed to changes in the energy requirements. During the 1990s, Finns took up and spent relatively more time in less energy-intensive activities, but at the same time the activities on average required increasing energy inputs per unit of time. In other words, the time use factor contributed to a lowering of energy demand while the intensity factor contributed towards an increase in demand. In the decomposition language, we can note a structural shift towards lower energy intensity and regression in the average technology.

However, the empirical results of the study are of lesser importance. It is the conceptual model of using time use survey data in decomposition analyses that is at the core of this study. Bearing on the arguments of redirecting technological progress towards increased wealth-in-time (Sachs 1999; Reisch 2001), equation 3 can be even further modified to better visualize such gains.

Resource use	=	Population	x	Non-market time [h/capita/d]	x	Share of time use in different non-market activities (a vector)	x	Resource intensity of the activities (a vector)	[3a]

In such an equation, time is a form of ultimate utility and the purpose of economic activity is to enable non-market time. Hence, growth is not represented as expanding economic activity, but increasing hours of non-market time. Similarly, technological progress is geared towards lowering the resource needs per unit of time of (specific) non-market activity. Increased intake and use of natural resources is represented as technological degradation.

Sustainability in everyday life – a matter of time

The matching of time use and consumption expenditure data is the central methodological problem of the two previous papers (Jalas 2002 and 2005a). By matching, I refer to a pairing of activities with the goods and services that are used in these activities. In the papers I have argued that such a matching is always arbitrary to some degree. The arbitrariness of the process is very clear when selecting a set of activities to being with.

In the book chapter titled "Sustainability in everyday life – a matter of time?" (Jalas 2005b), I focus on previous attempts at such matching: the paper introduces six different matching schemes, of which my own work (Jalas 2002) is one of the latest. By reviewing these attempts, the paper shows that the need for such matching stems from very different interests. Juster and colleagues (1981) have been interested in the way market production ultimately contributes to subjective well-being by enabling various non-market activities. Gershuny (1987), on the other hand, has been interested in the employment effects of given patterns of non-market time, and the group of Viby Mogensen (1990) has detailed other impacts of time use on the formal economy. The work of Chadeau and Roy (1986) relates to defining of the economic value of non-market work. Finally, my own contribution (Jalas 2002 and 2005a) and that of van der Werf (2002) deal directly with energy demand.

While the interests are different, the basic idea is very much the same. Thus, Juster and colleagues (1981), for example, are interested in and calculate the "goods intensities" of non-market activities instead of the energy intensities of activities in my own work. Similarly, Gershuny (1987) tracks the labour intensity of non-market activities, i.e., the relation between embodied labour of goods and services to the time used in consuming them. Yet, these schemes all of which deal with the problem of matching, hardly refer to previous schemes, but rather appear as detached conceptual innovations. A recent attempt at matching by Gronau and Hamermesh (2006) continues the trend; as eminent as they are, the authors make no reference to the earlier matching attempts. Hence, the main point of this book chapter has been to present the question of matching as a common problem of many divergent interests.

The matching attempts that I have reviewed in the book chapter contain various degrees and qualities of empirical work. The most thorough of these attempts is the one by Viby Mogensen and his group (1990, particularly for matching see Brodersen 1990a and 1990b). In addition to them, Juster and colleagues (1981) and Jalas (2005) use two waves of data and are thus also able to start to address an essential question of the debate: Can time use in non-market activities explain consumption and the structures of the formal economy and if so, to what extent?

The book chapter puts forward some doubts as well as some interpretations:

> *Viby Mogensen reframes the intuitive limits of time use data in explaining monetary patterns of consumption: "Altogether it is clear that there is no simple connection between time use and consumption. Many other factors – such as income, housing arrangement, and life cycle placement – play a decisive role as well." (Viby Mogensen 1990, 42).*
> Jalas (2005b, 164)

> *Juster et al. (1981a) present an interesting comparison of how the "goods intensity of activities" [market value of used inputs per time used in the activity] has developed from 1965 to 1975. On average, the intensities have risen with the increases in GDP. However they have not risen at an equal pace. The authors note that the intensity of household production activity has risen and assign this to the array of household technologies that substitute goods for labour, the so-called timesaving technologies. Also active leisure and spectator sports clearly required more expenditures per unit of time in 1975. The greatest increases appear with interpersonal communication, which Juster and his colleagues assign to increasing telecommunication expenditures.*
> Jalas (2005b, 165)

Further research interests concerning time use survey data and expenditure data

Two major lines of future work stand out in relation to the three articles introduced above. The first concerns the availability of suitable data and the operation of matching the data. The second major area concerns the questions that become feasible if reliable data on time use and expenditures exist. I start with the former.

Within the debate on sustainable consumption, time use survey data coupled with expenditure data can be used to build future scenarios of possible or desirable patterns of everyday life. In a less normative form, they enable the study of the environmental consequences of changes in the organization of everyday life. The time budgets also constrain and condition any such changes. For example, they limit the growth of such sectors in the economy that "sell time" and require direct participation of the consumers. Frequently, these may be sectors with low energy intensity per unit of monetary output. Briefly, the combined time use and expenditure data can be used to contextualise and condition the changes in the patterns of expenditures and consequent environmental impacts.

The Finnish time use survey data includes a large number of background variables. These variables can be used to probe two kinds of questions. Firstly, they elaborate on the patterns of time use per se: in which conditions households actually outsource specific domestic tasks and how they use the additional time made available through outsourcing; how consumption skills affect time budgets; how the living environment, for example density of housing, affect the patterns of activities. Secondly, the background variables can be used to study the energy intensity or goods intensity of activities; how, for example, family size, or the living dwelling type impacts these intensities. From the point of view of a "wealth-in-time" argument, the background variables of working hours and the flexibility of them should be analysed in respect to both patterns of time use and the energy intensity, or goods intensity of activities.

Furthermore, it is possible to build more dynamic models of everyday life. If income is used as an independent variable to explain patterns of leisure time (e.g. Ruuskanen 2004), it is of significance to know the goods intensity, that is expenditure intensity, of leisure activities. It will also be interesting to ask how income levels impact the goods intensity of activities. Is lower income coupled with different activities, or to what extent and in which conditions are consumers able to reduce the financial resources needed in the same activities. Finally, from the point of view of environmental policy, it would be interesting to study how the goods or energy intensities of activities reflect environmental values or environmentalism. As I pointed out in chapter 2 this far, working with only expenditure statistics, it has not been possible to identify any significant links between environmentalism and less energy-intensive patterns of consumption expenditures.

While the matching of time use and expenditure data seems to open new analytical possibilities, there are practical reasons for the relative sporadic attempts to pair expenditure and time use data. Currently, there is no data available in which the expenditures and time use statistics would stem from the same households (Gronau and Hamermesh 2006), and as Gershuny (1987) has argued, the collecting of primary data on time use and related consumption expenditures is surely confronted with practical difficulties as well as low response rates. Improved reliability of matching can, however, be pursued with the aid of background variables of time use surveys, which include both data on the inventory of various household equipment and of the location of the activity. While not available in the previous time use surveys, background variables such as the availability of public transport, the possession of a driving license, or the annual energy expenses would contribute to interesting analyses.

Some of the problems of more reliable matching require different methodology and more context-specific studies of the use of market inputs in household activities. From an environmental point of view, it would be of key interest to gain more knowledge on how water and electricity consumption is dispersed among the various household activities. The appended papers pay more attention to this distribution than the earlier attempts, which have not had any specific interest on these goods. However, the allocation principles need more empirical support.

Slow moments as socio-technical arrangements: the making of wooden boating

The fourth appended text of this study, the book chapter titled "The art of loving wooden boats" (Jalas 2005c), and the related journal article (Jalas, forthcoming) stand apart from the previous three texts in that they depend on a different methodology and pose quite a different set of questions. However, at the same time, they build on the previous ones as I attempt to detail how the naming and consolidation of particular activities or categories of time use takes place, how temporal orientations are articulated and reproduced and what characterizes the social context of apparently slow moments. In other words, while the statistical analyses of time use and consumption only describe changes in the patterns of time use, these texts attempt to elaborate on how the specific category of wooden boating has become available and attractive in contemporary Finland.

In doing so, the book chapter and the journal article seek to bring forward non-individual agency and the possibility of intrinsic meanings of action. While this notion has been fundamental to the quantitative analyses that I have presented in the previous papers, the arguments for such an approach have been grounded in only a few references to consumption research, sociology and anthropology. Thus, while the starting point of the previous texts has been the fragmented reasoning by indi-

viduals, these texts have focused on the consequences of adopting such a premise. This fourth text, on the other hand, focuses on the emergence of a specific frame for reasoning, dedication and desiring within wooden boating.

The empirical focus on wooden boating is due to my own history as a dedicated hobbyist. On the other hand, it makes a good case. Wooden boating is highly praised in the media as a practice of resistance, and as a way of appreciating the historical and aesthetic qualities of objects. It is a contemporary icon of wealth-in-time. Thus the empirical focus of the manuscript also witnesses my interest in slow moments, much in the same vein as other researchers have focused on the culinary Slowfood movement (Parkings 2004).[13] The empirical material for the study consists of my own experience as a practitioner, and more deliberate participant observation in two coastal cities in southern Finland in 2003 and 2004 and of the interviews of both amateurs and professionals involved in wooden boating. Media texts about wooden boating in the main boating magazine between 1966 and 2000 have served as a secondary material.

In the article manuscript (Jalas, forthcoming), I explicate the theoretical approach. The paper adopts a posthumanistic, object-oriented practice point of view (Pickering 2001; Schatzki 2001; Reckwitz 2002), and claims that meanings, and the underlying temporal orientations, can be located in shared social practices. It argues for the following points. Firstly, practical action implies the possibility that the proper and skilful ways of acting challenge and partly take over instrumental rationality. Such skilling and aesthetization of action thus localizes and contextualizes the abstract and universal economic time. Secondly, the article argues that objects play an active role in the skilling and aesthetization of actions and thus configure human time. Accordingly, a practice is a specific, historical and socially shared way of understanding the world and engaging with the relevant objects. Thirdly, because of the pertaining and active role of the other human practitioners and the involved objects, the temporal orientations are neither to be freely chosen by individuals nor static. Rather, the individual practitioners face uncertainties while negotiating temporal orders through specific relations to material objects.

The book chapter on wooden boating (Jalas 2005c) is a more elaborate description of the historical development of the practice. Current practitioners of wooden boating rely on a forty-year development during which wood as a boatbuilding material has been substituted by fibre-glass and during which wood has simultaneously received a new status. Within this period, wood as a boat-building mate-

[13] While some commentators of my work have sought to establish a connection between wood material and the environmental concerns, this is not a correct interpretation of my aim. I view wooden boating as a thoroughly cultural and social practice and focus on the temporal orientations it gives rise to. Thus, to clarify the point, the empirical focus could have equally well have been car enthusiasm.

rial has enabled positions, orientations and aspirations such as replication, renovation and restoration of old wooden constructions. At the same time, the renaissance of wood as a construction material has raised hopes of new competitiveness against fibre-glass.

This development has taken place in parallel with the rise of what I have called the infrastructure of practicing. Growing public attention paid towards wooden boating has been matched by extensive media coverage, the proliferation of practitioner associations and state support for the development and enhancement of the skills of wooden boatbuilding. A number of constituencies have adopted a mission to create a new culture of wooden boating in Finland. While the result is not close to a planned culture, this infrastructure has enabled a sharing of the virtues and vices of the trade, the development of understandings, the sharing of knowledge, the teaching of novices, and the acknowledgment of expertise within the practice.

Wooden boating is rich in different temporal orientations. To begin with, the very objects and the way they are used reach towards the past in a nostalgic sense. Wooden boating involves the remaking of history through artefacts such as boats and clothing, but also through rituals such as annual gatherings on traditional trading and meeting places (Laurier 1998). On the other hand, wooden boating is a practice of uchronia in at least two distinct ways proposed by Nowotny (1994); firstly, practitioners engage in a meaningful present and create proper time through a cultural project, and secondly, the doing of wooden boating unfolds in cycles, each season requiring specific activities and opening specific opportunities for the practitioners. On the other hand, such maintenance activities resemble the never-ending need and toil of reproduction labour that Szerszynski (2002) singles out as specific, cyclic but goal-directed action. Finally, following Øian (2004), the accumulation of skills and knowledge also provides a feasible temporal continuum and a track of linear development recognisable to the practitioners. The obligation and duty for maintenance, and the linear improvement of the skills and knowledge also plant the seeds for the harriedness within this outwardly slow practice.

How do the boats act and order time? Firstly, while the temporal orientations and the careers of practitioners differ, a process of aesthetization is fundamental for most of wooden boating. It is either the boats as artefacts, wood as a material or the states of doing wooden boating and acting around boats that is claimed to have an aesthetic quality (superior to other kinds of boats, materials and acts). Secondly, another related and equally common ground of acting for the boats is personification and animism. Boats are not only given names, but are also claimed to be individual and priceless. They are referred to as companions deserving good care and they are made to speak on the web-pages of enthusiastic practitioners. What results are, as it were, sincere and non-instrumental attempts to reach something "beautiful" which is frequently beyond the reach of words, and dedication, which locates the practitioner in the service of the boat. In such conditions, time is not

optimally allocated, but rather given away and sacrificed.

There is a temporal paradox involved. As boats are able to evoke feelings of passion and duty, so they also request time. Thus, despite the rosy façade and outward claims of slowness of the practice of wooden boating, practitioners often experience severe time pressure. Attempts to realise slow moments are rarely successful. Rather, practitioners are frequently exhausted and boats are for sale because of the owners' lack of time. On the other hand, some practitioners resist the imperative of serving the boat or turning the boat into a mirror of personal progress, and rather settle for mutual and lax co-existence.

Slow moments are thus not inherent in this particular practice, but rather one possible outcome of a specific orientation within the practice. More generally, the dichotomy between slow and fast is questionable. Just as Parkings (2004) discusses the slow food movement also using the words careful and careless, so in wooden boating there may be better words than slow and fast. No matter how harried, strained or exhausted, individual practitioners of wooden boating often view their activity as intrinsically meaningful. Thus, regardless of the tempo of acting in wooden boating and the length of the list of things-to-do, time around boats appears to have a qualitative dimension and ceases to be a mere abstract resource. Practices such as wooden boating establish the criteria for efficient means and proper goals within a distinct realm of the social world. They give rise to planning and scheduling, but also to satisficing behaviour and contentment. Hence, *practices localize time, and, through such qualification, enable temporalities to begin with.* Boats, then, help individuals to resist an all-encompassing ideology of busyness even when creating local busyness.

6 IMPLICATIONS FOR ENVIRONMENTAL POLICY; WAYS TO "SUSTAINABLE CONSUMPTION"

The personal and the political

Emotions, aesthetical knowledge and non-human agency are theorizations that are difficult to place and use within the tradition of ecological modernization. All of them lead to a disintegration of the human subject. Such disintegration, the ridicule of the rational action of individuals, the exposition of pluralistic and overlapping temporalities, and the consequent rendering of ecological modernization theory as shallow, have indeed been partial aims of this study. Yet, my purpose has not been to perform an academic ritual and to end up with deconstructed, self-referential world of relativistic particularism. Rather, as stated in the beginning, my attempts to question the temporal horizons of consumption have been motivated by an aim to contribute to a new vocabulary for the environmental debate, and to open up new sensibilities.

A new vocabulary or, in the context of my work, new analytical frames for accounting for societal energy and material flows, is not the end point of a project of deconstruction such as the one in this study. Rather, I want in the following to work towards implications for environmental policy-making. While these two goals are hard to combine, feminism seems to offer a concrete example of "making the personal political". Such an aim spans from a relativising deconstruction to turning the tide and *re*-constructing the deconstructed world (Briggs 2001). I will start with the former, which may indeed include purposeful ridicule of the taken-for-granted realities.

The need to start with deconstruction is evidenced by feminist scholarship. Ecofeminists such as Merchant (1980, cited in Smith 1998 and Moisander 2001) argue that through the scientific enterprise men have subordinated and gained control of the previously unknown – such as women, indigenous people and nature. In such processes nature, women and indigenous people were turned from uncontrollable forces into passive resources to be made use of and exploited in the name of human progress. Thus, gender positions have developed historically and are embedded and reproduced in ongoing social practices (Butler 1999, cited in Valtonen 2004). At the same time, they remain largely unnoticed. Deconstruction thus implies a deliberate aim to uncover the unnoticed and latent ways in which taken-for-granted realities arise.

After a treatment of different temporalities in chapter 4, we can add the "present moment" into this list of the deprived and subordinated; the science of *time allo-*

cation has subordinated the present to the future. Indeed, by focusing on household economics and, for that matter, its legacy in ecological modernization, I have sought to deconstruct and unravel the constant remaking of busyness as a persuasive and pertaining ideology, and the "busy self" (Darier 1998) as a subject position, which this ideology delivers to us. The interest in the making of busyness is, of course, a subject that a large group of sociologists and historians of time share with me. Yet, the purpose of my work has been to elaborate on how the field of environmental policy and management contributes to such making of busyness, and how the ecological imperative in fact calls for more management and more busyness, a problem identified by Darier (1998). In other words, I have sought to illuminate the home-grown nature of managerialism in the discussion of consumption within ecological modernization.

Let me return to the second move of reconstructing a political world. Cohen and Taylor (1992, 18) write about politics in a postmodern era, in which efforts to articulate a "true" personal life have pushed utopian and political ideas of alternative societies into the background. If valid, such a personification of the struggles greatly undermines the political dimension of human activity. However, Cohen and Taylor do not fully subscribe to such a condition. They argue that such development is not as strong as it appears; first, shared, political utopias such as feminism do exist; second, the individual "making of life" is more difficult than often expected. Quoting an interview with Foucault, they argue that it is in fact not possible to separate the two; the personal is not distinct from the political but constructed by it. Reoccurring and failed attempts to articulate a private personality create an enduring political utopia and latent political power, as I have already noted in chapter 4. Temporal wealth should thus be regarded as an unattainable but essential utopia, and an unfeasible but still highly relevant idea.

In the context of this thesis, it is therefore important to consider the enabling and disabling social structures of different times and temporalities. What are the consumption skills and routes of escape required to establish meaningful autotelic time? According to whose rhythms is the society organized, and for whom do such rhythms appear to constitute a good life, non-empty and non-busy time and inherently meaningful activities? Furthermore, to what kind of institutions might the discussion of this thesis be linked?

On these questions, the case of wooden boating (Jalas 2005c and forthcoming) proves informative as an elaboration of the social construction of specific context of action in which objects are aestheticized and time assumes a qualitative aspect. It describes a process of integration and arrangement that has taken place in and through the acts of individual citizens, associations, educational institutions, the museum institution and the media to name only some of the key constituents. On the other hand, the time use approach to accounting for social material and energy flows also reconstructs the political. The three papers reviewed (Jalas 2002;

2005a; 2005b) focus on embedding intrinsically meaningful time – a "content self" as opposed to a "busy self" – into policy tools such as material and energy flow accounting.

What kind of ethics can be built around the idea of short-termism and autotelic action? This is not an issue that I will take up at length, but settle for a few observations. Short-termism implies less ethical responsibility towards one's own (manageable) future and thus it sets free moral capability and enables commitments towards other entities than one's own (future) prospects.[14] Such commitments may, of course, be directed at maximizing the pleasure of fleeting moments, but also towards other human beings, towards material objects as in the case of wooden boating, towards nature, or towards a *common* future; pleasure-seeking can be a humble occupation and resonate with the "environmental values" Paehlke (1989) puts forward. Hence, short-termism need not be an unethical position.[15]

However, such unleashing of ethical capacities carries uncertainties and threats. The idea of autotelic action implies that the ways of performing, and the professional code of conduct, are superior to the outcome and the consequences of the action. Furthermore, aesthetic claims can be used to exercise power on relativistic bases (Hannigan 1995). To point out the dangers, it suffices to note that Nazi ideology drew on natural romanticism (Jamison 2001). Liberal philosophers would hence probably agree that enlightened and future-oriented pursuit of self-interest is a safe way of organizing societies and pinning down ethical commitments. On the other hand, the radicalizing potential of short-termism can, perhaps, be rescued and tamed by acknowledging the constant need for deconstruction of any perceived truths, as in Foucault's works (Darier 1999), and with a healthy dose of irony (Rorty 1989). At best, the immediacy of experiencing the world contributes to critical self-reflectivity.

[14] Regarding the idea of moral capability I am indebted to my colleague Jukka Mäkinen who discusses the capability of institutions and individuals to perform 'moral work' (Mäkinen 2004).

[15] Enlightened Epicurianism has been advocated as a moral theory that is based on a concept of self-love and its primary feature of desire for happiness (Nakhimovsky 2003).

Temporal clashes in environmental policy-making

The core ideas put forward in this thesis are not new, but well articulated by Romanticism, by followers and political activists such as William Morris in late 19th century and more recent critical environmental scholars such as Schumacher (1974). Hence, one can query the reasons for the persistence of prevailing economizing approaches to consumption in the environmental debate. In other words, before being more explicit about the potential contribution or uses of the new vocabulary and new frames of analysis introduced in this study, we need first to appreciate why it is that the environmental debate constitutes such a high-modern sphere of social life in the middle of a late-modern or a post-modern world. As one possible explanation I examine below a clash of different temporalities in the field of environmental policy and management.

It is conceivable that the time frame of environmental concerns are especially long. Consider how resource use is often represented in terms of intergenerational fairness, how climate change models span hundreds of years and even further back into climate history, and how concerns over the loss of biodiversity essentially encompass the history of all life on earth. Hence, environmental times are said to be evolutionary and "glacial" – referring to various geo-physical and biological processes (Macnaghten and Urry 1999; see the work of Harré et al. (1999) for a discussion how different temporal scales are interwoven into the environmental debate). Consequently, it is frequently argued that the scope of environmental policy-making and the related, technical, economic and moral considerations should also (be extended to) span regenerative cycles in nature and cover the interests of future generations (e.g. Smith 1998; Held 2001; Fitzpatrick 2004). As Paehlke (1989, 158) argues*: "[Long] Time horizon may be the single most important distinction between environmentalists and others.*"

However, the times of environmental policy-making are not ultra-long, but rather unfold under a very clear goal- and change-oriented agenda. Mounting environmental concerns imply that both environmental science and environmental politics are problem-based and control-oriented. The long processes of climate change are subject to management efforts of the approximately 10 year intervals of the Kyoto Process, to give an example. Not only the policy establishment, but even protest movements often manifest a temporality of production (Szerszynski 2002). This is to say that most environmental policymaking unfolds through pursuing specific objectives and the goals of given constituencies. Furthermore, reflecting on modern management in general Adam and colleagues (2002, 3) argue that "*The undisputed aim of management has been to control time not to problematize it."* These comments then lead us to observe that in the field of environmental policy-making and management, time is predominantly treated as a resource and a steady flow, in which effective action is to be planned and undertaken, quite apart from the long, uncertain "glacial" processes that motivate such policymaking.

The voices that advocate qualitative improvement of life instead of further quantitative economic growth put forward another notion of time, which is distinct from the management times and long environmental times. These claims, while not as explicit as those of extending the temporal reach of the sustainability considerations, are – in fact – also opposite. The times of subjective well-being, happiness and non-material "wealth-in-time" are as short as seizing a fleeting moment. Similarly, craft identities and the joy and autonomy of production for the voluntary simplicists imply autotelic intrinsically motivated time. This has been the major argument I have developed in chapter 4 and throughout the appended papers.

While my discussion has earlier been conceptual, I want to argue that this third romantic "everyday" notion of time is gaining substantial momentum in the environmental debate. Not only in the research world, but also in green party politics, the idea of wealth-in-time is gaining currency. For example, in the parliamentary election campaign of 2004, the Finnish green party argued for "more time, less stuff". Similarly, the popular initiatives and associations for slowing down (see ch. 1) and the burgeoning literature on slow time frequently explicate the link between slow "everyday" time and the "solving" of environmental concerns (e.g. Fuad-Luke 2004; Aldrich 2005). Furthermore, such activism refers explicitly to different sensory data and aesthetization. The leading figure of the Slow Design network states that:

> *Design has too long been dominated by the visual senses, by the manipulation of the marketplace and by fashion or by style. Touch, smell, taste and sound have atrophied in the outpourings of the design profession. Manifestations of slow design touch the senses deeply, foster a revival of intuition over information and de-commodify time.*
> (Fuad-Luke, 2004, ch 2.4)

The short-term perspective is also substantiated by economists who take interest in happiness and subjective well-being. Easterlin (2001) points to the long tradition and the renewal of interest in measuring subjective well-being. Since the 1960s, there has also been a related track of criticizing GDP as a measure of well-being (Paehlke 1989). Recently, authors such as Layard (2005) have gained popularity for reintroducing the topic of happiness and the arguments that scientific breakthroughs may "finally" enable the direct measuring of happiness instead of the proxy of economic wealth. Hence, notions such as "Gross Happiness Product" are beginning to circulate in the intellectual arenas. One indication of such interests is that the concept of subjective well-being has also been introduced to the practice of life cycle analysis (Hoffstetter et al., forthcoming).

The different temporalities, the "glacial" time of environmental changes, the effective times of policy-making and management, and especially the third revitalizing notion of an aestheticized immediacy of everyday life, imply that there are

temporal clashes and contradictions in the environmental debate. Further, while it seems that both the ultra-long, "glacial" time and the everyday time unite in opposing economic, managerial time, these two critical strands of the environmental thought are hard to reconcile. This is apparent when discussing consumption; the inherent meanings and intrinsic rewards of consumption activities receive little understanding in environmentalism. Rather, short-termism is frequently stated as *the problem*, and more often than not ideas about wealth-in-time are entangled with more managerial solutions such as eco-efficient product-service innovations (e.g. Paehlke 1989; Fuad-Luke 2004). Is it then conceivable that there is a failure of middle range managerialism in the environmental debate and that the "polar ends" of short- and long-termism undermine each other, and thus paralyze the debate?

My understanding of the temporal clash differs from that of Macnaghten and Urry (1999). They refer to a quite similar tension within environmental policy-making – also using Nowotny's concepts – and state that *"there are two new times which are wrestling for dominance alongside clock-time within the late-twentieth century societies"* (1999, 148). For them, the clash takes place between a long future to be managed and an instantaneous, extended present. However, the crucial difference is that they regard instantaneous time as a global connectedness and as a disorganized, dissatisfying multitude of confusing possibilities. For them, such a condition of the extended present results from a deep distrust of the contemporary institutions to manage and span far enough into the future. Such doubts lead citizens in their account to apathy and fatalism. Hence, they do not acknowledge Nowotny's ideas of uchronias and the possibly meaningful slow time as articulated in chapter 4 of this summary text. In place of these uchronias, they draw on an idea of locality and sense of place as a source of greater, even "glacial" time spans. As such, they do not reflect on the idea that the growth- and science-critical environmental movement internally legitimizes the polar-end of short-termism, but rather place the contradiction and the related policy puzzle in the wording "think global, act local".

Writing about green consumption and gender, Moisander (2001) has reinterpreted the global vs. local dilemma in a way that bears more on the question of short-termism. She claims that women are predominantly offered a position of intra-generational and global earth-care. Yet, aside from such a position, she claims that feminist, science-critical thinking also enables a focus on more local struggles for self-development and increased quality of life. For her, both of these positions are equally accessible, but she argues that the earth-care position reinforces traditional gender roles. Yet, it can also be argued that the other polar-end of short-termism is equally gender-loaded. Frequently, women are perceived as emotionally more capable and more sensitive than men – as soft, impulsive and even "romantic". Women have also been charged with the using-up and consuming of the products of the modern economy in a hedonistic, short-sighted play of consumption (Firat

and Dholakia 1998). The masculine mindset thus sits firmly in the middle, while the polar-ends are relegated to female positions.

The above point – as tentative as it is – helps to appreciate the claim that the environmental debate is gendered. Both of the critiques frequently surface as female sensibilities even though they arise out of opposing and contradictory temporalities. More importantly, the apparent gendering of the polar ends also suggests that the polar ends share something albeit their apparent and on-surface opposition. One common feature is the Romantic core idea that there is no single body of knowledge simply to be built piece-by-piece through empirical, pre-linguistic observation of nature. Organic forms of knowledge, non-linearity, and the idea of emergent new realities orient disciplines such as systems-ecology of the long range, but also the appreciative and interpretative accounts of consumption and everyday life.[16] This is, however, not to say that there would not be an apparent and influential temporal clash within the environmental debate. A shared ideological history and a critical epistemology do not imply a merry alliance and mutual recognition on the level of policy-making.

The temporal incommensurability of the debate – the stalemate between the polar ends – opens up a new view of why environmentally-informed debates about consumption are dominated by economic and rationalising representations. It partly explains the ultra-modern consumption debate within the sustainability agenda as opposed to more interpretive and appreciating approaches of disciplines such as anthropology or consumption sociology. Such a bias is likely in any policy field geared toward effective action. However, in environmental policy and management, the clash of different temporalities appears particularly strong. As such, the stalemate of temporalities is one aspect of the persistent ability of modernity to reproduce itself and the apocalyptic momentum of "industrialism" upon which Beck bases his analysis of the Risk Society (1990).

One should not, however, overstate the self-reinforcing powers of modernity. Paehlke (1989) and Jamison (2001) note that environmentalism has given rise to new disciplines such as (systems) ecology, which build on the ideas of threshold levels, the non-linearity of complex systems and the inherent uncertainty and unmanageability of nature. These disciplines have been successful in modifying the modernist management debates to better encompass nature's times and higher uncertainty. There are certainly some similar openings towards the polar end of short-termism. Environmental sociology has made progress within ecological modernization. Equally, writers such as van der Bergh et al. (2000) and Reisch

[16] See Jamison (2001, 55) and Richards (2002) for the Romantic origins of ecology and evolution theories.

(2003) seek to expand the repertoire of economics to discuss consumption in more holistic and interpretive ways. Reisch calls on heterodox economics and insists on plural formulations of utility, which can incorporate both goal- and process-benefits. Yet, I agree with Cohen and Murphy (2001a), Dolan (2002) and Southerton and colleagues (2003) that the rationalizing and problem-solving mindset is firmly established in the debate of environmental policy and management.

Previous explanations of the dominance of the "hard" scientific disciplines do not fully cover this temporal clash. It has been argued that individualistic approaches to consumption are simply much more feasible in the current political climate and more familiar to policy-makers (Cohen and Murphy 2001a). Hence, research funds are directed at projects which focus on consumption innovations and technological remedies to environmental problems. Jamison (2001), Cohen and Murphy (2001a) and Schaefer and Crane (2005) argue that the quantitative research methods frequently used in economics may be one obstacle or hurdle for other more critical disciplines entering the debate. Economists, on the other hand, share their quantitative mind-set with natural science -oriented environmentalists (Schaefer and Crane 2005). Moisander (2001) and Schaefer and Crane (2005) add mainstream marketing to the list of prevalent disciplines that easily rule out more interpretive notion of consumption. Shove (2003) also discusses the reasons for individualistic bias. She claims that environmental policy purposefully downplays the underlying ethical and intellectual commitments to achieve programmatic rigidity. A solid, even paradigmatic set of assumptions constitutes a feasible work program (see also Cohen and Murphy 2001b). The idea of a temporal clash can be used to substantiate these claims further; there is a need to fix the temporal landscape of the debate, and even more so to avoid simultaneous exposure to two different fronts in the debate regarding appropriate temporal reach.

Reflecting on both the inherent temporal clashes of the debate and the need for unity of the program of sustainable consumption, Reisch (2003) has argued that approaching sustainable consumption requires integrative policies that arbitrate between different time-scales of the debate. The arguments for merely expanding the temporal reach of sustainability concerns (e.g. Grove-White 1997; Hofmeister 1997; Smith 1998; Held 2001; Fitzpatrick 2004) in the name of regeneration of stocks of natural resources or for the sake of precaution about potential future impacts do not capture or adequately address the temporal clash. Only when brought together with the growth-critical, anti-science quality-of-life debate, will the clash be developed to the full. Yet, this is the reality of environmental policy-making: *alongside the emerging theme of sustainable consumption, environmental policy-making is increasingly faced with the need to incorporate both the ultra-long and the vanishingly short time frames of contentment in everyday life*.

Time aspects of the policy field of sustainable consumption

Sustainable consumption as a policy field has emerged from the Rio Earth Summit, which called for more sustainable patterns of production and consumption. Since then, and as part of the wider political scheme of ecological modernization, sustainable consumption has mainly unfolded in attempts toward eco-efficient products and consumption innovations (Cohen and Murphy 2001a; Fuchs and Lorek 2005). This narrow scope of application has raised doubts about the merit of the concept of sustainable consumption (e.g. Dolan 2002; Princen et al. 2002; Carolan 2005).

What, then are the specific topics – bearing on the focus of this thesis – towards which policies of sustainable consumption should be open and upon which they could draw? How is it possible to arbitrate between the different temporalities? How can a foothold be gained on the slippery ground of the economizing discourse of ecological modernization, and how to pursue efficiency and sufficiency simultaneously, as Sachs (1999) has suggested with his twin-track metaphor? While not attempting to draw such an agenda, in the following I point to few relevant hubs of future debate.

The Working hours debate

Increasing labour productivity, the benefits of technological and organization progress, are one subject that is close to the debate about sustainable consumption. Authors such as Paehlke (1989), Schor (1991; 2005) and Sanne (2000) have argued that it is necessary to invest productivity improvements in increased leisure time instead of in increased financial output of the economy and increased material well-being. Schor points out that while working hours have historically declined, especially in the US employees have chosen or been forced to increase their hours of work since the 1970s. While Schor's quantitative figures are disputed (for example Robinson and Godbey 1997), the general point seems valid, also outside the US. Up to the recession of the 1930s and the Second World-War, there remained a widely shared technological optimism that a 6 hour workday or even less would be possible, but since that time the labour movement has been more interested in negotiating increases in pay instead of more leisure time (Cross 1993 and 2005). Aspirations of material wealth have been substituted for those of increased leisure, and it is this development that advocates of wealth-in-time (e.g. Sachs 1999; Reisch 2001) seek to counter.

While it is conceivable that a rapid growth in services and a de-linking of economic output from the environmental "bads" would be able to accommodate the increased labour productivity of even more hours of work, it remains the case that for an absolute reduction in the environmental burden, a controlled reduction of

working hours would be a strong ally. This observation again highlights the global perspective of the questions. The progressive nations in work-time reduction such as France, Germany and Finland have been forced to halt or even reverse the development to match the global standards.

Quality time -debate

The question of working hours frequently takes on a mechanistic tone. However, as Nowotny argues, the question is not simply one of getting more of the same, but of finding new qualities of time or life. Without such a change, increased hours of leisure will only be filled with an ethos of busyness and a maximized participation in the opportunities of a globally connected world. It remains that the claims of, and any progress in, the reduction of working hours take place in societies where busyness amounts to nothing less than an ideology. The popular quality-of-life arguments then challenge society both in an hours-based debate as a well as in a debate about the legitimacy of slow time. But can the pace of life be a subject of policy-making? Or is the notion of eco-social time policy (Reisch 2003) reduced to questions of work sharing and working hours?

The slow time movement is not institutionalized like the labour movement. There is no counterpart to negotiate with, and time policy lacks a clear role in public policy. The responsibility over time policy remains ambiguous. Since the struggle appears individual, there is a growing self-help literature and a supply of courses on voluntary simplicity. Meanwhile, other resources and the potential for policy-making on the pace of everyday life are less frequently elaborated on. Nevertheless, the versatile time-activism to which I have referred in chapter 1 has made some advances. Slowfood International, for example, states as its mission the following:

> *Through its understanding of gastronomy with relation to politics, agriculture and the environment Slow Food has become an active player in agriculture and ecology. Slow Food links pleasure and food with awareness and responsibility. The association's activities seek to defend biodiversity in our food supply, spread the education of taste, and link producers of excellent foods to consumers through events and initiatives.*[17]

In this statement, food biodiversity is displayed as a resource for an appreciative food culture. Furthermore, gastronomy is established as a subject for (university level) education in sensory skills. Slow moments are connected to physical re-

[17] (http://www.slowfood.com/eng/sf_cose/sf_cose_mission.lasso, accessed 5.1.2006)

sources – the availability of (local) foodstuffs and agricultural products as well as to the skills of working with and consuming them. Hence, this statement effectively demonstrates the complexity and different political levers for promoting slow practices and qualitatively different, careful, appreciative, non-harried time.

Spatial planning in the scales of regions, cities, neighbourhoods and individual dwellings is perhaps closer to environmental policy-making. If we appreciate the core idea of this study that nature, spatiality and the object-world become intertwined with how we experience and relate to time, spatial planning implies nothing less than temporal planning. On a very concrete level, it is possible to argue that public spaces of free access enable slow time. On the other hand, deliberate policies preserving heritage and contributing to the historicity of the object world and the landscape are not merely sentimental nostalgia. Rather, historicity is a way to connect to and engage with the local environmental and material context as if it were valuable and capable of producing and enabling meaningful and non-instrumental time (Macnaghten and Urry 1999).

What, then, is wrong with eco-efficiency as a policy approach? It does not preclude locally produced, high-quality agricultural products, does it? Food can be produced with fewer nutrients and transported more efficiently without imposing any kind of rationalizing upon consumers and everyday life. The point is, however, that when such approaches are employed without considering the field of application, the simple notion of "making more out of less" is frequently out of place. I have argued that intrinsically meaningful action is imbued in non-market activities of households whether these activities resemble production or leisurely pursuits. Scholars conducting research on small-scale enterprises might conclude the same. There are intrinsic values even in commercial activity. The will to spur eco-efficient innovation, and to locate and prove win-win situations in the spirit of ecological modernization is a tempting and politically feasible option. Yet, there remains little doubt of which one of the two concerns is handicapped in the contemporary world. Policies on sustainable consumption and production then need not only to be sensitive towards the intrinsic meaning of action and protect them, but also cultivate such meanings.

The ideas of eco-efficient innovations and win-win situations need to be specified. For example, when putting forward a classification of eco-efficient services, Heiskanen and Jalas (2003) distinguish between product-based services, result-oriented services and eco-design with a functional approach. While all these approaches can be grouped under the heading of service-orientation, the options imply time in different ways. Result-oriented services imply empty time – all that matters is the end-result. Thus, and by no co-incidence, they also bear the greatest potential for innovation. Product-based services mainly deal with organizational change in provision and leave the product intact. Finally, functional design implies design of uses and use situations. What we can infer is that the consequences

of the metaphor of "products as service-producing-machines" vary greatly according to how we conceptualize "services". A view of a service as an end-result resonates with a capitalistic growth logic. A view of services as a sequence of meaningful time and as interaction among humans and the material world, on the other hand, implies a critique of continuous economic growth.

The other qualification that I want to put forward concerns the idea of de-linking economic growth from the use of natural resources. When used at the product-level, making more out of less implies eco-efficiency improvements by more efficient production processes, longer phases of use and the like. However, when used as an economy wide-concept and as a *target* for environmental policy, de-linking implies a logic of growth. The expansion towards private non-market time in forms of, for example new household services, becomes a vehicle of de-linking regardless of potential increases of the absolute use of natural resources. On the other hand, the time use approach and the new forms of societal resource flow accounting that I put forward in chapter 5 portray de-linking as a non-relevant phenomenon. The expansionist nature of the concept of de-linking will be further touched upon in the following, final section.

Sustainable consumption in policy documents

As the last part of my efforts to put the core ideas of this study into practical use in policy-making, I will briefly review the recent Finnish suggestion for a national program of Sustainable Consumption and Production (KULTU 2005).[18] This document shows that many of the above concerns are being considered. However, one can also conclude that the efficiency-attuned measures are much more detailed and those focusing on quality of life less so. Hence, ideas of improving the efficiency of production and logistics, and providing innovative eco-efficient product-service combinations for consumers are prevalent. The report elaborates on achieving such aims; it considers information needs, communication, spatial requirements and opportunities for new entrepreneurship, among others.

On the question of working hours, the report is in no way radical. Rather it maintains in its vision that there is work for everyone, and suggests that new employment opportunities are to be created in providing new eco-efficient products and services. The right to work is, the report emphasizes, a basic human right (see

[18] The proposal for a national a program of Sustainable Consumption and Production was published by the Finnish standing committee on Sustainable Consumption and Production (KULTU) in June 2005. Finland has been internationally active in this policy field in the EU and in the Johannesburg World Summit on Sustainable Development. Hence, it may also be argued that the report carries significance in the setting of the international agenda for the policyfield of sustainable consumption.

Darier's (1998) critique on this). Flexible hours and gender equality are mentioned as questions that relate to potential additional labour supply, and early retirement is posited as a challenge for the contemporary Finnish labour market. From a different, less growth-oriented, point of view, one might ponder and try to improve the rights and wellbeing of part-time workers, the legitimacy of men taking part in child-rearing, and note the success of the "sabbatical year" arrangement in the public sector.

The question of non-market time is interesting. In order to promote a more service-based economy, the report seeks active measures to promote the use of services directed at households. The report argues that the use of such services is hampered by the "tax-wedge", the taxing of market labour as opposed to non-market time (KULTU 2005, 77). In order to lessen this obstacle and create demand for household services, the report suggests as a concrete measure an increase in the tax deduction for household services. This question of the promotion of the use of household services exemplifies the contradiction between promoting a service-based, non materials-intensive economic growth and an attempt to limit and control the expansion of market relations into private life. The "tax-wedge" is, from an another point view, an essential safe-guard for maintaining non-market time as a creative, "culturally-thick", meaningful and skilled sphere of human action as opposed to a stark polarization of society into the realms of market work and "pure" leisure.

Not surprisingly, then, the ideas of wealth-in-time are hardly present in the report. Rather, the chapter on increased quality of life unfolds around the transition towards a service-based economy and around the possibility of increasing the demand for household services. Consistent with the exclusion of the idea of wealth-in-time, the report also urges expansion of temporal horizons rather than acknowledging the possibilities of the other polar end of short-termism. The reasoning is that *"It is hard to motivate an individual who is interested in self-realization to make [responsible] choices for the sake of future generations, neighbours, or other people on the globe"* (KULTU 2005, 140, translation from Finnish by the author). This sentence epitomizes the temporal clash I have described. Moreover, the tendency to reproduce a global and scientific solution to the environmental problems at the expense of local knowledge and intrinsic meanings is equally obvious: *"Consumption decisions and choices are also based on emotions, desires and cultural ties. In practice this means that even though research shows that a good environment and sustainable development is valued, consumers make unsustainable choices."* (KULTU 2005, 140, translation from Finnish by the author).

Reports such as this one on sustainable production and consumption are outcomes of political compromises and valuable as such. Furthermore, the strong grip of eco-modernism is not at all surprising. Nonwithstanding, attempting to follow the lead of eco-social time policy essentially implies reconsidering the appropriate-

ness of a rationalizing view of consumption innovations. Aside from promoting innovations, the task of safe-guarding and cultivating meanings is equally important for public policy. On this respect, the report appears biased.

The task, of course, is not easy. As Cross (2005) argues, people are more or less satisfied with their hours of work. Equally, few resist the increasing use of household services – not at least from the point of view of those who are receiving the services. Such a task may, however, also generate new allies. The positive meanings of consumption and the revitalizing aspirations of increased quality of life appear as a latent resource for the policy field of sustainable consumption. Yet, tapping into such a possibility requires a change in the conceptual mindset. It repeatedly re-actualizes the question of what sustainable consumption is, if it is not efficient (household) production.

7 SUMMARY

In this summary text I have argued that there is a clash of different temporalities in environmental policy and management. I first started by capitalising on the idea that products are "service-producing-machines". This notion is frequently referred to in order derive eco-efficient innovations and make more out of less. Upon this background, I argued that such a notion assigns an instrumental role to goods and consumption processes. Furthermore, I showed that such assumptions also represent time as a scarce commodity to be allocated optimally. In short, alongside ecological modernization, there is a rationalising approach to consumption that constructs everyday life as economic goal-directed productive action.

On the other hand, scholars of consumption have advanced the thought that consumption might be approached with a theatre metaphor: instead of the instrumental reasoning over consumption, consumables, material objects, and space diffuse with time in performative and staged acts of consumption. Material consumption is thus intertwined with the various forms of human experience and human time; material objects and consumption constitute and "make" time. According to this view products are not service producing machines, but stages on which different kinds of life are played out.

These views draw on Romanticism and the tradition of science-criticism. Although apparently in opposition to environmentalism, I have shown that the appreciating views of consumption share a common background with the critical environmental movement. They both challenge the position of scientific knowledge and call for the possibility of different, sensory, aesthetic and practical knowledge. What has gone rather unnoticed in this discussion is that such calls imply a shortening of the time frame of human action. The appreciative views of consumption revolve around concepts of immediacy and autotelic action, in which the action is legitimate in itself rather than merely instrumental towards external goals. In economics, the possibility of autotelic action is discussed as plural formulations of utility and, particularly, using the concept of process-benefits. These ideas are also increasingly present in the current environmental debate in the calls for downshifting, slow time and for qualitative improvement of life and wealth-in-time instead of quantitative growth.

These observations set the scene for the argument that the field of environmental policy and management accommodates a fundamental temporal clash. Most often such a clash is located between short-term economic interest and long-term sustainability, intergenerational justice and regeneration of natural stocks. However, in this study I have argued that only when autotelic short-termism is acknowl-

edged as an increasingly legitimate temporality, will the clash and its environmental implications be revealed to full extent. It is possible to observe that the time of economics, management and policy-making is a mid-range construction, which is challenged by the two polar-ends; short-termism of human happiness and quality of life on the one hand, and the ultra-long time of sustainability on the other hand. Furthermore, I have hypothesised that the two polar-ends undermine each other and that the clash between them solidifies the position of economic and management time in the environmental debate.

The dominance of ecological modernization, and of the related disciplines like economics and engineering, constitutes the background of the papers of this thesis. I have argued that busyness is a prevailing ideology, which also configures and defines debates about ecological modernization and eco-efficient consumption innovations. Hence, the appended papers and this summary text have taken up the task of deconstructing busyness and instrumental time as social constructions, and of counter-imaging intrinsically meaningful time and wealth-in-time.

The book chapter on wooden boating documents processes in which the individual practitioners of wooden boating rehearse their skills and devote themselves to maintaining and renovating old boats. In this text, I place boats, and the skills and the images of wooden boating in an active position in which they are able to convince humans and "make", "fill" and contextualise the empty abstract notion of economic time. Busyness does not vanish in such a process – the boat-owners are extremely busy with their hobby – but the universal busyness and the imperative to make good use of one's time re-emerge as a much more local and contextualised busyness. The boating chapter also points to a process of aesthetization, which involves various social actors and results in the constitution and availability of intrinsically meaningful time within wooden boating.

The three other articles put forward a new approach to accounting social material and energy flows by using time use statistics. While the same methodology has been previously used to study, for instance, employment, I demonstrate and apply the methodology to study the energy consumption of Finnish households. The central methodological question, to which I draw attention, is the pairing of expenditure data with time use data.

The firm position economics and engineering hold in the environmental debate over consumption casts doubts on the scope and reach of such attempts. The critical points of view of the appended papers and this summary text are not entirely new, on the contrary. Romanticism in the 18th and 19th century articulated a critique based on aesthetics and alternative forms of knowledge, and environmental critics have since then repeatedly rehearsed these arguments. The position of such claims has, nevertheless, remained marginal in general and within the specific policy field of sustainable consumption. While the dominant position of economics

and management remains, I have hinted at ways of dismantling the rationalising view of consumption. Firstly, the quantitative papers seek to change the language and terminology of the critique, while not significantly altering the content of it. Secondly, the paper on wooden boating takes seriously the claim that the material world and spatial design intertwine with temporalities and participate in the struggle over the "proper" tempo of human action in contemporary societies. Hence, all these papers put forward a utopia of temporal wealth in order to feed and balance pragmatic policy-making on sustainable consumption; they attempt to carve out abundance and contentment as a possibility in the environmental debate.

The legitimacy of treating busyness and scarcity as social constructions rather than facts of real life stands on the fundamentals of ecological modernization. It is a debate directed at the wealthy industrialised countries. In a specific context of this kind, I thus argue that it is legitimate to represent consumption activities as efforts to fill time and establish meaningful life. Indeed, the policy field of sustainable consumption and production, which was launched at the Rio Earth summit, specifically calls for more sustainable patterns of production and consumption in the "North". Accepting such a task, the ethical responsibility of policy-making in the wealthy countries is to try to acknowledge their relative and absolute wealth rather than to repeatedly construct scarcity.

Busyness, managerialism and economic time in the environmental debate resonate with social reality outside of the debate. Yet, I argue that this orientation is also partly home-grown. The prominent ideas of de-linking economic growth from the use of natural resources generate a particularly powerful and persuasive economic logic. In a same vein, the legitimate need to locate eco-efficient innovations has taken over other aims of environmental policy-making. In particular, the latent and often unnoticed contradiction between the "twin-track" road of efficiency and sufficiency has contributed to an efficiency bias. However, such observations of the internal making of busyness also suggest an opportunity for more balanced environmental policies of consumption. Hence, following William Morris, I resume to hope.

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ANALYSIS

A time use perspective on the materials intensity of consumption

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Abstract

The ecological requirements to drastically increase the productivity of materials use call for improvements in the efficiency of consumption. This (eco-)efficiency discussion often takes a functional view on consumption, noting that present consumption is inefficient and that it is not the products that the consumers want, but the services that the products yield. However, contemporary consumption serves many needs that are not functional and universal, but subjective and obscured from the producers. This paper develops a time use approach towards consumption, which makes allowance for the subjectivity of needs, while still enabling the analysts to approach the concept of a sustainable lifestyle. A distinctive premise of the analysis is that it assumes time and money not to be interchangeable and consumption to be limited by available consumption time instead of purchasing power. This approach is demonstrated by linking the direct and the indirect energy use of Finnish two-person households to the data of a national time use survey. The results are used to point out some of the potential time use rebound effects of such new eco-efficient services that transfer activities from private households to the market actors. © 2002 Elsevier Science B.V. All rights reserved.

Keywords: Consumption; Time use; Rebound effect; Services

1. Introduction

The current discussion on eco-efficiency often calls for improvements in the efficiency of consumption. Such ideas are manifested in the claims that it is not the products that consumers want, but the services that the products yield (e.g. Schmidt-Bleek, 1994; Meijkamp, 1998). These thoughts reflect earlier discussions on the ultimate source of utility taken up by, for example, Lancaster (1966) who proposed that preferences are expressed in terms of product characteristics, which are available in different combinations from different products. Consumers, according to Lancaster, need information and managerial skills to find the efficient product combinations. As such, this discussion is also relevant for the present debate on eco-efficiency in which both producers and consumers are urged to question the products as the ultimate source of utility and welfare (Lintott, 1998).

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From a manufacturer's point of view, the eco-efficiency approach shifts the focus from the physical products to the services the products provide (Reiskin et al., 1999). It also puts forward the notion of product manufacturers turning into managers of product fleets (Stahel, 1994). While the environmental motives and merits of such changes—often labelled as servicizing or service-orientation—can be questioned, they are gaining momentum. Product manufacturers and new service providers are increasingly getting involved in product ownership and operation (White et al., 1999; Interim Report, 1999; Mont, 2001). Concerning consumer products, the various renting and leasing agreements and new organisations, such as the car-sharing schemes that are gaining wide popularity in Europe, all tend to shift the responsibility for products and technology from private consumers to organised businesses. Thus, such an orientation also implies an *increased market bias* in catering to consumers' needs.

The important premise of the service discussion is that the preferences of consumers can be known and reacted upon by the producers in their search for more efficient ways of providing utility for consumers. Unlike, for example, Lancaster (1966), the current discussion regards the producers as having a key role in improving the efficiency of consumption. In practice, product designers are called on to forget incremental product development and devise totally new eco-efficient ways to fulfil consumer needs (e.g. Schmidt-Bleek, 1994). Thus, the discussion on the (in)efficiency of consumption presumes objective, universal needs or product characteristics in contrast to the subjective consumer preferences of standard economics. As such, the discussion takes a rather single-sighted stand on the nature of consumption and disregards the dichotomy between universal and subjective needs, which is well established in the literature. For example, Max-Neef (1992) has proposed a distinction between pre-systematic universal needs and needs which can only be understood as part of a dynamic system with no hierarchical linearities. Csikszentmihalyi (2000) suggests a dichotomy of existential and experiential needs, of which the former are more universal and hierarchical, and experiential needs, in turn, more subjective. The point of view claiming limited universality is supported by consumer research in other disciplines claiming that needs are culturally defined (Douglas and Isherwood, 1980) and that welfare is relative (Easterlin, 1972).

The focus of the eco-efficiency discussion does not match the reality of ever diversifying and escalating material consumption, and to fill the gap, the discussion frequently mentions rebound effects that undermine efficiency improvements (e.g. Meijkamp, 1998). However, being preoccupied with a functional view on consumption, the discussion has not concentrated on understanding the phenomenon. The concept of *rebound effect* was initially introduced to describe the price elasticity of energy demand (Khazzoom, 1980; Binswanger, 2001). This early notion of rebound effects referred to the substitution effect between different energy-related services such as mobility. For example, improved fuel efficiency of cars increases the substitution of car use for other modes of transport. In addition to substitution effects, also so-called income-effects contribute to total rebound effect. Thus, for example, the new combination of the modes of mobility creates savings and allows increased mobility among other increases in consumption (Binswanger, 2001).

Most of the discussion on rebound effects has regarded consumption as limited by the purchasing power of the consumer. However, as consumption is embedded in everyday life, it also has a temporal dimension. This paper introduces a time use perspective on consumption, which addresses the temporal conditions of escalating consumption. It further argues that service-orientation entails a time use rebound effect when the productive activities of consumers are transferred to markets to promote eco-efficiency. Empirical data on the energy requirements of selected household activities are used to demonstrate the approach and to consider the circumstances under which new consumer services may contribute to the reduction of aggregate energy use.

The structure of this paper is as follows. Section 2 reviews three alternative approaches to describe a sustainable lifestyle—a functional approach, an

approach based on purchasing power and a time use approach. Section 3.1 describes the method and the data of decomposing private final energy use into temporal activities and the energy intensity of these activities. The results of the empirical analysis are presented and discussed in Section 3.2. Section 4 introduces a model of the time use rebound effects, which is then applied to the energy intensity data in Section 5. Finally, Section 6 concludes with methodological reflections and with a more general discussion of the role of new consumer services.

2. Approaches to sustainable lifestyles

In the context of this paper, a sustainable lifestyle is arbitrarily defined as a dynamic pattern of consumption activities in which the related materials use is stable. From the materials-use point of view, all approaches to articulate a sustainable lifestyle can then, by definition, be reduced to a simple notion of not increasing natural resource consumption. However, this notion can be formulated in different ways that enable the analyst to take different points of view on developments such as service-orientation.

The appropriateness of a given approach towards articulating sustainable lifestyles depends on our understanding of consumption. On the one hand, consumption partly serves basic, existential needs (e.g. Max-Neef, 1992). On the other hand, many authors regard consumption as a temporal process with intrinsic value. For example, Firat and Dholakia (1998) describe a change from modern goal-oriented instrumental consumption to playful activity, which is an arena for creativity and for the construction of identities. Such divergent modes of consumption also call for different, complementary approaches towards the notion of sustainable consumption.

2.1. The functional approach

The eco-efficiency discussion focuses on the functions or services that the products yield (e.g. Meijkamp, 1998) and implicitly assumes that the needs that these services aim to satisfy are stable and that they can be conveyed to the developers of technology (Heiskanen and Pantzar, 1997). For example, in this discussion the need for mobility is often addressed, (purposefully) ignoring any non-functional meanings of private cars. Assuming such transparency of consumption, the discussion often also presumes that an increased market bias in the provision for such needs would bring about efficiency gains.

The applicability of such an approach is, however, limited as the needs of consumers may be obscured for many reasons. Firstly, the developers of any technology rely on a limited understanding of the circumstances of use and of the functional results that the technology should enable. Secondly, the users, when enacting technologies, constitute new meanings for them (Orlikowski, 2000). Thus, the use of technology in a specific context neither follows the intended purpose deterministically nor is independent of that purpose. Along this continuum, the functional approach represents a view of needs and the context of use as being open to the developers of technology.

2.2. The budget constraint-approach

The breakthrough of the neo-classical school of thought brought about a new theory of value, utility and needs. Whereas the classical theorists regarded value as objective and dependent on the factors of production, the prevailing neo-classical theory regards preferences as individual. Accordingly, utility is subjective and it cannot be measured as such, but is reflected in prices. The numerous studies that have compared the resource- or the energy-intensity of various consumer expenditure categories reflect this idea of the subjectivity of needs (e.g. Biesiot and Mol, 1995).

However, there are at least two distinct difficulties in approaching sustainable lifestyles with a budget-constraint approach. Firstly, it juxtaposes consumers as having an incentive to increase consumption in the name of greater welfare and as having an incentive to limit consumption in the name of saving resources (Lintott, 1998). Thus, under productivity improvements and economic growth, sustainable lifestyles would imply

such continuous change in individual preferences that compensates for the additional materials requirements of economic growth (Cogoy, 2000). The second reason is that money does not have equal value for all and everywhere (Sen, 1992), and thus the management of materials use in respect to purchasing power does not maximise welfare.

2.3. The time use approach

The time use approach shares the basic assumption of the budget constraint approach in that needs are not fixed but subjective and individual. The second, distinctive premise is that the approach considers the temporal constraints on consumption rather than the budget constraint. The following part of this section argues for three distinct assumptions that motivate the proposed analysis of the time use dimension of consumption:

1. the temporal dimension of consumption provides additional understanding of the potential changes in consumption,
2. the distinction between gainful work and leisure is becoming increasingly blurred and,
3. the individual decision of the quantity of one's labour input is restricted by social and economic institutions.

Time allocation has been theorised within the field of household economics. Becker (1965) has argued that Economic Man not only expresses preferences between different commodities within a budget constraint, but also between commodities and leisure time. Such an analysis combines the constraints of time and money and treats them as interchangeable. Recently, Cogoy (1995, 1999) has pointed out that although Becker has not recognised it, time allocation also has environmental implications. According to these authors, market goods are not sources of utility per se, but need to be combined with consumer time use (labour). Consequently, it is argued that changes in consumption can better be understood if the temporal limits of consumption are attended to (Mogensen, 1990; Cogoy, 1995, 1999; Godbey, 1996).

The theory of household economics, which presumes rational, goal-oriented consumption, does not, however, reflect the present understanding in consumer research. Csikszentmihalyi (2000) points out that consumers increasingly find themselves lacking things to do. Consumption of material goods is, then, used to fill the day and create meaningful passages of time or to construct identities (Belk, 1988; Firat and Dholakia, 1998). Furthermore, as the ends of consumption become more blurred, a distinction between instrumental and gainful unpaid housework, on the one hand, and meaningful leisure time, on the other, becomes more problematic. For example, Cogoy (1999) uses cooking as an example of an instrumental activity that is guided by other aims such as having a nice meal. However, surveys of time use preferences show that both women and men often prefer activities such as cooking to watching TV, which is, nevertheless, hardly instrumental, but rather a form of ultimate leisure time (Körmendi, 1990; Godbey, 1996). Bluntly, preferences and utility exist increasingly in respect to time and reflect a diversifying system of means and ends.

Time use does not seem to change as swiftly as other aspects in society (Mogensen, 1990), which points to a considerable rigidity in time use, probably caused by social and economic institutions and, as such, also questions the interchangeability of time and money. Indeed, the fact that productivity gains are utilised to increase additional materials consumption instead of leisure time is a commonly expressed concern of the literature dealing with the environmental aspects of consumption (e.g. Røpke, 1999; Sanne, 2000; Reisch, 2001). According to Røpke, the explanations draw on economic, socio-psychological and socio-technical factors. Work, for example, carries intrinsic social and personal meanings, which may contribute to a 'work and spend' bias. On the other hand, the legitimacy of non-productive leisure time may be questioned (Reisch, 2001). Furthermore, as many of the benefits of consumption are relative to the other consumers, individual consumers may opt for increasing their material wealth (Røpke, 1999). Empirical support for the impact of socio-technical factors has been provided by authors like Cross (1993) and Schor

(1991), who claim that labour markets and production technology maintain the cycle of 'work and spend'. Thus, under a constant productivity growth and policy-making, which is preoccupied with economic growth, consumption in the affluent industrialised countries may be increasingly limited by time rather than by money (Godbey, 1996).

Within the time use approach, a sustainable lifestyle can be described as a requirement of no increase in the materials-intensity of everyday life. On an aggregate level this notion is not very informative. However, a decomposition of materials requirements into different temporal activities allows better understanding of the conditions under which the changes in aggregate materials use do occur. For example, it has been claimed that increasing telecommunication expenditure is a sign of dematerialization. Nevertheless, as the growth of telecommunications also gives rise to economic growth, the effect remains unclear. The increased use of mobile phones or the Internet could be assessed from the time-use point of view. How much time is used in the activity? Is the new activity concurrent with some previously existing activity, such as travelling? Or has it acquired a time slot from some other activities, and what were their resource intensities?

The recent discussion on rebound effects and sustainable consumption does recognise the time dimension (Heiskanen and Pantzar, 1997; Røpke, 1999; Binswanger, 2001; Reisch, 2001). However, empirical research specifically on time use and the environmental impacts of consumption appears to be limited. As a notable exception, Schipper et al. (1989) have used time use surveys, consumer expenditure data and data on appliance ownership to study consumer lifestyles. As they note, including time use forces the analyst to consider at the same time both what people might do differently in the future and what they might not do as a consequence of their new activities. Such consequent new activities or changes in the time budget are referred to in the following as *time use rebound effects*. In most of the previous considerations of the rebound effects, time use has only had a peripheral position, if any. As such, these notions have not pointed out the strength of the approach, which, in essence, is that it allows the analysis of aggregate resource use without defining a set of basic needs or taking an exogenous size and structure of the economy.

3. An empirical analysis of the energy intensity of consumption activities

Households contribute to energy consumption by direct purchases of energy carriers such as electricity, oil, gas and other fuels. However, they also affect energy demand by purchasing other goods and services. Such embodied energy use is referred to as indirect energy consumption. Both direct and indirect flows are significant. In 1990, the share of the direct energy consumption of Finnish households was 46% (Nurmela, 1993).

3.1. Methods and data

The following analysis combines Finnish data on the direct and the indirect energy consumption of households with time use data, and focuses on how the energy use is distributed between different consumption activities outside working hours. The daily energy requirements can be decomposed into the temporal activities and into their energy intensities in the following manner:

$$E_{\mathrm{tot}} = \sum_{i=1}^{n} \sum_{j=1}^{m} t_i \times \frac{c_{i,j} e_j}{t_i}.$$

In which t_i refers to the duration of the activity i, cost $c_{i,j}$ to the j consumption expenditure categories related to the activity i and e_j to the energy intensity of the consumption category j. The duration of the activities ($i = 1 \ldots n$) sum up to 24 h and the expenditures c ($j = 1 \ldots m$) to the average daily consumption expenditure.

The analysis was conducted for Finnish two-person households since, among the types of households, they account for the largest share of population (Nurmela, 1993). The following four data items are combined to produce the figures on the energy intensities of household activities:

Item 1: the household expenditure survey, 1990. The household expenditure data are from a representative survey from 1990 (Statistics Finland,

1992), which provides a disaggregated record of the expenditure, of two-person households in Finland.

Item 2: input–output table of the Finnish economy and the derived energy intensities of final consumption expenditure in 1990. The energy intensities of final consumption expenditure can be calculated using national statistics and an input–output energy analysis, which is an application of economic input–output analysis developed by Leontief (1941) (see Biesiot and Mol (1995) for a description of the method). The present work makes use of the energy intensities of the Finnish economy in 1990 in an analysis of 82 sectors (Nurmela, 1993).

Item 3: Direct energy use of households. The data are based on Nurmela (1996), who has used the Finnish household survey 1990 to estimate the direct energy use of different types of households, and secondary sources to estimate the distribution of the use among different domestic activities. Transportation figures are based on the national passenger transport survey (TVH, 1988).

Item 4: Time use survey from 1987 to 1988. The time use data have been collected from a statistical sample via diaries and interviews in the Finnish time use survey in 1987–1988 (Statistics Finland, 1991). The data used in the present analysis consist of the aggregate annual time use of the men and women living in two-person households.

The combination of items 1 and 2 reveal the indirect energy use of the various expenditure categories of households. In order to study the energy intensities of activities, both the indirect and the direct energy use must be allocated to specific household activities. The first question that arises is the selection and clustering of activities to be analysed. This paper has maintained that the meanings of consumption can be understood only to a limited degree. Therefore, the following analysis does not distinguish 'instrumental activities' from sources of 'ultimate utility'. Rather, the analysis focuses on such activities that are relevant in terms of energy use or for which there exist market services as an alternative to consumer activity.

The second question arises from the fact that expenditure and time use data are typically collected separately. The allocation of consumer expenditure to specific activities is, thus, based on a qualified guess. The allocation is relatively straightforward for some expenditure categories. For example, expenditure on books, newspapers and magazines was allocated to the activity of reading. However, items such as housing, heating and furniture, which constitute 'household infrastructure', have a rather fixed demand and are connected to a variety of different activities. Brodersen (1990), who has performed a similar re-categorisation of Danish consumer expenditure data to match the aggregate time use categories, has left out such expenditures on household infrastructure. In order to maintain reliability, the present analysis, which focuses on more narrowly defined activities than the analysis of Brodersen, addresses only selected household activities and also excludes such expenditures and energy uses that are related to household infrastructure. Consequently, the analysis does not cover the total energy and time use of the household. Section 3.2 reviews the coverage and the potential errors of the analysis.

Public spending, which accounted in 1990 for 10% of the total Finnish energy demand (Nurmela, 1996), also raises questions on the allocation. When using the input–output-table, this energy demand cannot be allocated to household activities as no corresponding monetary flows exist in the economy. Thus, the data presented systematically exclude publicly provided goods such as the road infrastructure despite the fact that the related energy demand partly depends on their levels of use.

3.2. Energy intensities of selected domestic activities

Table 1 presents the energy requirements and the time use of selected activities of a two-person household in Finland in 1987–1990. The total energy requirement of a given task is the sum of the direct energy use for performing the activity and the indirect energy use of producing the goods and services that are needed in the activity.

Table 1
Energy demand and time use of selected household activities in a two-person household in Finland in 1987–1990

	Annual consumer expenditure[a] (FIM/a)	Expenditure codes of the included items	Energy intensity of the consumer expenditure (Nurmela, 1993) (GJ/100FIM)	Indirect energy demand of the purchase[b] (kWh/a)	Direct energy demand of the activity[c] (kWh/a)	Time use of a two-person household[d] (h/a)	Activity codes of the included time use	Energy/time (kWh/h)
Washing and ironing[e]	292	42 011-42 018 Washing equipment	0.1062; Household equipment	86	457	106	222	5.7
	134	44 001 Washing Agents	0.1472; Other household supplies	55				
Cleaning and organizing[f]	101	42 019 Vacuum cleaner	0.1062; Household equipment	30	96	300	221	0.42
All activities related to home meals[g]								7.6
Cooking, preserving and dishwashing[e]	642	42 000-42 010 Kitchen equipment	0.1062; Household equipment	189	2971	730	211–215	4.6
	402	4300-4301 Tableware	0.1565; Durable kitchenware	175				
	47	44 000 Washing agents	0.1472; Other household supplies	19				
Having meals & snacks at home[h]						835	321, 326	
Grocery store[i]	17 460	10-11 Food		8086		85	271	
All transport-related activities[j]				2516	12 271	839		19
Use of private car[k]				1997	11 125	444		30
Use of cars in shopping and family business[l]				429	2391	89		32
Use of cars in commuting[m]				746	4159	102		48

Table 1 (*Continued*)

	Annual consumer expenditure[a] (FIM/a)	Expenditure codes of the included items	Energy intensity of the consumer expenditure (Nurmela, 1993) (GJ/100FIM)	Indirect energy demand of the purchase[b] (kWh/a)	Direct energy demand of the activity[c] (kWh/a)	Time use of a two-person household[d] (h/a)	Activity codes of the included time use	Energy/time (kWh/h)
Eating in restaurants[n]	1809	130 Meals in restaurants and cafés	0.0717; Restaurants, cafés and hotels	360		31	323	11
Culture and sports events[o]	330	720 Entrance fees, excluding 72 004 Discos and dances	0.0757; Recreation, culture and free-time education	69		57	441–444, 451–453	1.2
Reading	2301	73-74 Books, magazines and newspapers	0.1083; Books, magazines and newspapers	692		751	711–715	0.92
Using TV and audio equipment[p]	854	700 Radio and TV equipment	0.0733; Radio and TV equipment	174	686	1531	721–741	0.61
	225	70 901–70 906 Records, tapes	0.1258; Goods for hobbies	79				
Having a sauna[q]					925	125	332	7.4
Average of the activities under study				12 531	17 405	5342		
Average of non-contracted time					45 786[r]	15 225		3.01

[a] Based on Statistic Finland (1992).

[b] The indirect energy consumption is the product of consumer expenditure and the energy intensity of the expenditure unless otherwise specified in the row-specific footnotes.

[c] The direct energy demand is based on Nurmela (1996, pp. 146–150), who reports the total domestic electricity demand and its distribution within household activities. The factor for primary energy demand of electricity production (1,91) is based on Mäenpää (1998, p. 32). Heating and lighting energy is excluded.

[d] The data are based on a time use survey of Statistics Finland (1991). The data are not household specific. Therefore, the data on men and women living in two-person households are combined to form meta-data of the time use of a two-person household. There were 2255 diary days of men (base 708 825) and 2150 days of women (base 634 184) from two-person households. Car-related time use is based on TVH (1988).

[e] Water use and the pre-heating of water is not taken into account.

[f] An estimate of 1 kW vacuum cleaner being used for 15% of the time.

Table 1 (*Continued*)

[g] An aggregate figure for rows from Cooking, preserving and dishwashing to Grocery store plus 30% of the row Use of private cars in shopping and family business, which corresponds to the share of distance of daily shopping trips. Most of the other shopping trips are made by foot or with a bicycle.

[h] The figure includes time for having tea or coffee without distinction between home and commercial services.

[i] The energy content of the bought food is based on Nurmela (1993, pp. 19–21). Time use stands for time at the grocery store.

[j] For all Finns from 13 to 64 years of age the percentage of the average daily distance (41.9 km) is as follows: train 7%, bus 11%, taxi 1%, car (driver) 53%, car (passenger) 20%, bicycle 3%, by foot 2% (TVH, 1988). The distance is corrected by the difference of mobility-related time of all Finns above 10 years of age (71.2 min) and Finns living in two-person households (65.0 min) (Statistics Finland, 1991). The mobility-related unit energy consumption figures (kWh/km) are based on Mäntylä and Alppivuori (1996), p. 119), who report for the dominating private car use the following figures: 0.78 kWh/km fuel consumption of gasoline-powered private cars and 0.14 kWh/km for car manufacturing. The figure of road infrastructure (0.11 kWh/km) is not included due to allocation principles. Included time use categories: 101,102, 202, 207, 209, 301, 401–405, 501,601, 901 and 902.

[k] The energy consumption calculation is based on personal transportation survey volumes (22.6 km/day as a driver for the average Finn from 13 to 64) (TVH, 1988, p. 10), which is corrected for two-person households as presented in the previous footnote. The time use survey includes 65 min of transport-related activities, but does not specify the share of car use. The personal transportation survey (TVH, 1988, p. 9) reports 41% of daily mobility time consisting of car driving and 15% of being a passenger.

[l] Average daily shopping distances as a driver for Finns from 18 to 64 years of age include 0.7 km/day for daily shopping, 0.7 km/day for other shopping and 0.9 km/day for family business towards the shop or the business (TVH, 1988, p. 27). It is assumed that the return journeys have the same length. The distances are corrected as above. Neither the time use survey nor the personal traffic survey specifies the share of cars in the time use for shopping trips. For grocery shopping, 36% of the trips are made as a driver and 12% as a passenger. For other shopping trips figures are 44 and 17% and for family business 48 and 9% (TVH, 1988, p. 10). The percentage of trips made with cars and the percentage of car-related travel time are roughly the same (TVH, 1988, p. 9). Assuming correspondence results in a figure of 55.4% of shopping related travelling time spent either as the driver or passenger in car.

[m] The average daily distance of trips as driver towards work is 4.0 km (TVH, 1988, p. 27). Distances are corrected as above. Following the distribution of commuting modes (see the footnote for shopping trips), car use is assumed to account for 50.9% (as the driver) plus 7.7% (as a passenger) of total commuting time.

[n] The expenditure figure excludes drinks and the time use figure excludes time in bars and discos.

[o] The time use categories include movies, theatres, concerts, museum visits, libraries, other culture services, sports events, fares and other amusement events. The energy consumption that is related to the public support for cultural services is not accounted in the input–output method.

[p] The energy consumption figures exclude the production of TV programs.

[q] Water use is not taken into account. Data stand for a three-person household (Nurmela, 1996, pp. 149–150).

[r] The average total final energy consumption of a two-person Finnish household excluding housing and domestic heating and lighting (Nurmela, 1993, pp. 15 and 19). The time use figure includes all time outside working hours.

The energy intensity of an activity is the relation of the energy use and the duration of the activity.

It is necessary to emphasise that the data in Table 1 mainly serve the demonstration of the time use approach. There are methodological difficulties within the present data in terms of allocating all relevant energy use to the right activities. The specific allocation decisions and the included data are presented in the notes of Table 1. The included activities occupy 30% of the average 24-h daily time-budget. Sleep, which involves practically no energy consumption because domestic heating is not allocated to any activities, occupies 35% of the time budget, and work, for which no final consumption is allocated, occupies 13% of the time budget (Statistics Finland, 1991). The remaining 22% share of time use is unaccounted for in this analysis. These activities were left out of the analysis because there were no sufficient grounds to allocate energy consumption to these activities.

The energy requirements for the activities in Table 1 cover 47% of the total direct and indirect energy consumption of a two-person household reported by Nurmela (1996). Following Nurmela (1996), domestic heating and lighting energy amounts to 28% of the total final private energy consumption, which leaves 25% of the energy consumption outside of this analysis. Some of this energy consumption does relate to the activities under scrutiny. For example, the use of water is not included in the analysis, even though the tasks of washing clearly require water. The remaining unallocated energy use relates to the 22% of the time use that is not covered by the analysis, for example, to vacations.

The activities that take place outside the home require some means of transportation between the residence and the service location. Some of this transportation includes the use of private vehicles, which has a high energy intensity as shown in Table 1. Thus, such activities as attending cultural events that have low energy intensity as such, have higher energy intensity when the necessary transportation is taken into consideration. However, the energy requirement of transportation is not predominant. Mäntylä and Alppivuori (1996) estimate that transport constitutes 30% of the total energy consumption of restaurant visits and that transport and lodging together constitute 21% of the total energy consumption of theatre visits. This energy consumption is not included in the figures in Table 1 as the time use data for transportation are not specific enough.

4. A model of time use rebound effect

Section 2.3 on the time use approach was based on a view of consumption as a process that requires physical inputs and time. Using these two dimensions, any consumption activity can be presented as a vector in a system of coordinates set by energy requirements and time use. The time use rebound effect was defined as the new activities a consumer engages in as a result of a less environmentally harmful product or service being substituted for an existing activity.

Fig. 1 uses two hypothetical examples from the eco-efficiency literature to illustrate the time use rebound effects that are associated with the initial efficiency measures. Lacking information on the utility functions of various activities, the figure assumes constant marginal utility of all activities. Thus, the rebound-activity is presumed to have the same energy intensity as the average non-contracted time, i.e. all time outside market employment.

In example 1, a delivery service is substituted for the consumer activity of shopping for food (Cairns, 1999; Goedkoop et al., 1999). The time used in the activity is reduced as the consumer only has to select the goods, for example, via the Internet, whereas a commercial service provider performs the delivery. The energy demand of the delivery is also lowered because multiple customers can be served by the same delivery service (Goedkoop et al., 1999). The rebound-activity is the activity the consumer engages in instead of the time spent on shopping trips. Thus, the intensity of the net outcome is a time-weighted average of the reduced shopping activity and the new activity that the consumer has engaged in.

In example 2, a commercial car service and repair shop is substituted for the work of a handyman. Graedel (1998) uses this example to

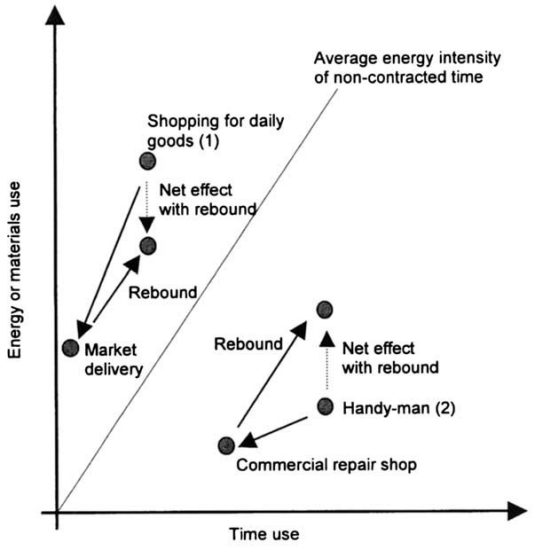

Fig. 1. Theoretical model of time use rebound effect and two hypothetical examples.

argue that commercial services bring about efficiency gains. Following Graedel, the energy demand in example 2 is reduced due to the higher rate of utilisation of existing infrastructures. However, if one takes into consideration the activity that occupies the time that is saved by commercial services, there is a net increase in the energy demand.

A more general interpretation of Fig. 1 is that an initial change towards the lower right-hand sector that is created by the line of the average energy intensity leads to net decrease in the energy demand (example 1). Respectively, a change towards the upper left-hand sector (example 2) results in a net increase of the energy demand. The scaling down of an activity, i.e. a change towards the origin, presents a specific case. For activities above the line of average energy intensity, a scaling down results in a net decrease in energy demand and, respectively, in an net increase in the case of activities below the line.

5. An application of the model

The present data do not allow considerations of which type of activities would constitute the rebound effects. However, the assumption that the rebound effect has the average intensity of all activities allows the consideration of potential scale effects in the existing activities. Fig. 2 plots some of the data of Table 1 into the conceptual model of time use rebound presented in Fig. 1.

As noted earlier, scaling down activities with lower than average energy intensity increases the total energy requirement. According to Table 1 and Fig. 2, such activities include attending cultural events, reading, the use of home electronics and cleaning and organising. Respectively, for the activities that have higher than average energy-intensity, scaling down lowers the total energy requirement. These activities were found to include washing and ironing, cooking, preserving and dishwashing, mobility in general and

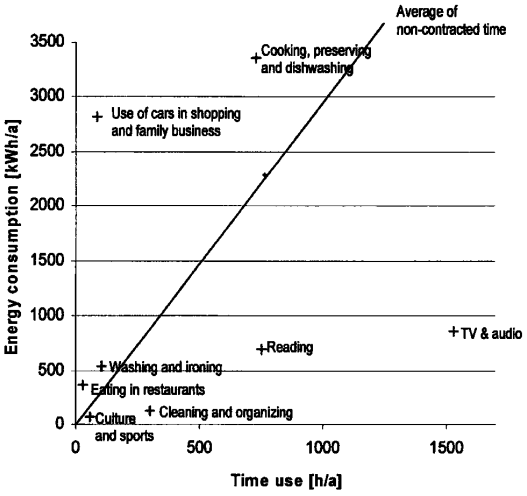

Fig. 2. Energy intensities of selected household activities of two-person households in Finland in 1987–1990.

specifically car use, eating in restaurants and having a sauna. However, the excluded data and the arbitrariness of the allocation decisions should be kept in mind when comparing the results.

The analysis includes domestic activities and activities that take place outside home. Mobility and eating in restaurants have high energy intensities, whereas cultural and sports events have clearly lower intensities. Similarly also, domestic activities include ones with both higher and lower energy intensities than average. Schipper et al. (1989) claim that a shift of activity from home to other places may significantly increase the total energy consumption. This is supported by the present data especially when such activities involve long driving distances. However, the opposite is also possible as domestic activities such as cooking, washing and taking a sauna have clearly higher energy intensities than, for example, cultural and sports events.

The eco-efficiency discussion postulates that services that are produced by households could be produced in the markets more effectively from the materials-use point of view. However, as these changes also affect the time use of consumers, they have a time use rebound effect. For example, commercial laundry services may be more effective when viewed as such (Goedkoop et al., 1999; VROM, 1993), but their net effect depends on the new activities the consumer engages in due to the additional leisure time gained.

Restaurant meals have also been presumed to provide efficiency gains when compared with preparing food at home (VROM, 1993, p. 29, 41). The results of the present work suggest, however, that while there may be efficiency gains available for providing *meals*, restaurant *eating* at present may not contribute to sustainable lifestyles. Combining all food-related activities that are presented in Table 1 together and calculating an aggregate intensity for meals prepared at home gives an intensity of 7.6 kWh/h. Eating in restaurant has a higher intensity of 11 kWh/h and thus the, assumed, efficiency gains are compensated by the time use rebound effects.

The use of the Internet provides yet another example. As the operation of computer equipment has a similar (low) energy-intensity as the use of home electronics, it seems that increasing time spent on the Internet would have the potential to reduce overall energy consumption. However, Nurmela et al. (2000) report that heavy Internet users have reduced time spent on watching TV and for 'general hanging around'. In the light of this, there may not be significant changes in energy consumption, as Internet usage has not replaced any activities with a high energy-intensity such as driving.

6. Conclusion

Despite the methodological difficulties in combining the energy data and the results of the time use surveys, some tentative conclusions can be made on the potential of eco-efficient household services. Firstly, there is a time use rebound effect in any efficiency measures that transfer household activities to markets and thereby contribute to a market bias in delivering welfare. Due to this temporal rebound effect and the consequent new consumption activities, some of the efficiency gains will be lost. The type of the rebound activities cannot be defined with the present data and thus also the net effect of any

particular service remains unknown. However, comparing, for example, eating at home and eating in a restaurant points out that the benefits of a market bias are far from self-evident.

From a methodological point of view, the time use approach is complementary to the other approaches used in the eco-efficiency discussion. The time use approach allows one to study the total materials requirement and the concept of sustainable lifestyles in an analytical way, while still not presuming a predefined set of needs or a given size and structure of the economy. However, the nature of the questions asked also changes. Within the efficiency discussion it would be common to ask whether, for example, the high energy intensity of restaurant meals is due to the saved time or the less efficient use of energy. Such a question, however, presumes a functional reason against which to assess the saving of time or the use of energy. From the point of view of the time use approach, consumer preferences are expressed as time use and, thus, all activities are equally good ways of spending time from the point of view of the analyst. The *reason* for engaging in specific activities is outside the scope of the time use approach.

A non-functional view according to which the outcomes of the processes are not of interest is, of course, an analytical concept that has its limits in practical applications. Food, for example, is clearly a basic need that cannot be replaced by other activities. Thus, the food-related time cannot be reduced freely although it has a high materials-intensity because the outcome of food preparation, namely, nutrition, is needed. However, it is equally obvious that consumption is not only driven by such basic needs. Indeed, it can be argued that much of the present consumption in the wealthy industrial societies serves culturally defined needs or individual and relative needs of play and self-reflection that all are only remotely connected to such subsistence needs as nutrition.

This paper engages in a discussion mainly with the eco-efficiency debate and less so with theories of time-allocation. Motivated by the assumptions of productivity growth and inelastic working hours, the suggested model of time use rebound effect purposefully disregards the monetary budget constraint. However, a more detailed analysis of labour time flexibility and a model of time allocation between working hours and consumption would greatly benefit the understanding of the time use rebound effect.

The other field of theorising and empirical work that would significantly contribute to the analysis addresses the substitutability of activities. It is only by foregoing the assumptions of either perfect substitution or constant marginal utility that one can gain more insight on the nature of time use rebound effects and on the dynamics that are implicit in the energy consumption of household activities. This necessitates work beyond the aggregate level of time use surveys and a focus on the individual processes of substitution in everyday life. Multiple avenues exist for gaining further knowledge on the relation of different activities. To mention a few, a time–geographical approach addresses the temporal and physical interrelations of tasks (Ellegård, 1993) and the hierarchical clustering of activities can be used to study the substitutability and similarity of tasks (Cermak, 1996). Studies of time use preferences (e.g. Körmendi, 1990; Robinson and Godbey, 1997) are also informative with respect to potential changes in the time budgets. When such theoretical understanding and empirical data on changes in the time budget become available, the method demonstrated here can provide valuable new understanding concerning the potential of market-based services to contribute to sustainable lifestyles.

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The Everyday Life Context of Increasing Energy Demands

Time Use Survey Data in a Decomposition Analysis

Mikko Jalas

Keywords

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Summary

Industrial ecologists have modeled with precision the material foundations of industrial systems, but given less attention to the demand for products and the drivers of structural changes in these systems. This article suggests that time use data complement data on monetary expenditure and can be used to elucidate the everyday life context in which the changes in the economy take place. It builds upon the claim that goods are not direct sources of utility, but enter specific household activities as inputs. A second argument for the proposed approach is that it can be used to introduce and foster human agency in analyses of production systems. The article uses Finnish time use survey data, consumption expenditure data, and data on the sectoral energy intensities of financial output in the Finnish economy. First, a measure of the *energy intensity of activities* is derived by relating consumer time use and the required direct and indirect energy requirements. Second, the results include a decomposition of changes in the energy requirements of private consumption in Finland during the 1990s. It is shown that although the same activities on average require increasing energy inputs per unit of time, Finns have simultaneously changed the structure of their everyday life toward less energy-intensive activities.

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Introduction

The IPAT identity, since its introduction in the early 1970s, has been a powerful conceptual tool in environmental discussion. By relating population (P), affluence (A), and technology (T) to environmental impact (I), the equation $I = P \cdot A \cdot T$ has framed debates on the causes and the remedies of environmental problems. In a world of growing population wishing to raise its standard of living, technological development toward higher efficiency of resource use is an irresistible imperative. The technological factor T has thus received great interest in studies of industrial metabolism (Chertow 2000). Commonly, the analyses further distinguish structural changes in the economy and efficiency improvements within sectors (for example, Farla and Blok 2000; Hoffrén et al. 2000). The levers of and the conditions for structural changes have received less interest, and characterization of demand remains elusive in the field of industrial ecology. Thus, it has been also claimed that industrial ecology is lacking a theory of human agency (Jackson and Clift 1998; Andrews 2000) and risks being reduced to a mere study of efficiency (Jackson and Clift 1998).

In this article I argue and demonstrate that time use survey data can be used to contextualize environmentally relevant changes in the structure of demand. Although such an approach is novel in the field of industrial ecology, prior examples from other fields exist. For example, Gershuny has claimed that "... if we are to understand the processes of structural change in 'the economy' [referring to the 'formal economy'], we need to consider evidence about behaviour outside it: we need to know more about the everyday life" (1987, 57). In other words, he claims that a focus on time use might bring forward a more comprehensive understanding of demand than monetary data alone. Whereas Gershuny was interested in tracing the employment effects of changing patterns of time use, the same question is repeated in this article in terms of the energy requirements. Essentially, I ask how changing patterns of time use affect the direct and indirect energy requirements of private households. Are lifestyles becoming more energy-intensive and what particular changes in everyday life imply major increases?

Anthropologists (e.g., Sorokin and Merton 1990; Coser and Coser 1963), historians (Thompson 1974; Cross 1993), and economists (Becker 1965; Linder 1970) have a long tradition of focus on time and temporality as a social phenomenon. For the current purpose, the work of Linder is especially relevant, in that he compellingly predicts that labor productivity growth will increase the value of time and that material goods will be increasingly used and consumed to save time. This body of literature and the available statistics thus represent an underused and potent resource in the discussion of the environmental impacts of consumption. Pursuing such aims, Schipper and colleagues (1989) point out in their early article that patterns of time use can be used as one explanatory factor for changes in the aggregate use of energy. Godbey (1996) follows the line of Linder (1970) and further explicates the environmentally relevant outcomes of time famine. He claims that time famine and the resulting search for time-saving technology prompt the use of resource-intensive products and imply higher levels of municipal solid waste. Røpke (1999) and Binswanger (2001) address the issue of time squeeze with a different argument, claiming that time-saving technologies are themselves essential constituents of increasing levels of consumption. Furthermore, the consumer society as a whole has been seen to depend on a deliberate or forced choice of work-and-spend (Schor 1991; Cross 1993; Aronowitz and DeFazio 1994; Sanne 2000) and on the choice of material wealth instead of wealth-in-time (Reisch 2001). However, these observations on the founding elements of the consumption-oriented society have rarely been translated into studies of societal energy and materials flows.

This article mainly pursues a methodological point as it seeks to expand energy analyses and commonly used decomposition methods with regard to the everyday life of households. I will first repeat some of my earlier arguments for considering the temporality of consumption (Jalas 2002) and then proceed to demonstrate

the use of the time use approach in an analysis of Finnish patterns of energy consumption during the 1990s. The analysis combines time use survey data, consumer expenditure data, and data on the sectoral energy intensities of financial output of the Finnish economy, measured in megajoules per Finnish mark [MJ/FIM].[1] The outcomes of the analysis are twofold. First, they include a description of the changes that occurred during the 1990s in the *energy intensity of consumption activities*, measured in megajoules per hour [MJ/hr], which refers to the required inputs per unit of time. The second part of the results is a decomposition analysis of the changes in the direct and indirect energy demand of private final consumption in Finland from 1990 to 1998, in which the decomposition factors include demographic variables, patterns of time use, and the above-mentioned energy intensity figures of individual activities.

Some guiding remarks may be made on the decomposition factors of this study. Although the intensity factor resembles the technical "efficiency" factors of earlier studies, it must be noted that the intensity factor describes the technology of everyday life in a very broad sense. For example, the intensity of car driving can of course be impacted by fuel efficiency, but it can also be impacted, more radically, by the number of passengers present in the car and the average speed of the car. Therefore the intensities of everyday life activities hardly represent technical efficiency alone. It should also be noted that the current analysis does not allow, for practical reasons, any changes in production efficiency in the formal economy. However, there are no obstacles to inserting this variable into the proposed decomposition framework.

It appears that both the patterns of time use and the energy intensities of the activities have changed over the course of the 1990s. The following section presents some theorizing on the dynamics of time use and substitutability between time and goods, but it is out of the scope of this article to engage in a deep discussion of the reasons for the descriptive outcomes of the analyses performed. The concluding section briefly addresses the fit between the results and the previously proposed relationships between time and goods.

A Time Use Approach to Consumption

Time use, or rather the rational allocation of time, has been theorized in the field of household economics (Becker 1965). This economic orthodoxy represents humans as capable and willing maximizers of their own utility. All consumption activities are thus thought to be driven by cognition of a goal and of the available means for striving toward it. Accordingly, time is a scarce resource, which is sold on the labor market and carefully invested in various free-time activities so that the marginal benefit of a unit of time is the same in all activities. Because preferences are regarded as stable, it is the opportunity costs and the household technology that determine changes in time allocation decisions in this frame.

The psychological and sociological studies of consumption give rise to alternative theories on time use. It has been claimed that the meanings and goals of consumption have become more difficult to interpret and more malleable (Firat and Dholakia 1998). Goods are tools only in a limited sense, as they simultaneously constitute, together with language, our symbolic social reality (Dietmar 1992). In this reality, consumers may increasingly prefer to playfully engage in certain activities, be it for reasons of self-actualization, interpersonal communication, or social cohesion. Substantial changes in consumption are parallel. On the one hand, the relative share of expenditure on such elementary items as nutrition has declined. On the other hand, there is a growing sector of advertisement and marketing, which is harnessed to influence demand and mold preferences (Røpke 1999). Hence, although it may be convincingly argued that the drudgery of elementary needs is only transformed into new "basic" needs, it also seems fair to claim that these new needs are less obvious and stable. In other words, there are fewer granted necessities, or "functional units," as in life-cycle assessment (LCA) studies, against which to project efficiency considerations. There is also an important, long-standing sociological tradition pointing out that rational decisions of time allocation are also conditioned by various regulating institutions, as well as by cultural and social norms (Sorokin and Merton

1990; Coser and Coser 1963; Cross 1993). Framed by these psychological and sociological explanations, time use as a phenomenon is thus not a mere reflection of available technology, but rather gains a status that is independent of the technologies that are being used.[2]

I have previously argued that time use data are more comprehensively helpful to the analysis of consumption and rebound effects than expenditure data alone (Jalas 2002). The argument is based on the fact that time, unlike economic resources, is absolutely finite, and thus increases in a certain type of time use must be matched with decreases in others. In other words, the time use approach forces a step from analyzing consumption as expenditure toward a more tightly interwoven system of consumption activities, which together constitute a lifestyle. In such a system, the expenditures are interdependent not only via a budget constraint, but also due to the various uses of the acquired products and services.

Yet there is more to consumption than budgets and restraints, be they monetary or temporal. Humans pursue different, co-existing aims in their consumption activities and comply with different norms; apart from fulfilling functional and instrumental roles, goods constitute symbolic social reality, enable communication, and serve the construction of identities (Douglas and Isherwood, 1979; Belk, 1998; Dietmar, 1992). If consumption and demand are to be addressed as a broad social phenomenon, these widely accepted claims should be incorporated; they prompt the question of how to introduce a less instrumental view of consumption and accommodate fragmented rationality within the analysis of the economic systems and the associated material flows.

In this article I claim that industrial ecology could benefit from viewing consumer preferences as temporal. In other words, consumption should be regarded as a set of temporal activities in which consumers utilize or engage with the various products of industrial systems and through which resource flows pass, virtually or in the sense of induced, indirect flows. Accordingly, resource flows *enable* the various ways in which consumers *desire or come to spend their time* and should be analyzed in respect to time use.

The proposed analytical frame is rooted in both the economic and the sociological strands of theorizing described above. First, it builds on the work of household economists and in particular on the claim that market products are not direct sources of utility as such. Rather, goods enter the various activities of households as inputs, and thus the "production functions" of household activities establish a direct link between the activities and the demand for market goods. Although the proposed approach thus partly stems from a tradition that treats households essentially as rational mini-firms, I argue that the psychological and the sociological theories of time use are necessary for and capable of introducing human agency into the analyzing frame.

According to Andrews (2000), human agency resides in the obstacles and limitations of human reasoning. In a nutshell, the psychological and the sociological theories of time use claim that the rationality of time allocation is, first, fragmented between the immediate affective outcomes and the instrumental reasoning of a longer term, and, second, conditioned by the social context of human action. The suggested frame of analysis, which includes an independent time use factor, leans heavily on the noneconomic explanations and the associated claims of limited rationality of time allocation decisions. Hence, it works toward a more comprehensive view of the context of structural changes in demand as well as toward answering some of the concerns for considering the human agency in such analyses.

Time Use Data in a Decomposition Analysis

In lieu of arguing that the changes in time use can impact (energy) demand independent of technological changes, I have previously assumed that household technology, or the (energy) inputs per unit of time in various activities, remains essentially the same (Jalas 2002). This assumption is empirically examined in the current article. The decomposition analysis thus includes a factor indicating changes in patterns of time use and a factor indicating energy intensity of activities, which is essentially the ratio of energy inputs to time use.

The subject of the analysis is the primary energy that households use directly and indirectly through their purchase of energy carriers as well

as various products and services. The proposed frame of analysis draws on available time use survey data in order to decompose monetary and related energy demand into two further factors: (1) structural changes in how individuals use their time and (2) intensity changes, which refer to the energy inputs per unit of time in each activity category. In other words, the analysis seeks to answer the question of whether the phenomenon of rising energy requirements is due to consumers changing toward more energy-intensive activities or to the increasing energy requirements of activities in general.

The analysis requires that everyday life be sequenced into a limited number of time use categories. In this matter the analysis relies on the aggregate level of an activity classification that has been proposed in the report on European efforts to harmonize time use studies (Eurostat 1999a) and applied in the most recent Finnish time use survey.

The second issue to be addressed is the allocation of consumption expenditures to specific activities. Previous attempts at such a statistical maneuver have been variously called "matching" (Chadeau and Roy 1986), "translation" (Gershuny 1987), and "recategorization" (Brodersen 1990). In addition to these schemes, the linking of time use and expenditure data at the macro level has also been proposed and demonstrated by Juster and colleagues (1981) and also by Eurostat (1999b) in an effort to extend national accounting toward household production. The scheme of Brodersen (1990) has served as a suitable basis for the current work. The time use categories in the analysis presented here are different from those of Brodersen, but his principle of allocating expenditures to the activities that are directly connected with the use of specific goods and services has been applied in this work as well.

These maneuvers having been performed, it is possible to calculate the energy requirements per unit of time [MJ/hr] in the household activities. This is achieved by (1) multiplying each expenditure item [FIM/day] by the sectoral intensity of the financial output [MJ/FIM], (2) summing all derived energy requirements of a specific activity, and (3) dividing this total energy requirement by the time use in the activity [hr/day] (see the appendix for a more formal representation of the procedure and the e-supplement on the journal Web site for the details of the categorization schema).

The Classification Scheme and the Data of the Current Work

The data used in the current study stem from representative surveys performed by Statistics Finland and describe two discrete points in time. The first set of data includes a household expenditure survey from 1990 and a time use survey from 1987–1988, and the latter set, a household survey from 1998 and a time use survey from 1999–2000. All of the consumer expenditure data are adjusted by the consumer price index to account for inflation.

In order to link household expenditures to the corresponding use of energy in the economy, the study makes use of the national input-output tables from 1995 and the sectoral energy intensities of the financial output [MJ/FIM] of the national economy. These intensities have been computed according to a four-digit COICOP-coding (Classification of Individual Consumption According to Purpose) of the national accounts.[3]

The time use and expenditure data have been collected separately from different sets of households. Hence, the data on time use and consumption expenditure must be combined against selected background variables. This is done at the aggregate level of life-stages of families. This categorization was selected for use in the present analysis, as family life-stages have been shown to significantly affect both patterns of consumption expenditure (Statistics Finland 2000) and time use (Robinson and Godbey 1997). The 1987–1988 time use survey does not include data of all individuals of the same household and, thus, it has been necessary to construct meta-data that describe the time use of households at different life stages. The time use data represent the population over 10 years of age. In the following, all children below 10 are also approximated by the data representing older children. Table 1 presents the compilation of the household-type-specific data.

The time use categories used in the analysis are presented in table 2. The analysis is built on

Table 1 The pairing of individual time use data with household-type-specific expenditure data

	Household type					
Expenditure data	1 adult	1 adult + 1–2 children	2 adults	2 adults + 1 child (+2 children) [+3 children]	3 adults (+1 child)	Others
Time use data	A single person	A single-custody woman + a person under 45 living with his/her parents ∗ the average number of children in these households	A married man and a married woman without children	A married man and a married woman with a child/children + a person under 45 living with his/her parents (∗2) [∗3]	A married man and a married woman with the youngest child being 7–17 + a person under 45 living with his/her parents (∗2)	A married man and a married woman with a child/children + a person under 45 living with his/her parents ∗ the average number of children in these households

Note: The parentheses and the square brackets refer to different modifications of the same basic household type (i.e., increasing numbers of children). Asterisks indicate a multiplication of the relevant factors.

Table 2 Time use categories analyzed in this study and the related energy requirements

Time use category	*Consumption items and direct energy requirements*
Work-related trips (02) School and study trips (13)	The share of transportation-related goods, consumables, and services according to the share of these trips in overall mobility by distance traveled. Shares according to the Ministry of Transportation (1999).
Household work (03) and Maintenance work (04)	Household equipment; water; electricity; other related consumables; equipment repair; maintenance consumables; tools; gardening materials; pets and pet food.
Services and civic matters (25/82)	Medical services; health and beauty services; financial services; other services.
Shopping and family business (07) excluding Services and civic matters (25/82) Trips related to housework, shopping, and childcare (08)	Trips related to daily shopping and family business (calculated in the same fashion as the work-related trips).
Eating (10)	All foodstuff and services such as restaurants and canteens.
Personal hygiene and dressing up (11)	Goods and consumables for personal hygiene; beauty-related goods.
Outdoor activities and sports (16)	Equipment; services such as entrance and course fees and rents; equipment repair.
Culture and amusement events (17)	Entrance fees to spectator sports and amusement and culture events.
Reading (18)	All books and magazines except for education-related books, encyclopedias, and dictionaries.
TV viewing (20)	TV and VCR equipment; VCR recordings; program services; equipment repair; electricity.
Telephone calls (64/82)	Telecommunication equipment; services
Hobbies (23)	Audio equipment; recordings; photography-related goods and services; musical instruments; computer equipment; games; toys; gambling; electricity; no telecommunication costs.
Leisure-time travel (25)	All trips other than those relating to work, shopping and family business, housework, and childcare (calculated in same fashion as work-related trips); tourism services; boats.
Sleeping (09)	No energy requirements allocated.
Household infrastructure, no time use specified	All other items, most significantly, heating, housing, lighting, furniture, and clothing.

Note: Numbers in parentheses refer in general to a 26-activity classification scheme and those with a /82 to an 82-activity classification scheme (see the work of Niemi and Pääkkönen 2001 for further information on the classification schemes). The e-supplement presents the allocation of expenditure items in detail.

the same categorization that has been used in the initial time use surveys and includes 26 activity categories. Both the categorization and the allocation of expenditures are guided by the allocation principles used by Brodersen (1990): activities that require direct inputs of market goods are distinguished and then each of them is matched with a set of activity-specific energy inputs.

The allocation is relatively straightforward for some activities. For example, television (TV) and videotape (VCR) equipment can be assigned to watching TV. But many time use categories are less-specifically defined by the objects that are being used. For example, it remains to be studied what physical inputs are utilized during the time that is reported as spent in socializing. On the other hand, some goods have an infrastructure role in the everyday life of consumers. Housing and related heating and lighting are significant in terms of natural resources, but cannot reasonably

be allocated to specific activities. In the following, all such goods that cannot be allocated to specific activities will be denoted as household infrastructure; they include other items such as clothing in addition to housing-related expenditures, but the latter is clearly the most significant in terms of both money and energy.

Some categories have been excluded from the analysis and some have been combined due to the lack of suitable criteria or data for allocating energy requirements to specific activities. For example, work- and education-related trips have been combined and the activities relating to socializing have been left out of the analysis. Furthermore, time-wise education is not a significant category because the energy inputs of this activity mainly comprise significant public consumption expenditures, which are not included in the current analysis.

There is no single "right" categorization of activities, much less a means-ends configuration between these activities. Individuals who report engaging in the same activity may assign different meanings to their activity (Elchardus 1991). In the same vein, what constitutes infrastructure is an arbitrary question. Some may regard, for example, meals or personal hygiene as necessary "infrastructure" for conducting other meaningful activities. However, the categorization and allocation principles that have been applied in this analysis lead to distinction of all such activities that require specific physical inputs, be they "productive" activities or "consumption." The categorization thus distinguishes, for example, personal hygiene as an activity, which requires hot water and consumables (e.g., soap). It also allocates all cooking utensils to the activity of preparing food instead of the activity of having meals; similarly, all renovation-related goods and consumables are allocated to the activity of maintenance work instead of the household infrastructure category. Altogether, the activity categories in table 2 represent a partly arbitrary attempt to decompose everyday life into sequences, toward which humans orient their attention.

Because of the excluded time use categories, the daily time use does not sum up 24 hours. The activities specified in table 2 occupied, on average, 18.7 hr in a day in the survey of 1987–1988 and 19.3 hr respectively in the survey of 1999–2000. If one considers the average working time, for males above 10 years of age of 3 hr 12 minutes (min) and for females above 10 years of age of 2 hr 12 min in 1987–1988, the coverage encompasses more than 20 hr of the daily 24 hr. The household expenditures that have been allocated to the specified time use accounted for 60% of all household expenditures in 1990 and the energy use that is related to these activities covered 61% of the direct and indirect energy use of Finnish households in 1990.

Results of the Analysis

Energy Intensity of Household Activities

This analysis aims to illustrate the energy requirements of specific patterns of time use and the impacts of the changes in these patterns over a decade on the energy requirements. In the following, I will first consider the issue in the light of average per capita figures and then presents some results, which are arranged by household type. Table 3 presents the results of recategorizing expenditure data according to the time use categories presented in table 2. The presented data include the sum of all related expenditures, the consequent energy requirements, the time use per person, and the energy intensity of the activities for both points of observation, 1987–1990 and 1998–2000, and for each activity.

Each of the analyzed activities is related to multiple expenditure categories. For example, leisure-time travel includes expenditures on tourist services and on capital goods such as boats and a share of vehicles, as well as a share of fuel expenditures. Thus no one-to-one link over time exists between expenditures and energy, even though the analysis includes only one set of data for 1995 derived from the input-output tables describing the sectoral intensities [MJ/FIM]. However, it can be observed that expenditure levels and energy requirements are closely linked in table 3.

The energy and time use data of selected household activities are presented in figure 1 along the axis of the average time use per person and the average energy requirement related to the activity. The arrows describe the

Table 3 The expenditures, energy requirements, time use and energy intensity of household activities in Finland in 1987–1990 and in 1998–2000

	1987–1990				*1998–2000*			
Activity	*Expenditures [FIM/yr/person]*	*Energy [MJ/yr/person]*	*Time use [hr/day/person]*	*Energy intensity [MJ/hr]*	*Expenditures [FIM/yr/person]*	*Energy [MJ/yr/person]*	*Time use [hr/day/person]*	*Energy intensity [MJ/hr]*
Leisure-time travel	6,933	18,096	0.60	83	5,804	16,121	0.53	83
Work- and education-related trips	2,725	8,643	0.31	77	2,519	8,152	0.31	73
Having meals	11,360	19,050	1.26	41	11,600	19,762	1.31	41
Personal hygiene, dressing up	1,093	10,014	0.80	34	1,362	10,158	0.77	36
Services and civic matters	2,002	1,268	0.12	30	1,668	1,058	0.06	46
Shopping, family business	1,852	6,057	0.58	29	1,728	5,750	0.66	24
Housework	2,735	11,869	2.00	16	3,159	13,595	1.96	19
Phone calls	680	489	0.10	13	1,581	1,142	0.12	27
Culture and amusement events	417	324	0.10	9	388	302	0.10	8
Hobbies	1,323	1,203	0.47	7	1,544	1,429	0.61	6
Reading	1,026	910	0.87	3	982	870	0.71	3
Sports and recreation	506	513	0.59	2	571	583	0.69	2
TV viewing	800	1,135	1.74	2	802	1,225	2.25	1
Sleeping	0	0	8.55	0	0	0	8.65	0
Paid work	0	0	2.93	0	0	0	2.46	0
Unallocated expenditures	26,745	50,599			26,828	47,206		
Unspecified time-use			2.98				2.79	
Total	**60,197**	**130,171**	**24**		**60,534**	**127, 354**	**24**	

Note: See the e-supplement for more details. FIM = Finnish marks; yr = year; MJ = megajoules; hr = hour; one megajoule (MJ) = 10^6 joules (J, SI) ≈ 239 kilocalories (kcal) ≈ 948 British Thermal Units (BTU).

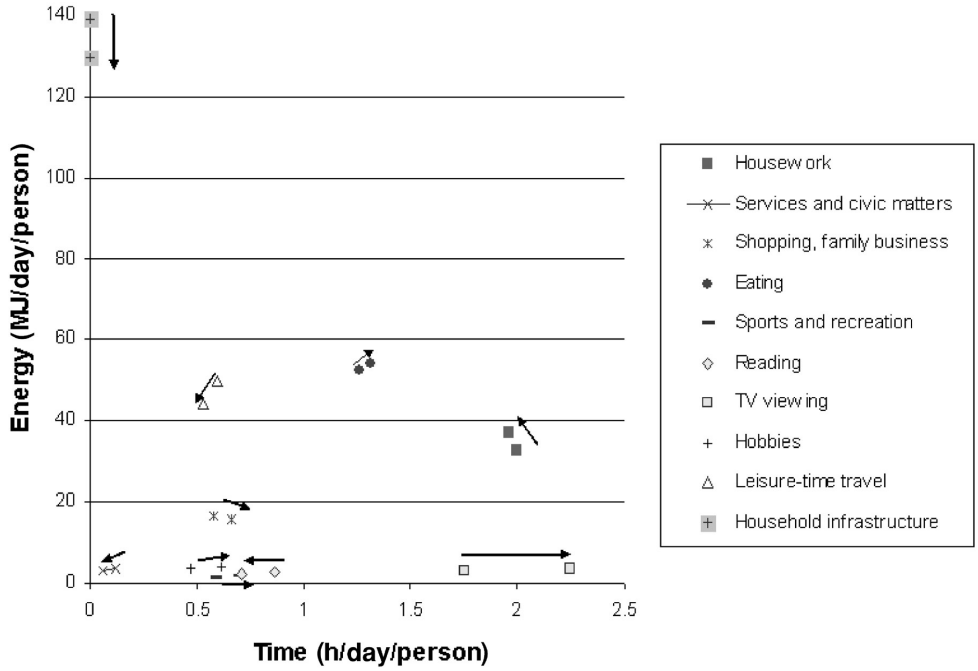

Figure 1 The average time use (hours/day/person) and average energy requirements (megajoules/day/person) of selected household activities in 1987–1990 and in 1998–2000. The arrows describe the direction of the change.

direction of change during the 1990s in Finland. The energy dimension reveals the familiar priorities of environmentally relevant consumption: housing, nutrition, and mobility require a significant share of total material inputs (Spangenberg and Lorek 2003). Housework, which includes preserving and preparing food, is also significant. The time use dimension reveals another aspect of consumption. In addition to working and sleeping, consumers fill their days by watching TV, doing housework, and having meals. Personal hygiene, reading, sports, and shopping are the next significant activities during the course of an average day.

Despite the fact that the comparisons between activities are sensitive to the allocation criteria, some observations are due. High-intensity activities include, fairly obviously, commuting, leisure travel, and eating. However, low-intensity activities are also of interest; TV viewing has the lowest intensity of all analyzed activities. Concerning figure 1, it can be noted that, in general, time use on the low-intensity activities has increased the most. Most notably, and in accord with the trends in other countries, the time spent on watching TV has increased dramatically. Activities that people spend less time on include reading, personal hygiene and dressing up, housework, services and civic matters, and leisure-related trips. For leisure trips, services and civic matters, and reading, the average daily energy requirements per person have declined as well; although for services and civic matters, the change is not proportional to changes in time use. On the other hand, housework, and shopping and family business-related activities are interesting exceptions; for the first, the energy requirements have increased despite the slightly diminished time use, and for the latter, energy requirements of its related mobility seem to have declined, whereas total time use has increased. In both of these cases the result is a substantial change in the energy intensity of these activities.

Table 4 The impact of household type on the 1990 total expenditures and energy requirements of the households and on the specific figures for housework and for viewing TV

	Household type								
	One adult	*One adult, 1–2 children*	*Two adults*	*Two adults + a child*	*Three adults*	*Two adults + two children*	*Three adults + a child*	*Two adults + three children*	*Others (Average size: 5.25 persons)*
Total energy requirements [MJ/yr/household]	148,017	222,955	309,346	362,435	459,277	430,926	527,773	482,410	584,543
Total energy requirements [MJ/yr/person]	148,017	94,875	154,673	120,812	153,092	107,731	131,943	96,482	111,341
Housework									
Expenditures [FIM/yr/household]	2,666	5,381	6,701	9,138	7,706	9,911	9,919	11,336	11,345
Energy [MJ/yr/household]	12,743	26,248	26,978	36,878	35,143	43,016	43,181	51,303	53,130
Time use [hr/day/household]	2.3	4.0	5.1	5.6	5.6	6.6	6.6	7.6	8.0
Intensity [MJ/hr]	14.9	18.0	14.5	17.9	17.1	17.8	17.9	18.6	18.2
Viewing TV									
Expenditures [FIM/yr/household]	1,352	1,866	1,844	2,220	2,257	2,269	2,460	2,716	2,388
Energy [MJ/yr/household]	1,712	2,660	2,642	3,273	3,331	3,361	3,531	4,117	3,890
Time use [hr/day/household]	1.8	3.8	3.9	4.8	4.8	6.6	6.6	8.4	9.2
Intensity [MJ/hr]	2.6	1.9	1.9	1.9	1.9	1.4	1.5	1.3	1.2

Note: MJ = megajoules; yr = year; FIM = Finnish marks; hr = hours; one megajoule (MJ) = 10^6 joules (J, SI) ≈ 239 kilocalories (kcal) ≈ 948 British Thermal Units (BTU).

Intensity, that is, energy use per unit of time, also varies across the different household types under consideration. Table 4 presents the intensities in 1990 per household type in two activities. First, in housework, the intensities tend to rise with the average size of the household. This is mainly due to the fact that time use in housework does not increase in proportion to the size of the household or to the expenditures and the energy requirements. On the other hand, in viewing TV there is a reverse scale-related impact. The investment in the equipment and the service fees are shared by an increased number of viewers in the larger households. In a similar vein, the average number of simultaneous viewers may be greater in larger households. The intensity of viewing TV thus diminishes with the growing size of the household.

Decomposition Analysis

The previous sections of this article have discussed some factors that influence the energy requirements of households. Changing patterns of time use are only one of these factors. In addition, the intensity of each type of activity—the resources needed per unit of time—may change as was shown in figure 1. Furthermore, it has been shown that demographic changes in the household types affect the energy requirements (Nurmela 1996).

The following analysis aims to isolate the relative significance of the time-related factors with a decomposition analysis. The gross change in the energy requirements of private final consumption in Finland from the late 1980s to the late 1990s has been analyzed in terms of the contributions of the following factors:

- Population growth (P)
- Changes in relative share of different household types (H)
- Changes in time use within the analyzed time use categories (t)
- Changes in the energy intensity of these time use categories (I)
- Changes in household infrastructure (f)

Figure 2 presents the results of a base-year decomposition in which the figures represent the contribution of a factor assuming that all the other factors remained constant or changed at the very end of the period.[4] As this is not the case, the real contribution of the factors is something different and their sum does not equal the observed gross increase in materials requirements. The residual factor in figure 2 indicates the difference between the gross changes and the sum of the contributions of the factors separately.

Demographic changes—population growth and decreasing average size of households—are important factors behind the trends in energy requirements. However, the changes in time use and in the energy intensity of activities are also of relevant magnitude and are the particular focus of this article. Whereas the time use factor describes *what* people do in terms of time use, the intensity factor describes *how* people do what they do. The changes in the intensity can thus be regarded as technological changes in the composition and volume of the inputs of a specific activity.

The result achieved—according to which the time use changes have contributed toward lower energy demands—matches figure 1; the activities with low energy intensity have gained in the average time budget. Important contributions in terms of energy use stem, however, both from the increased low-intensity activities such as TV viewing and from reduced mobility-related time.

The changes in the intensities of the activities have contributed toward an increase in energy requirements. The activity-specific changes were presented in table 3, but it should be noted that in the decomposition analysis, the intensity impacts depend naturally also on the initial time use in the activity. The most important intensifying impact thus stems from housework. In addition, telephone conversations and the use of services have become more energy-intensive. On the other hand, the combined activity of transportation for shopping and the act of shopping has contributed to a lowering of its intensity factor.

The significant negative impact of the household infrastructure factor consists of many coherent changes. In an average household, the overall expenditure on these items has fallen slightly. More importantly, there is a structural shift within the expenditure. Rents and the costs of owned homes have increased significantly,

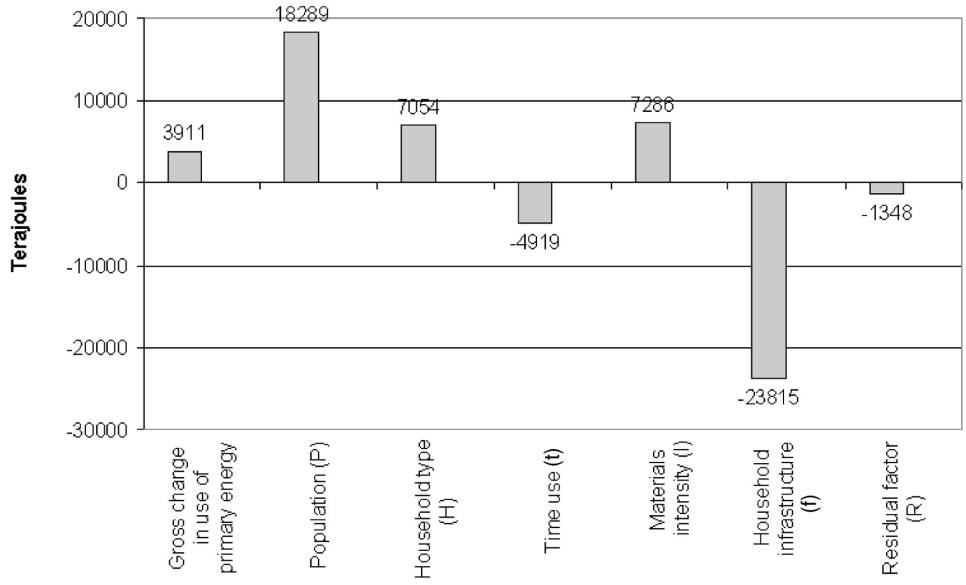

Figure 2 The results of a base-year decomposition of the change in the gross energy requirements (TJ) of Finnish private final consumption from 1987–1990 to 1998–2000. The bars indicate the contributions of the factors assuming that all other factors remained constant or changed at the very end of the period. One terajoule (TJ) = 10^{12} joules (J, SI) $\approx 9.48 \times 10^{8}$ British Thermal Units (BTU).

whereas those of energy have fallen.[5] Also, the clothing expenditures have declined during the period from 1990 to 1998. On the other hand, as the impacts of changes in household size have been isolated into a separate factor, these changes, which in general raise the residential energy demand, do not show in the household infrastructure factor.

Concerning the changes in time use, it should also be noted that the analyzed activities do not account for the whole 24 hours of one day. Hence, it is possible that the duration of one of the activities changes without corresponding changes in other time use. In fact, the total time allocated to the analyzed activities has grown from 18.1 to 18.7 hr on average. This 0.6 hr has been reduced from the activities that are not specified in the time use classification scheme and for which the related energy requirements are categorized under the household infrastructure factor. Thus, some of the negative contribution of the infrastructure factor should rather appear as a greater negative time use factor.

Conclusions

This article has proposed and demonstrated a method of using time use survey data to extend the scope of the decomposition analyses, which have been used to study changes in the economy. This additional layer focuses on the patterns of time use and the intensity of time use as explanatory factors for the changes in consumption expenditure and the related energy requirements. The time use approach was argued for from two distinctive points. First, I claimed that a time use focus is better able to internalize and contextualize economic growth and structural changes as sources of rising energy requirements. This is apparent in the applied decomposition factors, which do not include factors for economic growth and for the structure of production activities. Rather, the analysis forces one to situate growth in the changes of everyday life and elucidates the conditions of structural changes in the economy. Second, I argued that this frame of analysis implies the possibility of human agency.

The proposed frame of analysis assumes that consumption expenditures and consequent energy requirements are dependent on patterns of time use. In addition, it assumes that time use decisions are social phenomena beyond mere changes in technology and marginal productivity. These assumptions were argued for on the basis of two theories on time use. Firstly, theories on household production suggest that market goods are not direct utilities as such, but that they are rather inputs to specific household activities. These economic theories of time use also suggest that the time use and the intensity factors are interdependent, as the technologies used in the activity determine both the intensity and the marginal productivity of allocating time to the activity. However, leaning more on sociological explanations of time use, this article has assumed that it is relevant to study the two factors as if they were mutually independent.

The results show that both the time use and intensity factors have contributed to changes in energy requirements. During the 1990s, Finns engaged in less energy-intensive activities, but at the same time the activities on average required increasing energy inputs per unit of time. Some activities, such as leisure-time travel, complied with the assumption that intensities remained fairly stable. This result, however, is not clear, as there also were activities, such as housework, in which the intensities changed significantly. The same ambiguity is also present in the results of the decomposition analysis. The time use factor has not been overwhelmingly strong; it has not been insignificant, but has contributed less than the intensity factor.

The rising average energy intensities of activities and the specific findings concerning housework are in line with economic theories of time allocation and the claims of time-squeeze or time-deepening as a factor behind increasing levels of consumption (Linder 1970, Röpke 1999, Binswanger 2001, Robinson and Godbey 1997). However, the change toward low-intensity activities is new and somewhat surprising considering the simultaneous rise of the energy requirements of private consumption.

The arbitrary nature of the allocation of expenditures and the related energy requirements to specific activities should be kept in mind. These allocation decisions affect the energy-intensity figures obtained for each activity. However, as the allocation rules have remained the same over the analyzed period, they affect less the decomposition analysis. The result that energy intensities have risen while patterns of time use have changed toward low-intensity activities appears robust.

The results raise many questions for further research. An anthropological focus on the subjective meanings of material possessions might be able to answer whether the time use categories that were used in this work correspond to the meanings consumers assign to their possessions and activities. One might also question the allocation of expenses to the activities. The answer to this question would greatly benefit from a single set of data on both time use and expenditure, which, however, is scarcely available. With such data it would be possible to study the correlation between time use and expenditures on the level of individual households. The correlation between time use changes and the environmentally significant household infrastructure is especially in need of elaboration.

The role of public consumption should also be considered. Apart from the true public goods such as defense, a large share of the public sector serves the direct needs of individuals. Education and health expenditures could be matched with items of specific time use. Similarly the road infrastructure, which is used by private consumers, constitutes a consumption item that could be allocated to private consumption.

Finally, the underlying causes of changes in time use and in energy intensity of activities call for further research. It can be asked, for example, how voluntary was the change toward less energy-intensive activities in Finland during the 1990s. During this period, the level of unemployment rose significantly and despite the fact that the average GDP per capita also rose, it may be that less energy-intensive lifestyles were forced upon the less fortunate.

The changes in the intensity factor also call for further investigation. What are, for example, the conditions of the rising energy demands and lower time use demands of housework? The penetration rates of household appliances have increased during the period, but this may not

explain all. Households are also increasingly substituting commercial services for their own labor. Thus, even if commercial household services are often regarded as environmentally beneficial, ecoefficient, and labor-intensive sectors of the economy (Heiskanen and Jalas 2003), they also may intensify private consumption and contribute to a net increase in the gross demand for natural resources.

Notes

1. One megajoule (MJ) = 10^6 joules (J, SI) ≈ 239 kilocalories (kcal) ≈ 948 British Thermal Units (BTU).
2. For the rational agents of home economics, time use is just a reflection of the available technology. New technology that increases labor productivity within a certain activity changes the allocation of time. For example, the central tenet of Linder (1970) is that consumer goods will be used to save time and that those activities in which the productivity can be enhanced will gain on the time budget. The intensity factor, which, in the work presented in this article, measures energy inputs per unit of time would thus cause and explain changes in time use.

   Analyzing time use as a separate factor is a radical departure from economic orthodoxy. This assumption implies that time is not considered simply as a resource for achieving instrumental goals or gaining utility. Patterns of time use are thus not mere results of individual reasoning and optimization of personal utility and, in the same vein, people are not always able to explicate the reasons for their actions or the "functions" they strive to fulfill. Rather, the patterns of everyday life result from conforming to norms, playing and acting life, and approaching liminal experiences, which all mix together with a limited capability for rationalizing present action against future prospects. Another phenomenon of everyday life is that the instrumental outcomes unfold in such different dimensions that the reasoning of actions becomes complex. If there is no "production function" for the activities of free time, the causal connection between technology, or intensity, and time use dissolves. Hence, economists have also considered joint production, affective experiences, and "process benefits" (see Pollack and Wachter 1975; Juster et al. 1981; Dow and Juster 1985; Winston 1982; Gershuny and Haplin 1996).

   In reality, people do reason their action. Consumers are, for example, price sensitive. But this is not the main story. It hard to conceive of the reasons for the increasing time spent on watching TV (e.g., Robinson and Godbey, 1997). Likewise, Csikszentmihalyi (2000) has found out that people are bored and do not know how to use their time. The former story of rational agents is the one we are most keen on, but the latter also reflects reality and calls for different approaches to increasing levels of consumption.
3. The sectoral energy intensities [MJ/FIM] used in the current study have been calculated by Ilmo Mäenpää, who has also used the same input-output data within his work on materials intensity (Mäenpää and Juutilainen 2001). Due to space limits these data are presented in the e-supplement of this article.
4. Decomposition analysis of empirical discrete observations encounters the so-called integral path problem: the path of change of each parameter between the observations is not known and the analysis is left with a residual term that cannot be allocated to any parameter. Various methods have been proposed to allocate the residual term, but lacking knowledge of the process of change, these methods are arbitrary (de Bruyn 2000). The base-year method, which is used in the current work, does not allocate the residual factor.
5. The degree-days in the calendar years 1989–1991 were less than those of 1997–1999, which indicates that the fall in energy expenditure from 1990 to 1998 was not due to temperature variations.

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Appendix

The decomposition of the energy requirements of private final consumption can be presented in the form of the equation

$$E_{tot} = P \times \sum_{k=1}^{o} H_k \times \left(\sum_{i=1}^{m} \sum_{j=1}^{n} t_{k,i} \times c_{k,i,j} I_j / t_{k,i} + E_{kf} \right)$$

in which

- E_{tot} represents the total energy requirements of private final consumption
- P represents the population
- H_k represents the share of the population living in household type $k = 1, \ldots, o$
- $t_{k,i}$ represents time use on activity $i = 1, \ldots, m$ in household type k
- $c_{k,i,j}$ represents the costs $j = 1, \ldots, n$ related to the activity i in household type k
- I_j represents the energy intensity of expenditure j
- E_{kf} represents the energy requirements of household infrastructure and other such costs that have not been allocated to specified time use in household type k.

The change in the total energy requirements can be decomposed into the following factors:

$$\Delta E = \Delta E_P + \Delta E_H + \Delta E_t + \Delta E_I + \Delta E_f + R$$

The decomposition equations of each factor are

$$\Delta E_P = \Delta P \times E_{tot}$$

$$\Delta E_H = P \times \sum_{k=1}^{o} \Delta H_k \times \left(\sum_{i=1}^{m} \sum_{j=1}^{n} t_{k,i} \times c_{k,i,j} I_j / t_{k,i} + E_{kf} \right)$$

$$\Delta E_t = P \times \sum_{k=1}^{o} H_k \times \left(\sum_{i=1}^{m} \sum_{j=1}^{n} \Delta t_{k,i} \times c_{k,i,j} I_j / t_{k,i} \right)$$

$$\Delta E_I = P \times \sum_{k=1}^{o} H_k \times \left(\sum_{i=1}^{m} \sum_{j=1}^{n} t_{k,i} \times \Delta(c_{k,i,j} I_j / t_{k,i}) \right)$$

$$\Delta E_f = P \times \sum_{k=1}^{o} H_k \times \Delta E_{kf}$$

$$R = \Delta E - (\Delta E_P + \Delta E_H + \Delta E_t + \Delta E_I + \Delta E_f)$$

in which all constant figures refer to the base year. Change is interpreted in relation to the base year. For example, $\Delta P = (P98 - P90)/P90$.

8. Sustainability in everyday life – a matter of time?*

Mikko Jalas

8.1 INTRODUCTION

Sustainability is a fundamental and far-reaching concept of redirecting social change. It predisposes new institutional arrangements as well as changes in the values of individuals and in the technological trajectories; it materializes in the changing patterns of everyday conducts as well as in the structural changes in economic activities and in the adoption of new, more efficient technology. While the optimism about the scope and the reach of radical technological innovations is widespread and strong, many authors emphasize that relevant changes must involve consumers in a more fundamental manner. In addition to technological innovations such as fuel-efficient cars, the patterns of everyday life need to change. Such changes are implied in various degrees in notions such as sustainable consumption, sustainable lifestyles, sufficiency revolution and alternative models of wealth (for example, Sachs 1999; Reisch 2001). In more concrete terms the thoughts are reflected in the calls for a slower pace of life, work-sharing and shorter working hours (Schor 1991; Sanne 2000) and in more specific suggestions such as reducing long-distance tourism. Altogether, the discussion of sustainable consumption seems to presuppose different kinds of changes in the activities or behaviour of individuals and in their patterns of time use.

Time use researchers claim that analyses of the formal economy are inadequate for studying the real patterns of life in a society. According to them, utility, well-being, social stratification as well as social exclusion are more readily to be observed in the patterns of time use. Thus time use surveys have collected detailed data on the daily life of occupational groups, geographic districts and even entire national populations and documented the everyday life of individuals and households in terms of how time is spent; in what activities, with whom and where.

Within the history of time use surveys, they have been used as tools for social planning as well as indicators of well-being. In this chapter I argue

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that there are also a number of potential crossings of time use surveys and sustainability concerns. One of the strands builds upon the 'new home economics' and the claims that market commodities are not final sources of utility but rather inputs for household production, in which the units of time substitute the monetary units of the formal economy. Thus, time use surveys would seem to offer a possibility to extend the concept of material flow analysis of the formal economy to the informal sphere of household production and consumption. Time use researchers have also advanced the thought that the changes in economic activity can be better understood by considering human activity outside of the formal economy (Gershuny 1987, 1999). It is thus not only about producing extended accounts of societal metabolism or giving more detailed descriptions of the links between market production and individual well-being. Rather it is argued that time use is an intermediate phenomenon and that time use data can be used to study the potential impacts of institutional changes and policy reforms on monetary consumption.

The applications of time use data cover a large field of interests in the social sciences. It is outside the scope of this chapter to try to cover discussions of labour supply and related taxation, albeit they clearly hinge on the sustainability debate (see Schor 1991 and Sanne 2000). Likewise, the alternative social indicators of well-being, the extended analysis of welfare and criticism of GNP indicators are areas that are left aside. Instead of contributing to these debates I will concentrate on the attempts that have been made to describe and model the demand for, or consumption of, market goods on the basis of time use data.

The chapter continues from hereon first with a short history of time use research and a description of the available data resources. Secondly I will briefly consider the issue of time use and sustainable consumption in general. Thereafter the chapter presents a review of a few studies that address the macro-level links between demand and time use. The concluding remarks summarize the presented arguments as well as point out some current efforts of utilizing time use data in the debate on sustainable consumption.

8.2 SHORT HISTORY OF TIME USE RESEARCH: STUDYING NON-MARKET ACTIVITY AND PLANNING WELL-BEING

8.2.1 Time Use Surveys

An exploration of the potential of time use studies must begin with a description of the methods that are used and data that are available.

Many good reviews on the development of time use survey research exist (see Harvey 1999 and Pentland et al. 1999 for general reviews and Juster and Stafford 1991 and Klevmarken 1999 for reviews of the work done by economists). Within the scope of this chapter, it thus suffices to take up a few important studies that mark the path towards the nationwide representative time use surveys of today.

Systematic attempts to record the way individuals use their time date back to the beginning of the 20th century. Early studies in the US, the UK and in the Soviet Union focused on describing the living conditions of working-class people and rural farmers. The Soviet research tradition was strong during the 1920s and 1930s but faded temporarily in the pre-World War II years. Interestingly one of the major strands of the Soviet work focused on the 'strategic issues of social forecasting and macroeconomic planning of manpower time and productivity' (Harvey 1999). The researchers tried to track the changes in everyday life that were created by the revolutionary reforms of the 1920s in the Soviet Union. Thus, they were, for example, interested in the currently relevant topic of the effects of shorter working hours.

Since the early days of systematic time use surveys many different methods have been used and the scope of the studies has varied from narrow occupational or social groups to representative nationwide studies. The multinational time use project in 1965–67 (Szalai 1972) has been a landmark for the current type of studies. Szalai and his colleagues coordinated a project in which data on 12 countries were collected using a time diary method. The work on the project marked the beginning of the collection of internationally comparable and longitudinal data. Many additional national surveys were conducted during the 1970s and, in time, time use surveys gained a position in national statistical offices.

The time diaries have since been established as the principal method of recording data on time use. They are usually close-ended records of activities in a predetermined time span such as a 24-hour period. Activities are coded according to a standardized activity coding. Commonly the surveys also record secondary activities, the location and the social contacts for each interval of time use. The new European harmonization effort of time use surveys is the most recent major attempt to further develop the methodology. It includes a suggestion of a ten-minute interval for diary recordings, a detailed, hierarchical list of activity codes and a recommendation that the data are collected from all members of the households for two separate days of a week and a weekend (Eurostat 1999a; Fisher and Gershuny 2002).

There have been various attempts to study the subjective meaning of time use in addition to the mere description of the patterns of everyday life according to a pre-given list of activities. These attempts vary from

including a subjective measure of the desirability of the reported activities (for example, Robinson 1977; Elchardus 1991) to background variables recording the ways respondents would spend available extra time (for example, the recent Finnish national study) or manage unexpected time shortages. Despite these attempts representative time use studies remain of necessity rather shallow descriptions of patterns of observed time use.

Since the work of the multinational time use project, national studies have been repeated at various intervals, ranging from five- (Japan, Canada) to a more typical ten-year interval. The European harmonization work on time use research has also synchronized studies in Europe. There are hence new data from 13 European countries that have been collected after 1998 (European Communities 2003). In addition to the European activities and the surveys of such industrialized countries as Australia, Canada, Japan and New Zealand, time use studies are also increasingly conducted in developing countries (United Nations 2003).

While the very early studies were, essentially, descriptions of living conditions and leisure practices, more recent studies have had diverse uses. Within the frame of economics, Juster and Stafford (1991) distinguish between two major uses. Firstly, time use data have been used to derive macro-level social and economic accounting systems that include non-market activities. Secondly, the data have been used for the micro-level descriptions and modelling of household activities, the related intra-family division of work and the labour supply of households. Furthermore, the delegate issue of undeclared work and moonlighting has been studied on the bases of time use data (Viby Mogensen 1990).

Despite the prominence of the diary method and the multinational data collection efforts, frequent longitudinal panel data and internationally comparable cross-sectional data on entire populations have remained a wish by time use researchers. However, while there are weaknesses in the data, many writers still claim that the data are under-used (Klevmarken 1999; Juster 1999). At the same time the costly collection of the data continuously calls for new uses. Time use data, as they are currently used, are not integrated to serve national accounting, for example. Rather, the data appear as a curiosity with many potential uses.

8.2.2 Theories on Time Use: Allocation Decisions of a Scarce Resource and Reflections of a Social Structure

Time is such an ambiguous concept that, at a descriptive level, any research into the human impacts on the environment is, by definition, interested in time use; human action implies time use. However, time use researchers have also advanced the thought that the survey data can be used to model

potential impacts of various demographic and institutional changes and technological innovations. Such a move beyond descriptive time use statistics presupposes considerations of why people spend their time the way they do and theoretical understanding of the use of time. In the following, two major lines of theorizing are considered insofar as they relate to the topic of this chapter and are implicit in the discussion on sustainable consumption.

According to the tradition of home economics (for example, Becker 1965) families operate as mini-firms; time is an abstract commodity; activities are productive and contribute to higher purposes of life; decisions about time allocation depend on the opportunity costs of time as well as the available household production technology. Such simplifications, while they are crude and alien, nevertheless enable a more comprehensive analysis of the non-monetarized social life and the demand for market goods and services; it can be claimed that the demand for goods and services is dependent on the activity patterns of people. Accordingly, the activities of individuals, be they productive or leisure pursuits, require varying material intermediaries, and the economic theory of time allocation advances the understanding of the individual choices between these variously environmentally relevant activities.

The proliferating sociological and cultural approaches on time use have given rise to a qualitative research on time use and to a variety of different conceptions of time. Thus, time use research is not only occupied with the modelling of rational time allocation on an individual level, but seeks as well to elaborate on the different ways that humans experience and relate to time and on the ways time use is regulated by the society. Sure enough, time use is partly a question of the (rational) decisions of individuals, but not all options are open and not all choices are perceived. Time use 'decisions' are affected by various policies, institutional arrangements and technological innovations as well as by embedded 'cultural' norms. There is, indeed, a strand of sociology working towards a sociology of time (Hassard 1990) and suggesting that the explanations of patterns of time use reside also on the more structural level. Within these writings it has been claimed that time is a social construct and that different cultures thus have different conceptions of time (for example, Sorokin and Merton [1937] 1990; Levine 1997). Also, the more specific changes in temporal orientations that coincide with processes of industrialization and modernization have been mapped (for example, Coser and Coser [1963] 1990; Thompson [1967] 1974; Cross 1993). This long line of sociological work precedes the contemporary interest in the sources of 'work-and-spend' lifestyles (Schor 1991), time-squeeze and harriedness (Southerton 2003) and the excessive material consumption of industrialized countries (Røpke 1999).

This chapter is mainly concerned with the specific attempts of relating activity patterns and monetary consumption and hence dependent on the economists' claim that monetary consumption is an input to the household activities. However, this focus is not to suggest that the second line of theorizing is trivial. On the contrary, the sociological explanations of time use make the first claim interesting. Patterns of time use do not result directly from rational individual decisions and technological innovations, but are impacted by many emergent layers of social reality. Consequently, the wide range of time-related policies and institutions condition the changes in activity patterns and enhance or undermine the shifts towards sustainable consumption.

8.2.3 Sustainability: Lifestyles and Patterns of Time Use

Sustainable consumption is presented as a far-reaching concept that addresses lifestyles and the quantity of demand in the wealthy industrialized countries (Princen 1999). Accordingly the discussion seems to presuppose different kinds of changes in the activities or behaviour of individuals and in their patterns of time use. From the point of view of this discussion, time use survey data constitute a resource that has hardly been tapped, albeit a number of questions seem feasible. Can lifestyles be distinguished in time use data and can the changes in lifestyles be linked to consequent changes in demand for products and services? Is it conceivable that such data could help to better understand the potential for substitution between various products and services, the impacts of time-saving technologies and the causes of time-squeeze and work-and-spend lifestyles? Furthermore, if downshifting (Schor 1991) or wealth-in-time (Reisch 2001) are important concepts in the sustainability debate, can the conditions for such changes be traced in the time use data?

A popular topic of mobile phones might serve to rephrase the questions. The rapid increase in the telecommunication service expenditures has frequently been heralded as a sign of the dematerialization of the economy. However, one might also ask when and where the phones are being used. Do they replace some other activities and does telecommunication as an activity require less material inputs than the alternatives? Can we discern other complementary impacts on the structure of the economy. Furthermore, what are the secondary impacts of increased communication in terms of schedules and the patterns of work and leisure activities?

Some of the questions are to be answered more readily based on time use survey data than others. The data are weak in exploring the deep-rooted cultural and sociological explanations of the empirical patterns of time use and the causes of consumption-oriented lifestyles; it is rather

obvious that such questions call for qualitative research approaches on time use and for such concepts that acknowledge the different temporal facets of human experience. However, the survey data are potent in the task of describing the temporal context of increasing material consumption in everyday life. This chapter will trace the pursuits that have been made on a descriptive level concerning the linking of time use and the consumption of natural resources. However, instead of considering the specific findings of particular studies such as Fritsch (1974), Schipper et al. (1989), Mäntylä (1996), Piorkowsky (1997), Heiskanen and Pantzar (1997), Jalas (2002) and van der Werf (2002), I will in the following concentrate on the questions of relating and linking time use and monetary consumption data.

8.3 LINKING TIME USE AND CONSUMPTION

8.3.1 The Inputs of Household Activities

There is an axiomatic assumption within much of the time use research that goods are not direct sources of utility and that consumption is a temporal process; only when goods are combined with human time, is it possible to derive utility from them. In other words individuals and households acquire and use goods to engage in activities. This assumption is stated with various degrees of confidence. Schmidt and Viby Mogensen (1990, p. 19) phrase the idea with little caution; '... every main category of time use corresponds to a particular section of the final demand for goods and services', while Juster et al. (1981a, p. 32) argue more strongly that tangible flows '... can always be associated with some corresponding use of time; it is not possible to conceive of a flow of goods being produced or used without some activity being engaged in by one or more persons. Thus, in principle, the entire market economy as well as the production and use of goods within the household can be understood in terms of the allocation of time across alternative activities.'

Similar to Juster et al. (1981a), Gershuny (1987 and 1999) has been keen on demonstrating that, combined with input–output tables, time use data can be used to model the whole society. He argues that '... if we are to understand the processes of structural change in "the economy" [referring to the "formal economy"], we need to consider evidence about behaviour outside it: we need to know more about the detail of daily life' (1987, p. 57). In the 1987 paper, he shows that the employment effects of the rising service sector and new domestic self-service technology can be better appreciated and evaluated from a time use perspective than what is possible with the monetary data alone. Using input–output tables and suggesting that each

household activity has a counterpart in the household expenditures he thus follows the effects of changing patterns of time use in the structure of the economy and in employment. As I have proposed (Jalas, 2005), it is possible to track similar changes in the materials or energy use in the economy; the accounting frame is the same, but energy or materials intensity data are substituted for the labour intensity figures of economic activities.

The link between time use and expenditure data is the fundamental basis for considering economic activity and the associated use of natural resources from a time use perspective. Micro-level studies in the field of home economics have approximated household production functions and the inputs of market goods and services, which are utilized in household activities. However, the visions of macro-level socio-economic accounting require consideration of the complete range of goods and services produced by the economy. Such linking of time use and expenditure data has been called matching (Chadeau and Roy 1986), translation (Gershuny 1987), recategorization (Brodersen 1990b) and allocation (Jalas 2002). Heiskanen and Pantzar (1997) refer to a rearrangement of energy use and expenditure data according to 'end-service' categories.

8.3.2 Categories of Everyday Life

In the following I will review some studies that have attempted the linking of time use data and expenditure data. All of them are based on a priori reasoning of the scheme. Such reasoning is based on the lexical time use categories, which imply a selection of goods and services directly or indirectly; like watching TV implies the use of TV equipment. However, it is obvious that not all goods can be allocated to specific time use categories. Furniture, clothing and housing are used in many activities; they constitute the infrastructure that other activities depend on. The list of activities to consider is not self-evident either. Some lexical categories such as telecommunication, clearly encompass multiple different end uses. Likewise, it is possible to conceive of many different, internally consistent means–ends hierarchies in everyday life. Are cooking and eating mere inputs for other, meaningful activities, or should they be regarded as outputs and thus feature in the accounting system independently? Arbitrariness is, however, the nature of all accounting systems; they categorize reality and establish meanings and relations.

Table 8.1 presents the time use categories of six such studies that have proposed a link between time use and expenditures on a macro-level. The space available does not enable the exposition of all the expenditure categories that the authors suggest to attach to the specific categories of time use. However, the arbitrariness of the time use categories makes

them interesting as such. For example, the clear production orientation of Chadeau and Roy (1986) is visible in Table 8.1. After presenting the studies I will briefly comment on the major differences between the studies in terms of allocating expenditure to specific time use.

Juster and his colleagues (1981a, see also 1981b and 1985) ambitiously attempt to construct a frame of how market production ultimately contributes to subjective well-being.[1] They call for a time-based account of well-being arguing that the satisfactions associated with flows of goods are subsumed by the satisfactions derived from the activities associated with those goods; activities yield intrinsic benefits. In formulating the relationship between market production and subjective well-being, they distinguish a link between products and patterns of time use (objective well-being) and another link between the patterns of time use and the experienced subjective well-being. It is the former link between market goods and time use that is precisely of interest in this current text.

Contrary to Juster et al., Gershuny (1987 and 1999) has been tracking the reverse relationship while being interested in how the time use changes impact economic activity and consequent employment. The 1987 paper is interesting as it considers explicitly the causal link from changing patterns of time use to the economic activity and utilizes input–output tables of the national accounting. However, the matching scheme of Gershuny appears as a rather tentative part of the illustrative article.

Chadeau and Roy (1986) are explicitly interested in the productive activities of households. They again reverse the causality that was suggested above and claim that 'What households produce and the way they produce depends to a large extent on what they may acquire on the market' (Chadeau and Roy 1986, p. 387). Despite their focus, the scheme covers the full range of consumption expenditures as they also consider so-called pure final consumption products, which do not '... serve in any further productive process before being actually consumed in the proper sense of the term' (p. 387). However, such a definition lumps together, for example, convenience food, clothes, as well as various leisure-related equipment such as sports gear and entertainment technology, resulting in a very heterogeneous and counterintuitive category. On the other hand, the scheme of Chadeau and Roy (1986) is elaborate in terms of the possibilities and the potential impacts of households outsourcing their productive activities. It distinguishes between substitute products and complementary products as input in productive activities as well as the capital equipment of production.

In the same tradition, the Eurostat (1999b) report summarizes European efforts to establish satellite accounts for household production. For such efforts one of the alternatives is the so-called input method in which household production is valued on the bases of used capital and

Table 8.1 Suggested activity categories for combining household expenditure and time use data

Juster et al. (1981a, 1981b)	*Chadeau and Roy (1986)**	*Gershuny (1987)*	*Brodersen (1990a) and Viby Mogensen (1990)*	*Jalas (2002)*	*Van der Werf (2002)*
Education	Making edible goods	Housework	Paid work	Washing and ironing	Work and commuting
Child care	Crop growing, animal husbandry	Cooking meals, washing up. Eating meals & snacks	House-keeping	Cleaning and organizing	Household work
Medical care	Sewing, weaving and knitting	Child care	Maintenance work	Cooking, preserving and dishwashing	Education
Home improvement	Carpentry	Shopping	Care for others	Meals and snacks at home	Sleep
Social	Major construction work	Travel, communications	Purchase of goods and services	Shopping	Personal hygiene
Organizations	Preparing and cooking food	Dressing, toilet, sleep	Education	All transport	Eating
Interpersonal	Preserving, deep freezing	Restaurants	Necessary time	Use of cars in shopping	Hotels, restaurants, cafés
Home maintenance	Dishwashing, laundry, ironing	Pubs & social clubs	Sports and the like	Use of cars in commuting	Reading books
Personal care	House cleaning	Cinema, theatre, social events	Restaurant/café	Eating in restaurants	Reading magazines
Shopping/ administration	Shopping	Playing sports	Entertainment	Culture and sports events	TV
Cooking	Repair of clothes	Walks	Watching TV	Reading	Using computers
Market work	Repair of vehicles	Entertaining or visiting friends	Socializing	Using TV and audio equipment	Playing

Sports	Repair of other durables	TV, radio, music	Reading	Having a sauna	Culture
Spectator events	Repair and decorating	Reading, studying	Other free time		Sports
Active leisure	Gardening	Conversations, relaxing	Holiday trips		
Passive leisure	Child care	Odd jobs, gardening			
Reading	Personal care	Hobbies and pastimes, knitting and sewing			
Eating	Supervising children	Holidays			
Sleeping	Personal beauty services	Personal services			
	Pet care				
	Travel				
	Household management				
	Telephone calls				

Note: * Due to the space limits not all categories of the original scheme are presented.

labour inputs. Thus, such a method requires the reclassification of the final consumption expenditures of the SNA. However, just as the scheme of Chadeau and Roy (1986), this production-oriented scheme does not elaborate on leisure-related consumption activities.

Viby Mogensen (1990) and his colleagues share the interest of Gershuny (1987) in their project in which they trace the potential economic impacts of the changes in everyday life of Danes. The project represents a major effort to expound on the use of time use statistics in macro-level economic analysis. Viby Mogensen and his colleagues take as a starting point that the demand for market goods and services cannot be explained only by income and demographic variables. Rather, they ask whether the trends in time use have significantly impacted and are likely to impact consumption and the structure of the Danish economy. As compared to the earlier attempts such as Juster et al. (1981a), the work of Mogensen et al. can be regarded as less tentative as the matching scheme is applied to a more extensive longitudinal series of data sets containing expenditure and time use data. They have also decided to reduce the fine-grained classification scheme of Chadeau and Roy (1986) to a much more aggregate level of activities and allow for, or admit, a wider range of non-activity-specific expenditure items.

There are more recent papers, which bear a specific interest in tracking the environmental consequences of patterns of time use. Wenke (1999) has been early in suggesting such a system of accounting, but has not worked with empirical data. Jalas (2002) and van der Werf (2002) have both employed input–output tables to study the energy intensity of free-time activities. However, the energy intensity figures of these two studies appear to differ rather significantly. One of the sources of the differences is the treatment of the energy expenditure of housing and heating, but, other than this, the sources of the differences are not readily observable.

Both housing and dwelling expenditures and transportation-related expenditures are environmentally significant (Spangenberg and Lorek 2002), but difficult to treat in the above schemes. Juster et al. (1981a), Eurostat (1999b), though implicitly, and van der Werf (2002) suggest the allocation of housing and dwelling expenditures to the specific activities that take place at home, whereas Gershuny assigns housing-related expenditures surprisingly to housework. Others have argued that the expenditure is not dependent on the hours spent at home.

Travel and transportation expenditures have also been treated differently in the schemes. Van der Werf is specific in allocating different modes of transportation to different activity categories. In his analyses there is thus no separate category for transportation. Brodersen (1990a and 1990b) and Jalas (2002) have used secondary data to allocate the different modes of transportation to specific activity categories. Juster et al. (1981a) are not

specific in their treatment of transportation in the activity scheme, and while Chadeau and Roy (1986) acknowledge the different uses of transportation services, they do not provide allocation suggestions, either. The Eurostat report (1999b), which is significant as it is both recent and directly policy-related, allocates travel-related expenditures to an independent productive activity 'Travel' with no further allocation. However, following the logic of a production-oriented scheme, the report suggests treating the purchase of 'transportation services' as final consumption, since there is no 'production' involved. Hence, transportation-related consumption expenditures are separated into two different categories depending on whether they are intermediary consumption or final consumption.

Finally, there is still another point to make. The studies originate from a 20-year period, but hardly make reference to each other. There are no direct references between the papers, except for Brodersen (1990a) and the Eurostat report (1999b) referring to Chadeau and Roy (1986) and Jalas (2002) referring to the work of Brodersen (1990a). This may be due to the fact that many of the papers have been published as parts of edited books or conference proceedings and not as journal articles. Another reason might be the differences in the points of view and in the interests that have brought the authors to consider the linking of the data. Regardless of the reasons, research on the time and consumption nexus, at least as it has been discussed in these papers, has not accumulated to anything more than individual suggestions. It is, however, obvious that the theoretical work of household economists as well as the efforts of extending the boundaries of national accounting bear a close resemblance to the interests of the studies reviewed here and may facilitate more coherent discussions of the same theme.

8.3.3 Can Time Use Data Explain Changes in the Use of Natural Resources?

The underlying assumption of the studies presented above is that goods and services enter as inputs to specific activities. Based on such an assumption they outlined potential and plausible links between the patterns of time use and the demand for goods and services. But establishing the connection between time and consumption at one point of time is not a sufficient condition for being able to link *changes* in time use to *changes* in expenditure. Rather, such a link assumes that the 'technology' of everyday life – the household 'production' technology – is known or essentially remains the same; the same types of goods are used in the same activities in the same amounts.

The assumption of no technological change is counterintuitive. Activities, such as travelling, depend on a changing mix of different technologies. In addition to technological innovations, also social innovations, such as

outsourcing domestic activities, impact the type and volume of material goods needed in the various household activities. It is thus obvious that changes in expenditure do not result directly from the changes in the patterns of time use.

A more relevant – in fact a crucial – question for the proposed approach is whether time use changes occur independently of technological change. Regarding this question, the economic theory of time allocation and the sociological theory of time use take a very different stance. Independent time use changes are problematic from the point of view of household economics. Technology, together with opportunity costs, *explains* the changes in time allocation in the theory of Becker (1965). Similarly, Gershuny (1987) suggests that technological innovations such TVs and VCRs have *caused* changes in entertainment-related time use. However, time use is not a mere question of available technologies and rational allocation. Rather, as was argued before, social and cultural factors impact the set of feasible alternatives and thus condition individuals' decisions regarding time use. In the same vein, if products and services are regarded as inputs in non-productive, intrinsically meaningful consumption processes, there are no theoretical objections to assume that the patterns of time use can change independently of such technological innovations that alter material inputs of these activities.

These questions can be empirically approached by analysing the time series data of expenditures and time use. Viby Mogensen and his colleagues (1990) claim that there were no such data existing before their project in the late 1980s in which they analysed three Danish time use surveys of 1964, 1975 and 1987. However, it appears that at least Juster et al. (1981a) should be included in such a list as they present an empirical analysis of time and expenditure data from the two waves of 1965 and 1975. In addition to Juster et al. (1981a) and Viby Mogensen (1990) such an attempt has been repeated by Jalas (2005) while analysing the changes in consumption in Finland based on two waves of data from 1987–88 and from 1999–2000.

What are the results? Viby Mogensen reframes the intuitive limits of time use data in explaining monetary patterns of consumption: 'Altogether it is clear that there is no simple connection between time use and consumption. Many other factors – such as income, housing arrangement, and life cycle placement – play a decisive role as well' (Viby Mogensen 1990, p. 42). In elaborating on the findings in more detail Brodersen (1990b) notes that dwelling expenses rose sharply in the period they analysed – and since dwelling costs were not matched with any activities, the analysis has no power in terms of this major change. The focus of Brodersen is not particularly on the changing technology of the activities – he does not, for example, present expenditure per time use – ratios. However, he states that the changes in DIY expenditures and related maintenance services as well

as the transportation-related expenditures follow the respective changes of time use, which indicates that technology, when analysed on such an aggregate level, has not changed in these activities. The major 'technological' change took place in dwelling expenses; they rose significantly, while time use at home declined. Finally, Brodersen suggests a list of difficulties and uncertainties in comparing the data from the different periods. Despite these obstacles, the project, nevertheless, also included an econometric estimation of the potential of time use changes to impact demand. The result of this exercise was that any such impacts on the economy that would cause difficulties in adjusting, are unlikely (Gelting 1990).

Juster et al. (1981a) present an interesting comparison of how the 'goods intensity of activities' (market value of used inputs per time used in the activity) has developed from 1965 to 1975. On average, the intensities have risen with the increases in GDP. However, they have not risen at an equal pace. The authors note that the intensity of household production activity has risen and assign this to the array of household technologies that substitute goods for labour, the so-called time-saving technologies. Also, active leisure and spectator sports clearly required more expenditures per unit of time in 1975. The greatest increases appear with interpersonal communication, which Juster and his colleagues assign to increasing telecommunication expenditures.

While studying the changes in the energy use in Finland, I have included a factor of time use in a decomposition frame in addition to the demographic variables (Jalas, 2005). This study focused on the direct and indirect energy requirements of final consumption in Finland concerning a period from 1987–88 to 1999–2000. The changes in the primary energy demand were decomposed to changes in the following decomposition factors:

- population growth;
- changes in relative shares of population living in different household types;
- changes in time use within the analysed time use categories;
- changes in the energy intensity of these time use categories;
- changes in household infrastructure.

A base-year decomposition indicated that while the population growth and demographic changes towards smaller households both contributed to a significant increase in energy demand, Finns had at the same time shifted their activity patterns towards less energy-intensive activities. Outdoor activities, indoor hobbies, viewing TV and, contrary to the common thinking, also sleeping time, had increased their share of the day during the 1990s in Finland. However, it also appeared that while Finns had engaged

in less energy-intensive activities, the energy intensities of the activities had risen. In actual numbers, which, however, need to be interpreted with caution, the technological impact, that is, the energy intensity impact, was greater than the impact of changing patterns of time use.

The results of this energy analysis cannot be directly compared with Juster et al. (1981a) and Viby Mogensen (1990) analyses of expenditures. However, the same factors have impacted the structure of household expenditures and the energy requirements of households. Thus, my results complied in many respects with those of Viby Mogensen (1990) and Brodersen (1990b); demographic changes are important as well as the changes in housing infrastructure. Furthermore, the time-saving household technology could also be noted in the energy analyses as an increase in the energy requirements matched with slightly less time used in the productive household activities (Jalas, 2005).

8.4 CONCLUDING REMARKS

Time use data that are collected in nationwide representative surveys document the course of everyday life in terms of activities, social contacts and location. Such data have been used in the micro-level analysis of household production as well as the macro-level analysis of extended welfare. However, these data have hardly been tapped by the discussions that originate from and orbit around the concept of sustainable consumption.

From the point of view of sustainable consumption, there are a number of potential applications of such data. Within this chapter, I have concentrated on such applications that stem from the assumption that market goods and services are not direct sources of utility, but rather enter household activities as inputs. Hence I suggested two applications of time use data. Firstly, it is conceivable that descriptive material accounting could be extended to cover non-market activities. Such an analysis would provide a more comprehensive view of how natural resources ultimately contribute to human well-being and a fresh point of view to observe the changes in lifestyles and consumption.

Secondly, time use data help to contextualize the normative prescriptions of the less materials-intensive patterns of economic activity. It is obvious that the changes in the structure and volume of demand have a counterpart in the non-market activity of individuals; patterns of time use both condition and have direct implications for the changes in demand. Furthermore, from a policy point of view it is crucial to distinguish that the patterns of time use do not appear as rational decisions based on wages and available household technology. Rather, time is regulated by different policies, social conventions

and institutions. Thus, if we accept the claim that sustainable consumption is to a significant degree an issue of changing patterns of consumption and different lifestyles, it is these policies, conventions and institutions that should be addressed.

The linking of expenditure data and time use data is an elementary step in analysing consumption from a time use perspective. This chapter reviewed some of the earlier attempts to establish a macro-level matching or linking of time use and household expenditure data. These previous writings constitute a rather sporadic body of work. Environmental concerns have also only been a tiny, close to non-existent sub-track within the interests that have motivated time use surveys. However, the issue is appearing on the agenda of environmental policy-makers as a number of constituencies are taking an interest in the subject. Based on an assignment from the Japanese Ministry of Trade and Industry (METI) and the Japanese Institute for Advanced Industrial Science and Technology (AIST), Hofstetter and Madjar (2003) have reviewed attempts to link physical resources, time use and indicators of subjective well-being. In their report they suggest further work with Japanese, Danish and UK data. The work of van der Werf is associated with a long history of energy analysis at the Dutch Center for Energy and Environmental Studies (IVEM) (for example, Biesiot and Noorman 1999). Thus, albeit the work of van der Werf represents a rather tentative attempt in using time use data in energy analyses, it is obviously important as being part of the work at IVEM. There is also a Finnish government-financed research proposal to study sustainable consumption and the possibilities of linking time use and expenditure data (Perrels 2003).

Some of the reasons for the apparent fading and the current lack of academic interests in linking time use data and consumption expenditure data are rather obvious. The available data do not enable an empirically-based 'matching' of the two data sets and, as Gershuny (1987) suggests, collecting such data is surely confronted with practical difficulties as well as low response rates. However, many of the obstacles that Viby Mogensen (1990) and his colleagues confronted in their project originated from the differences between the existing data sets. Such obstacles may be overcome by the continuing harmonization of time use research. Furthermore it also appears possible to enhance the possibilities and empirical grounds of linking expenditure and time use data by including more activity-specific variables related to expenditures and household technology in the time use surveys.

There are sound, policy-related reasons for pursuing an improvement in the matching of the two data sets. While Viby Mogensen and his colleagues concluded that changing patterns of time use can hardly cause such changes in demand that would cause difficulties in adjusting, the debate on sustainable

consumption is a subtler issue. Rather than seeking to cause disruptions in the economy, realistic policies on sustainable consumption should probably pursue more incremental changes in the structure and volume of economic activity. For devising applicable policies on sustainable consumption the everyday life perspective of time use survey data may thus be of value in setting the context.

NOTES

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1. The work of Juster and his colleagues has been published in a volume that resulted from a conference of social accounting (1981a) and as a journal paper (Juster et al. 1981b). The majority of the arguments have also been repeated in Juster et al. (1985) and in Dow and Juster (1985). However, the journal article (1981b) and the 1985 papers do not repeat the empirical work on the matching scheme.

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The art of loving wooden boats

Mikko Jalas

V and P live in Helsinki. They have acquired a 30 ft wooden sailboat. The sloop was built in Finland in 1935 for racing purposes, it belongs to a popular class with more than 300 boats built with the same design and has had various owners across the country during the course of the 69 years of its life. On average, the ownerships of the boat have lasted 4 years. V&P have owned and been in charge of the boat for 4 years. The previous owners had the boat for 6 years and sold it because it lacked room for the newborn child in the family. The preceding owners had the boat for 5 years and sold it to buy a newer boat in the same design.

The first summer of V&P involved learning the basic skills of sailing, as neither of them had really sailed before. Minimum safety rules concerning mooring and winter storage were imposed on them by the yacht club they joined, which was the one in which the previous owner had been a member. The national inspection rules pointed out lacking equipment and provided a checklist of new products to purchase. After a few tries together with the previous owner to grasp the basic skills of handling and steering the boat, the couple took off by themselves. The amounting experiences at sea have been complemented by a navigation lecture series in which both of them have participated during the following winters. In addition, V&P subscribe to a boating magazine called 'Vene', as well as a specialised wooden boat magazine Puuvene. V also daily checks the Internet discussion page for wooden boats.

Aside from learning how to maintain and use the boat, especially V has devoted time to documenting the history of the hobby on the web-site of the boat, which includes the available information on the prior owners, a description of various renovations from the past history of the boat and collected written and film material of boats in the same class. The website is also linked to the various other sites of wooden boats and particularly to the boats in the same class. V is proud of the fact that the site has once been selected among the top ten boating sites by the Vene-magazine.

Both of the current owners have a design education. V is working as an industrial designer and P has a degree in clothing design. Hence, both of them share an interest in working with materials. During the first winter they undertook no major reparations. Shelves were added, storage facilities were improved and new equipment, such as navigation lights and a GPS navigator, was bought and installed. During the second winter, they stripped the paint from the bottom, repainted the bottom after first impregnating the surface, and rebuilt the transom.

Such maintenance procedures involve extensive planning and engage a large number of commercial and non-commercial actors. A good example is given by their efforts during the following winter, when the deck cloth was replaced. This work was initiated by the small cracks in the seam of the canvas and the

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sideboards. The replacement effort was started by reading available practical texts about doing such work. In the fall, they removed all the metalwork on the deck, the centre-board and the side-boards as well as the cloth covering the deck. During the winter, the removed metal parts received a new surface treatment according to advice from colleague K. After viewing the available commercial Internet catalogues for additional deck ventilation parts, V decided to post an add on the Internet discussion page. He soon received e-mails on available used parts from other hobbyist.. Another colleague, J, provided help with acquiring new interior lights from a 1950's car to be installed on the new centreboard and a friend, J, who is an electrician, promised to install the lights. AM, the wife of still another colleague, was to be responsible for the printed name signs to be installed on the deck. Besides the new metal parts to be installed, V&P needed to acquire many special materials: A-4 stainless steel screws, the new cloth, the nails for installing the cloth, paint, which 'glues' the cloth to the wooden deck, and the new timber.

V had read on the Internet discussion site about a Stockholm-based shop selling cotton cloth for various traditional maritime purposes. After making a paper model of the deck, they thus undertook a journey from Helsinki to Stockholm and selected a special, thick deck cloth. The problem of attaching the cloth proved troublesome. V had planned to use a pressure-air gun and stainless rivets. However, after contacting the importer of the staplers, he was able to conclude that none of the rental companies rented a stapler that was compatible with the available stainless rivets. Refusing to buy such a stapler, V&P decided to use small copper nails. A box of 1000 nails was acquired from a maritime antique shop in Helsinki.

The timber choice was regulated by the class rule. V&P decided to stick with the original choice and selected oak. Oak in proper dimensions was only available in a special shop 100 km away from Helsinki, the location of the boat and V&P, who possess no car. It was also not available in the right thickness. Thus, V agreed with a carpenter N, whom he had met earlier during the sailing season at a gathering of the class, that N will buy the timber, German oak of class A, plane it to the right thickness together with his wife E and deliver it to Helsinki. In order to cut the right shapes out, V bought an electric table-saw.

Work on the boat was started in autumn and continued during the weekends during the winter. In the spring, both V and P took an additional one-week holiday to work full days on the project. The most critical part of the work was the cutting and installing of the new cloth. V&P had made a test piece in their apartment to try out the properties of the cloth and the selected paint. They had also agreed with the previous owner, M, on a date when all three could work to install the cloth.

The workday started at 10 am. V&P had made sure that all the necessary materials were in place. M had taken his son to day care and brought with him two more small hammers. After all the preparations where finalised, the three first had lunch and then took up the work. It appeared that the cloth could not be stretched in the same way as in the illustrations V had been reading. However, after five hours of work, the cloth was cut and fastened in the proper form. At 4 pm M went to pick up his son from day care and V&P

stayed on the island to apply the first coat of paint on the attached canvas. In the evening, V inserted photos of the work in the photo-gallery of the website of the boat.

The details of the above story reveal a committed couple employing their previous skills and developing new ones to support a very particular relationship between themselves and the 69 year-old boat. The story also highlights how they familiarise themselves with, use and further develop a network of private persons and commercial suppliers to support their efforts. However, what is less visible is how the standards of such work have developed and how they have started to make sense and get a grip on V&P. There would have been other, by far easier, ways to fix a leaking deck. For example, synthetic deck covers are in wide use, easily available and could have been simply laid on top of the existing deck. Or was the deck in need of repair to begin with? They choose, however, a different orientation towards the task at hand. Yet they both also feel the grip of the demanding practice; they agree that they would rather spend their holidays sailing the boat than working on it, and that if there will be a next boat, it has to already be in good condition. They say that they have done their share of renovations and V, looking tired, admits: '*I am exhausted. Launch the boat and sell it'.*

Introduction

Harriedness and the speed-up of human life is vividly present in the public discourse either as a celebrated phenomenon of modern life or as yet another dark side of it. Academic texts have explored (the making of) the scarcity of time: Thompson (1967) argues that the notion of the value of time and the moral dissension with idleness is connected to industrialization and the labour markets; Robinson and Godbey (1997) point towards scientific management and the way it has been adopted in everyday life; Stahel (2004) argues that the capitalist system is dependent on an instrumental and abstract concept of time. Furthermore, Linder (1970) compellingly prognoses that productivity growth will only increase the efforts to economise time use in all spheres of human life in modern societies.

These critical claims about the capitalist imperative can be made more specifically in relation to consumption and leisure time; markets mobilise consumers in a particular manner; they put forward certain practices and ways of being and constrain others; they work to commodify cultures and manufacture leisure (e.g. Firat and Dholakia, 1998). In short, ideas of usefulness and of the scarcity of time then substitute for and altogether eschew the intrinsic meanings of consumption and leisure. In the same vein, a move towards the level of consumption practices also helps to understand the resources that are being used to resist such tendencies.

In this text, I elaborate on how social practices fragment, but also reproduce the imperative of economising time use. By exploring the practices that relate to the vitalising interest in wooden boats in contemporary Finland, I want to bring forward a practice which praises piety in material relations, a non-instrumental concept of time and alternative ways of being. However, this rosy façade of wooden boating raises many questions; I ask whether this is a valid interpretation of the phenomenon, what are the critical resources that have been used to establish and articulate such an orientation and, finally, in what ways are the market imperatives reflected and reproduced in the phenomenon.

The scope and the nature of the phenomenon of wooden boating vary. To begin with, 45% of the population of Finland have a small boat or a canoe at their disposal, and 6% have disposal of a cruising boat (Sievänen et al., 2003). The actual number of boats made out of wood is not available and would make a rather questionable proxy for wooden boating. Enthusiasts are much fewer: the distribution of the dedicated Finnish magazine *Puuvene* is about 1300 pieces, the dedicated Internet discussion pages have 450 registered users, the same Internet discussion pages list 30 dedicated associations, the largest single association for wooden boat owners has 370 members and the largest race for wooden sailboats in the Helsinki area gathers about 200 boats annually. On the other hand, the consumption of the symbols of wooden boating is much more common; the visitors at the wooden boat summer festivals are counted in tens of thousands, media coverage of the phenomenon is versatile and extensive, and the wooden boat department at the annual Helsinki Boat Show has been repeatedly voted as the best section of the fair.

A first glance at the enthusiasts reveals dedicated individuals who seek alternative ways of being. However, a deeper look through – or a deliberate tack around – the individuals also reveals a social pattern of action and a shared practice of boating or boat-owning, which regulates the ways of thinking, speaking and acting around boats. But how is it that people become stay gripped and what are the implications of being caught by the practice? Furthermore, why is it that the engaged individuals frequently find themselves exhausted and boats move from one to the next very frequently?

In such a collectively shared practice, the objects assume a central role. Wooden boats are not merely tools for getting around or summer residences for the short season. Rather, they are objects towards which action is oriented and onto which individuals project their desires and future prospects, but which at the same time place demands on the individuals. Boats are not only used, they are also appreciated and worked on. Furthermore, the activity encompasses acquiring the proper skills for such work and proper knowledge to discuss the practice. Thus, with the term boating I refer not only to the use of the boat on waters, but to all the activities that take place around boats year-around.

The description I present is based on my personal career as a boat-owner, on more deliberate participant observation during the years 2003–2004 and on interviews with hobbyists and professionals within the practice. A set of secondary data consists of the articles on wooden boating in the boating magazine *Vene* in the period from 1967 to 2000 and in the major daily newspaper *Helsingin Sanomat* from 1990 to 2004.

This text is structured along an attempt to gradually enter the practice of wooden boating. Firstly, I take a historical detour in the boating literature and describe how wood became a particularised material in boating, and what kind of orientations towards wooden boating have become available to individuals. Secondly, I discuss the contemporary infrastructure of sharing the wooden boating practices in Finland. Thirdly, and based on the interview material and observations at the sites of practicing, I sketch pictures of the doing of contemporary wooden boating. Finally, as a way of concluding, I consider the reach and the internal workings of the practice of wooden boating.

Leisure boats

The emerging contemporary practices of wooden boating can be related to numerous other developments. Obviously, the new practices revolve around the history of leisure boating, concerning which I discuss two points below. The first is the development of the very idea of

leisure boating and the second important development concerns the substitution of fibre-glass for wood as the dominant construction material for leisure boats. However, and as will be shown later, wooden boating co-evolves with and draws on other, more distant developments such as the wide acceptance of the need to preserve the material objects of (maritime) history, the economic recession in the early 1990's, and finally, the use of the Internet as a medium for organising social activity.

Tools and toys on the water

Waterways and vessels are intimately connected to our ideas of culture, and boats as artefacts seem timeless. Different types of vessels have developed to serve various purposes and to perform in various conditions. In short, boats have been highly practical tools. It is thus an interesting question of when and how they become the subject of romantic feelings; when did the boat become a way of escape and adventure and when was it aesthetisised; when did it become possible and acceptable to ponder whether a boat was beautiful or not? And finally, when did the most tool-like traditional vernacular boats become toys *par excellance*.

Sailing for fun was invented in late 17th century Holland and England and the first yacht club, the Water Club of the Harbour of Cork, was founded in 1720 (Janhem, 1975). In Finland, similar developments can be distinguished. The first yacht club was established in 1856 in the town of Pori (Rovamo and Lintunen, 1995). The first Finnish leisure boating magazine *Frisk Bris* was established in 1903. The boat designs gradually evolved from the vernacular designs and materials into more specified designs for various types of leisure. The farewells to the old vernacular designs were warm but definitive. As an editorial in the magazine *Frisk Bris* stated in the newly founded magazine in the beginning of the 20th century: the sport of sailing must grow out of the old vernacular vessels with which we started to sail in childhood.

Yacht clubs and later also national organizations were founded to organize racing activities, and boat designs evolved according to the racing rules. Indeed, the sport of sailing was highly disciplined both at waters and in harbors with rules and codes of conduct, which imitated the professional sea-fare and masked the playfulness of pursuits. The less disciplined, romantic idea of cruising was took up in late 19th century and promoted by such famous travel diaries such as xxxx This mode of boating applied first to sailboats, but later increasingly also to motorboats. It put forward a notion of adventure, solitude and self-sufficiency aside of the more organised social activity of racing.

Material transitions

The use of fibre-glass-reinforced polyester as a boat-building material has constituted a major change in the boat-building industry and to a great deal also the foundation for the current practices around wooden boats. The substitution of wood and wood composites with other materials in the hulls and the interiors appears as a gradual evolutionary process, in which some manufacturers resisted the new materials while others went along, and in which new fibre-glass designs replicated the wooden era for a long period of time. The intensive phase of the transition took place during a 10-year period starting from the mid 1960's.

The imports of small fibre-glass motorboats from the US started during the 1950's, and the new material became widely used in the domestic manufacturing of small boats during the 1960's. On the other hand, the *Vene*-magazine quotes a well-known builder in 1970 arguing

that wood will remain competitive in building large boats of over seven meters in length . In the early seventies, the annual sales catalogue of *Vene*-magazine still included a number of relative large boats made out of solid wood or marine plywood. However, if judged by the catalogue, by the mid 1970's no commercially available new wooden constructions existed aside of a few rowing boats.

The transition in the design and appearance of the new fibre-glassboats was incremental and less rapid than that of materials. One of the last large commercially offered solid wood hulls was Marina 75, a 30ft motor-sailor with a dock-house, which also featured in the export catalogue of Finn-Boat, the boat manufacturers' organization. In the year 1974, the commercial advertisement of Marina announced that the trusty and seaworthy Marina 75 is available also with a fibre-glass hull. In the following year this was the only choice available. However, the new Marina 75, like many of the contemporary fibre-glass designs, replicated both the shape and the details of the wooden era. In some cases, the wooden hulls were replicated by making the production mould directly out of them and in other cases new hulls merely had, and still continue to have, a clinker- or carvel-built surface pattern on them.

The second round for wood: evolving ways of thinking, speaking and acting around wooden boats

By the end of the 1970's the gradual substitution of fibre-glass had virtually abolished wood as a material in building hulls or deck-structures for commercially available boats. On the basis of the annual sales catalogue of the *Vene* magazine, one could argue that the situation has not really changed; wooden boats remain outside the commercial catalogues. I suggest, however, that it is not fruitful to look at the phenomenon as a reversal of the 1960's and 1970's. Wooden boats are not (merely) becoming more competitive against fibre-glass boats, albeit this is the aim of the commercially interested constituents of 'the new culture of wooden boating' (Skogström, 1994). Rather, I claim that new practices have evolved around the old boats, old designs and in more general around wood as a particular material. Wooden boats have become highly meaningful objects rather than being merely the cheapest way to start a boating or sailing hobby. Hence, there is a particular but also diversified practice of wooden boating, in which one can distinguish different and even opposing genres, which all make sense of wooden boating on differing terms: those who sail replicas from the Viking era, those who sail vernacular copies from the late 19th century, those who are committed to the restoration of existing old boats from the 20th century and those who commission and build new wooden boats.

Replication of local history

Eric Laurier (1998) distinguishes *replication* and *restoration* as relevant, culturally-oriented approaches to maritime history. According to him, replication refers to the rebuilding of old designs and the remaking of past history, whereas restoration refers to the practice of conservation or rebuilding of existing objects of maritime history.

The rebuilding of wooden boats according to old drawings or models took on first in the Åland Islands, the archipelago between south-western Finland and Sweden.. There, an association for vernacular boats began its activities in 1968. By 1975, when the association was officially registered, the members had build three new boats according to old vernacular designs (Ålands Skötbåtsförening 2004). The *Vene* magazine published its first description of

replica-building activities in 1978(9). The smaller vernacular replicas have been a success for the professional boat-builders. In 1983, the *Vene* magazine reported about a commercially available replica, Malin 21. In 2004, one of the leading builders of vernacular replicas says that he ended up specialising in them quite coincidentally. Presently, he has three models, 'lengthy' delivery times and orders from distributed places all along the coastline of Finland

The association in Åland also initiated the building of the galleon Albanus, the first larger Finnish replica of the wooden sailing ships, which was completed in 1989. Since then, the replication has spread and major constructions have taken place along the Finnish coastline (Hytönen, 2004). Many of the building projects are based on voluntary work and the activity appears to be a way to connect to local history, to get a sense of a place as Hytönen argues, and to maintain traditional skills.

The mission to preserve maritime history; restoration and renovation

The majority of the Finnish fleet of wooden boats originated from decades ago. The fleet requires increasing maintenance efforts and constitutes the clientele of most of the contemporary professional boat-builders. Within such efforts there are different orientations. *Restoration* practices do not replicate history, but rather claim that it cannot and should not be replicated. It is the original and unique objects that have the immeasurable value and it is the patina on them, which make them particular historical objects. Thus, restoration practices are concerned with maintaining or constructing a strain of originality in the objects and seek to carry on or reconstruct the history of the unique objects (Laurier, 1998).

Renovation is another term that is needed. Aside of restoration and replication, which both pursue authenticity in designs and materials, there is a much more liberal approach to wooden boating. Accordingly, old existing boats are of value and need to be maintained. However, authenticity is not pursued as such, but rather there is a constant negotiation between authenticity, the requirements of present day use and the enhanced properties of new materials. At one extreme, the acceptability of synthetic materials in sails may be disputed, while at the other, an over-coat of fibre-glass may be a totally acceptable way of extending the useful life of an old wooden hull.

Some of the vessels are claimed to be of historical value, especially the old racing yachts, and consequently they are subject to fine-graded and rather stringent restoration principles. For example, a historian and museum chief writes about the Int5m-class in a manner that emphasises traditional materials and methods: '*Converting a canvas deck to a teak deck is perhaps a matter of maintenance. But is it a good enough reason to alter the weight balance and radically change the overall appearance of the yacht. The pious yacht-owner of course chooses to stay with the original solution.'* (Nordlund, 2004a, translation from Swedish by the author). Another description of different types of reasoning is given at the website of a 6mr-yacht named Maybe IV:

> *In the beginning of the nineties May Be IV was thoroughly renovated with ten lowest planks changed and most of the frames repaired. Everything in the hull was built as close to the original as possible with oregon planking on oak and ash frames attached with silicone bronze screws, the steel frames and floors being repaired and hot dipped as originally etc. Above the deck everything is modern to make tough racing possible, a Proctor rig with Navtec rods, Harken hardware, WB sails of dyneema and dacron, spectra for running rigging.(http://www.6mr.fi/DAS/yachts/981119-213345.html)*

Restoration and renovation practices cohere under the mission of preserving maritime heritage. The export of wooden yawls from the early 20th century had raised a cry for keeping such national heritage in domestic hands already in 1974 in the *Vene* magazine. In 1994, the National Board of Antiquities established a register for the existing large historical vessels and a fund for their restoration. At the same time, the historical dry-dock at the Unesco site of the Sea Fortress in Helsinki was dedicated to the restoration and winter storage of these vessels. The Maritime Museum of Finland began to acquire a collection of leisure boats in the beginning of 1980's.. These national efforts parallel an international focus on maritime history. The first European Maritime Heritage Conference was held in 1992 and the fourth congress issued the so-called Barcelona Charter in 2002 (Hytönen, 2004), which *'set out a Code of Good Practice for owners and operators of traditional vessels along the lines of the Athens Charter drafted by architects and museum technicians in 1931 (as amended in Venice in 1964) to give guidance on the restoration of historic monuments'* (http://www.heritageafloat.org.uk/barcelona.htm).

However, restoration and preservation concerns are not confined to the museum institution, but this orientation has also been increasingly adopted outside it. In 1981, in the Helsinki International Boat Exhibition, Aatos Erkko, a significant owner of the major daily newspaper *Helsingin Sanomat*, presented a restoration project of an old motorboat, which had been used by presidents of Finland from 1929 to the 1970's. Later, in 1986, *Vene* magazine published the first report of a thorough renovation of an old SK-yacht – a type of a project that had ten years before been doomed senseless in the same magazine (Selänne, 1975). This project was not legitimised by a glorious history or celebrities of the past, but rather celebrated the current practitioners. Altogether, it seems that the preservation and the restoration of existing maritime history, regardless of the uniqueness and size of the vessels, was appreciated and made sense to a wide array of constituents by the end of the 1980's.

Regardless of the preservation approach chosen, there is a striking difference between the contemporary practice and the era from which many of these material fetishes originate. Vernacular boats were tools to be used and then left ashore to decay; racing yachts were to be short-lived attempts to twist the construction rules and beat the boats of the previous season. Thus, the lifetime of boats were supposed to be short. Contemporary practices, however, celebrate the anniversaries of old boats and claim that one of the best features of wood as a construction material is the possibility to practically rebuild the boat bit by bit. The notion of the lifespan of a wooden boat, which was still used in *Vene* magazine in 1984 (2/84), lost meaning.

Aesthetic superiority

Wooden boats were not valued merely as unique historical objects. After the introduction of fibre-glass as a dominant boat-building material in the late 1960's, it did not take long for the boating discourse to allude that the *aesthetic qualities* of wooden boats are superior to fibre-glass.

The claim of superior aesthetic qualities was first attached to the race yachts of the first half of the 20th century (Vene 8/78; 7/80; 6/89; 7/92). They were praised as distinctive and *blue-blooded* (Vene7/80). However, during the 1990's, wood as a material received increasing interest and positive evaluations. The contemporary practices hence celebrate also the tactile properties of wood. Not only the looks, but the feel and the feeling of wooden boating is superior to the fibre-glass era. As Skogström (1994, 47, translation from Finnish by the

author) spells out, *'the smell of wood, the looks and the warmness and the sounds of water touching it, emphasise the joy of building and owning wooden boats'*.

Photo: Yrjö Klippi.

A spiritual orientation

Putting aside the most technical parts of the arguments for the competitiveness of wooden boats, most of the orientations towards wooden boating seem to suggest new ways of being in the world and valuing it. Whether it is a connection to local history via the replicas, the missionary restoration projects of grand yachts, the aesthetic appreciation of wooden boats, the tactile contact with the material and a state of flow while doing wooden boating, or the environmental friendliness of wooden material, they all imply a new way of being and appreciating. Hence, the constituents of the various genres of wooden boating unite in saying and writing that it is a matter of commitment and lifestyle.

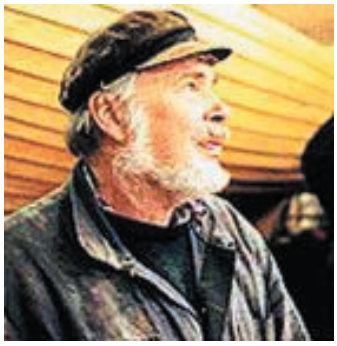


Photo: Pekka Lehmuskallio.

The experienced builders are celebrated as specially gifted master craftsmen who create, carve and force boats out of difficult, living material. They are, typically, men who (are thought to) have a special, deep understanding of wood material, trees and nature as a whole. It is not only that they posses such skills. Just as the *Vene* magazine commented on the

winners of the competition for the most beautiful wooden boat in 1990 claiming that the boats have been build and maintained with *love*, the language of emotions suggests that designers, builders and dedicated owners convey their life forces to the boats.

It comes then as no surprise that boats are suggested to be alive. Ownerships are described as relationships or companionships; boats are thought to deserve good maintenance and at point of sales, dedicated new owners. Boats are described as carrying the features of their designers (Whynott, 1999) and owners (Nordlund, 2004b). And to take the issue further, boats are thought to be able to sense their environment, to sense in beforehand a big wave from a small wave and to speak to each others during the long dark winters in the boatsheds (Whynott, 1999). Thus, on her website, Silene, a 6mr-yacht explains herself:

> *Independent of any race success my old hull has always been taken a good care. A few years ago I had all my keel bolts checked and re-zinced, my wooden keel was inspected, found healthy and impregnated, and I got a new rudder, lighter than before. Four boards on each side of my under-water planking were replaced and a number of spars were also repaired. Every year my bilge has been impregnated with a sweetest natural linseed oil and all varnished parts have been looked after, not forgetting my dear rig and sails.*
>
> *Sometimes I truly feel that I am getting younger year after year. I hope, however, that I can keep my classic beauty. (http://www.6mr.fi/DAS/yachts/981119-125927.html)*

The invited epoxy revolution

Nostalgia, animism and the aestehetization of wooden boats mix with more technical ingredients in contemporary wooden boating. During the recession of the early 1990 it had become commonplace to wonder about the incapability of Finns to develop high-value products out of the domestic supply of wood material. Consequently, wood as a material was living a strong renaissance during the early 1990's in Finland. A technology program 'Nordic Wood 'was launched in 1993 and followed by more programs, Nordic wood II and Wood Wisdom. Wood-construction was added to academic architecture curricula. The producers of wooden raw material and semi-finished products organised design competitions and disseminated information through specific organisations such as the Woodfocus. Finally, to attract public interest in wood, the year 1996 was declared the Year of Wood.

Wooden boats received also specific, albeit more modest interest. A committee was set in 1992 to evaluate the state of boat-building and to consider educational measures to promote this new, potential field of high value-added mechanical wood processing. The committee sought ways to connect with the new era of wooden boat-building, which had started in the US in the 1970's. In short, it sought to establish a new culture of wooden boating in Finland.

The committee suggested that the dispersed training initiatives, which were in place in the beginning of 1990's, need to be co-ordinated and that the education must gain depth to accomplish the aim – the modernisation of the wooden boat. Traditional local knowledge and the inter-generational mechanisms of transferring such knowledge do not suffice to catch up with the international development and to establish a competitive boat-building industry, it was suggested (Skogström, 1994 p. 46). As the most concrete measure, the report suggested that one of the available textbooks on wooden boat-building be translated into Finnish.

Many of the suggested measures were realised, even with haste. The Polytechnic at the city of Hamina started to offer a 2,5-year program on wooden boat-building in autumn 1993. A

few years later, the program was extended to a four-year program, which includes teaching the traditional skills of the craft but also entrepreneurial skills and languages. The Hamina Polytechic has also employed an American teacher starting from 1994. At the same time, the first Finnish students to study abroad went to boat-building schools in Maine. In 1995, the practical boat-building handbook of the Norwegian Ole-Jacob Broch was translated into Finnish to serve as a course book. Thus, this new educational curriculum, which was established around wooden boat-building in early 1990's, has been active in importing new construction methods and designs from abroad, especially from the US.

The new culture to be created depended on few central tenets. According to Skogström (1994), the most important thing was to build new boats that demonstrate the breakthroughs in the available technology. The previous public opinion was regarded as outdated and wrong in many respects, but most of all it was the assumption that wooden boats are troublesome to maintain and not water-tight which was called into question. It soon became common wisdom that it is possible to make competitive, easy-to-maintain and yet unique boats out of wood with the aid on the modern gluing technology, mainly with various epoxy-resins.

A second and related tenet was that wooden boats should be understood as handicraft. Put into such a frame, it was possible for Skogström to claim that wood is a competitive material and that indeed it is cheaper to make unique boats of wood than of fibre-glass. Thirdly, boats belong in the same category as furniture and log-houses, which, together with other wood products, undergo constant development and communicate the technological competence of the essentially wood-based economy of Finland. At the time when Finland was about to join the European union, the committee report argued that such wooden objects constitute a unique contribution of Finland to Europe.

Many of the tenets of the new practice were in strong contrast with the prior practices. For example, the replication practice embraced tool-like, rough and traditional models if not leaking per se, and the restoration practices were conservative and suspicious about new materials. Thus, while the pursuits to create a culture of wooden boating relied on the established particular status of wooden boats, they paradoxically undermined it by promoting the use of new technologies and the vision of a competitive wooden boat industry. However, this far these attempts have been rather fruitless; the professional boat-builders mainly conduct renovations and build traditional boats with rather traditional materials.

Sites for sharing ideas and practicing wooden boating; the infrastructure of practicing

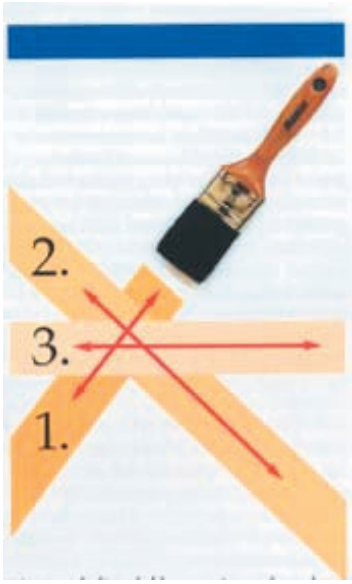
Practices are collective and shared structures, which orient individual action. Hence apart from describing the shared orientations that are available in the boating literature, there is another and related important issue, which should be addressed. That is the ways and places of developing understandings, sharing knowledge, adopting and teaching novices, acknowledging expertise and negotiating the criteria for the efficient and the proper within the practice.

The boatyards, where the boats are stored side-by-side for the wintertime, are sites of dense interaction. In these yards, tools, methods and materials are discussed, tested and disputed. However, interaction and sharing is perhaps at its densest at the point of changes in ownership. Dedicated owners explain in detail how the boat has been taken care of and also make lists of what needs to be done. In short, together with the boat they hand over a project

and an orientation. The changes in ownership occur relatively often and thus the sharing of knowledge both in the interaction and through the object itself is highly relevant.

The use of the boats also implies social contacts at races or other gatherings. The vernacular boats have many local races, which fill the few summer weekends, each having local constituencies (Hytönen, 2004). The first national association for wooden sailboats was established in 1984 and an annual race for wooden sailboats has been organised since 1985. In 1996, a new active association for all kinds of wooden vessels started its activity and currently has 370 members. As many of these boats are motorboats, they do not race, but socialise as squadrons. Since 2001, the association for small crafts has organised an international competition for rowable sailing boats.

In addition to organising the summer events, the associations organise events in the winter-time to distribute and share knowledge of boats and sea-fare. Sometimes the advocating takes rather strident forms; for example, the chairman of the largest wooden boat association writes that *the mission of the association is to fight wrong beliefs and procedures*. (Nordlund K., 2004).



Source: Puuvene 1/2001.

The Internet has changed the way the practice is available to outsiders and the way the practitioners interact among themselves. Within the practicing itself, at least two changes seem to have taken place. Firstly, the private Internet pages document and represent the hobby in such minute and subjective detail that one can claim that the practice is indeed also performed and reproduced on the web-pages. The competence of a practitioner is increasingly evaluated on web-pages. Guest books are filled with mutual support and praise, and for individual practitioners, the status of their website is important. The second Internet-related development is that the community of practitioners of wooden boating is now interactive not only at the physical sites of practicing, but through issue- or problem-oriented discussions on the web. The dedicated Internet discussion page 'puuvene.net' has over 3 500 clustered messages from the two years that the forum has been available. In other words, the infrastructure of discussing the efficient and the proper has itself become much more efficient.

The media and dedicated fairs disseminate images of wooden boating. In 1990, the organisers of a maritime fair in the town of Kotka declared a competition to name the 'Most beautiful Finnish wooden boat'. The competition was supported by the local newspaper *Kymen Sanomat* and the major national newspaper *Helsingin Sanomat*. Later, the town of Kotka organised a dedicated wooden boat fair in 1992 around the 'results' of the competition. Wooden boat fairs have since then been organised during almost every summer in one of the coastal towns.

The proliferating wooden boat literature addresses the technical question of building and maintaining wooden boats (for example Broch 1995, Larsson 2002). However, such literature also addresses the philosophy of wooden boating and teaches how to live with and appreciate wooden boats, or 'The Art of loving and taking care of wooden boats' as Malmborg and Husberg (1998) have titled their book.

Dedicated magazines form another literature genre. The magazine *Puuvene* was established in 1995 by a practitioner and enthusiast who had prior expertise in publishing. The circulation of *Puuvene* has remained around 1300. Just as the other wooden boats magazines such Wooden Boat (US) established in 1974 and Classic Boat (UK) established in 1987, Puuvene has published and distributed images of wooden boating in a particular and favourable light. Laurier (1998) argues that reports of (re)building and using boats are skilled photo-narratives, which construct and tell stories of boats and claim and convey their picturesque quality. Furthermore, such narratives collapse time and underplay the other resources needed in such projects, he argues. Provided such leverage of photos in imaging and understanding wooden boats, Wooden boat magazine (4/2004) advises how to take good quality pictures of your boat: *Use 35mm slide. Take the pictures in the morning or in the evening to avoid ambient light and to produce sharp contrasts. Keep the background simple and/or scenic. Preferably take photos without people in them*.

The boat-building schools are nexuses for accumulating and sharing practical knowledge of boat-building. They echo the international tones in wooden boating and are the source of the reformists forces, while at the same time facilitating the traditional orientation – restoration and replication – by collecting and maintaining drawing archives and documenting oral knowledge about boats. Two vocational schools at Savonlinna and Perniö have continued to provide education in wooden boat-building in Finland practically through the whole transition period. In addition, there are numerous new vocational schools and a polytechnic in Hamina offering education for the profession of wooden boat-building. However, what might be even more significant in terms of institutionalising the practice of wooden boating, are the short courses offered to dedicated hobbyists. These courses vary in length. Some may be for a few evenings, some for a weekend or a week. There are also courses for one or two semesters for those who embark on the aspiration to build a boat of their own.

Enacting and reproducing wooden boating

According to Warde (2003), practices evolve through the variety in the ways in which individuals enact and reproduce them. In the above, I sketched different available orientations towards wooden boating. However, much more variety exists in the very doing of the practices. The tales of the practicing of the individuals and the trajectories through which their careers have evolved thus further elucidate the collective structures at play around wooden boats.

In the following, I discuss the enrolment and practicing of individuals based on my own experiences, field notes and the interview and visual material I have collected during the years 2003 and 2004 of boat owners in the cities of Helsinki and Turku. I start by considering the recruitment to and departing from the practices of wooden boating. The discussion then proceeds along six themes, *learning, emancipation, social bonds, distinction, crossing borders and professional boat-building,* all of which emerge from the material and characterise different ways of making sense and organising the doing of wooden boating.

Doing in and doing out

The question of recruitment is two-sided. Firstly, one can ask how these people have engaged with boating and, secondly, 'why wood'. To begin with, boating in general is often inherited and shared by two generations; many state that water, as an element is familiar for them from the very childhood. However, couples and families who engage in boating do not share this equally. Often it is the men who claim to have such a deep relationship with water and the women who either adapt to or withdraw from boating. In addition to families, other social encounters in youth organizations, in schools and universities and at work expose the recruits and trigger initial encounters with boating.

Wooden boating as a practice recruits new practitioners in much of the same ways. However, each of the orientations towards wooden boating also has its particular mechanism of making itself available; racing the classics requires crew and new members are recruited based on sailing skills and commitment to training and racing; replicas and larger heritage vessels are often built and operated by associations, which allow a more gradual enrolment (Hanifi, 2003), and the appealing wrecks waiting for new dedicated owners are the lures of renovation practices. Furthermore, just as the story of V&P in the beginning showed, such projects engage a large number of other people besides the owners, and wooden boating spreads in social networks.

Photo: Mikko Jalas.

Boats are on sale for different reasons. Most often the departure is framed as a question of time resources or space requirements. However, health reasons are also common. The body, the back and the knees, is no longer apt for the practice of wooden boating. However, I suggest that whatever rationalising reason presented to oneself and to others, the departure hinges on the ability of the practice to make sense to the individual.

Learning

Wooden boating is rich in details that can be discussed, learned and disputed. For some of the practitioners, it is the mastering of such knowledge at which they aim. Such an orientation implies that they are eager to engage with different and demanding projects, but once having learned the skill, would rather not repeat the procedures. The trajectory of the career is towards increasing expertise. Just and V&P in the story in the beginning argue that the deck renovation was the first and the last they will perform, these practitioners avoid routine work and look for challenges; they acquire wrecks to take on a demanding project or engage or plan to engage in building a new boat on their on. In the interview, V states that:

> *There is nothing better than to be out with a boat, which is in good condition and which one has thoroughly renovated oneself … of course the best would be to have built the whole boat oneself (V, male).*

The learning-oriented practitioners are performance-oriented. They have plans on what needs to be done to the boat and hurry to achieve those targets, which little by little lead the way towards the envisioned perfect boat. Thus, for example V scheduled his first winter seasons with the help of a calendar. The project then often follows the modern consumption ideology; accomplishments are followed by new targets and future tasks, which in fact act as desires, motor a wheel of consumption, and produce anxiety (Campbell 1987, Belk, Ger and Askegaard 2003).

However, alongside accumulating their own expertise, the practitioners grow critical towards outside advice. A woman, who has previously taken a half-year leave from her work and built a day-sailor, explains that she has tried out many partners and co-owners but has not accepted them. She confesses that especially men tend to think they know more about boats and start to give advice to her without any substantial knowledge of wooden boats. Similarly V, when asked if he would be willing to let professionals take care of his boat, replies:

> *Professionals are a mixed bunch, I have learned. It has to be one hell of a guy for me to just trust him and let him decide and take care of the boat. (V, male)*

Another clip from the discussion pages is informative. In an ongoing discussion about proper impregnation chemicals and the availability of a traditional brand called Aspergol, a frequent, known and critical commentator claims authority based on substantive knowledge. (puuvene.net on October 13 2003, translation from Finnish by the author):

> *Please do forget the Aspergol-brand. The Aspergol brand was used to sell a basic impregnation chemical, but the present Aspergol does not have anything to do with the old Aspergol. The Aspergol brand is now used to sell a basic impregnation chemical for industrial use.*
>
> *The impregnation chemical by Teknos [another company] has the same elements and proportions, only the name is different. You can get Aspergol in small quantities as well, only the price is double.*

In fact, I would not put any normal impregnation chemical on my boat, if I were to impregnate it. Rather, I would buy zink-aftenate from for example the company Sateenkarivärit, and mix it with linen oil and pine-turpentine (3-5%). In this way one does not need to evaporate the industrial solvents out of the hull.

Mika

Against boredom and flatness as well as unnecessary formalities in boating

Emancipation

For many, wooden boating is an emancipatory practice and a locus of a imagined, different identity. As a woman in my field notes says: *I hate my job and this [working with wooden boats] is what I really want to do. In May, I come here every day after work. The boats are my family.* For these people, wooden boating is a way to claim a personality and to denounce and disagree with whatever they regard as normal. My field-notes document a practitioner in Turku in a newly painted fishing-type boat:

He has used the boat in fishing with fykes and nets, which he said was his profession. But the boat did not appear as having been in such a use, it did not have a radar, for example. He explained that he is a traditional fisherman. He is not so much for the money, but tries to do things he feels good about. Thus, he explains, he has also studied wooden shipbuilding. The next project is the renovation of a large fishing vessel from the early 1900's. I asked when the new project will be ready. 'Soon' he replied 'if I go and resign from my job at the ship right away'.(Fieldnotes 26.4.04)

The images of individuals who take charge of their own life, make radical career changes and act differently matches the learning orientation. However, there is a different tone in the activity. Means and ends are less clearly distinct and rather merge into a flow-experience, which praises the skills of hand and craftsman-like orientation. The founder of the dedicated magazine *Puuvene* mentioned joga as a single particular source when asked about the orientation of the magazine. Indeed, there are practitioners who refuse to commit to goals, targets and schedules concerning the material facet of boating and concentrate on the action itself as if meditating. For them, the proper pace and experience of the doing is more crucial than learning the specifics of technical skills, following occupation heath instructions or proceeding towards a perfect boat. Consequently, the emancipation-oriented persons object to plans and calendars. As S notes:

> *My husband at one point of time during the spring, makes a plan on a calendar on which date the boat will be launched. From there on, we are in a rush, and I have to do the varnishing, which is the only thing I know how to do and enjoy, in whatever weather condition. Last year I had to varnish the main boom, although it was 7 degrees [C] and the humidity was close to 100 [%]. This is why we never get it [the varnishing] right. (S, female).*

It is not only calendars which are rejected, but also the formal and the underlying rules of proper conduct. The practitioners may, for example, accept quick-and-dirty reparations just to keep the boat the floating and the niche, which they have created for themselves, open. They may state that their boat is not in such a good condition without continuing with a list of planned renovations. Many feel guilty and admit that they are doing only a cosmetic upgrading 'this spring', but promise to devote more attention to the boat next spring. However, the springs are often alike and the cracks and the rough, plagued finishes tell the story of a particular orientation or a lack of commitment – as the learning-oriented would phrase it. Altogether, seafaring, the natural element, wood as a traditional material for constructing boats, self-sufficiency in terms of knowledge and skills all contribute to that wooden boating appears as a wild frontier and escape in modern societies.

Social bonds

The bonds of the practice can be more social than what appears in the previous descriptions. Wooden boats are frequently owned, used and worked on by a group of people. Such groups are often organised around men rather than couples or families owning a boat, and there is indeed a striking absence of women in wooden boating. Women are either physically absent or denounce the internal logic of the practice. The English word male bonding is actually the description one group gives about their group ownership. On the other hand, boats also solidify family relations; couples agree that boats are important ways of being together and, furthermore, boat-owners dream of intergenerational boat relationships and initiate the participation of their children.

The sharing of money and time demands is one obvious reason for the common group ownership. In the same vein, groups also create tensions. As a part owner and the initiator of a group of joint owners comments:

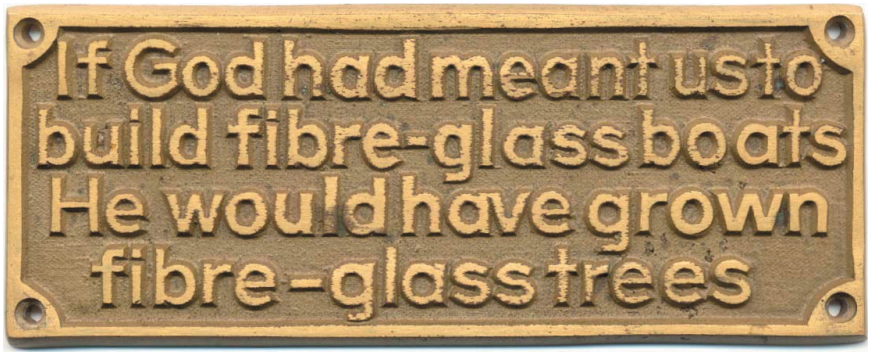
> *Our objectives grew apart. I was initially interested in the traditional boat as such and committed to restoring it. However, the co-owner who had joined the boat-project was more interested in racing and more willing and able to spend money on the boat. This was so evident that I had to sell my part. (P, male).*

Similarly, M (male) states that their group dissolved when the boat was in clear need of extensive renovation. M and his co-owner (male) had to purchase the shares of two additional owners (a male and female couple) of the boat in addition to paying for the renovation.

Distinction

Within the proliferating fleet of new fibre-glass boats, wooden boats are distinctive, positional goods. As a novice notices after a short encounter: *After sailing a week with a wooden boat, I understood wooden boating. Just because of the boat, everyone was looking at us when we entered harbours. We didn't have to have a big and fancy boat to attract attention (U, female).*To reinforce this identity the histories of the boats often attract increasing interests. To locate the designer, the yard and the previous owner serves to place oneself in a course of history, especially if the history includes celebrities of the sailing sport or members of distinguished social strata. Such distinction employs symbolic resources outside the practice. The current status of the specific boats is based on the status of those persons who were engaged in the practices in the heyday of the classical boats.

Another more experienced practitioner notes similar, but also emphasizes the maintenance skills involved; The boat is a huge burden, but it is difficult think of switching to fibre-glass. No more comments on the nice boat we have and the fine work we have done with it. (S, female) Furthermore, the images of wooden boating are related to seamanship; boats as such require a skilful and weathered crew as opposed to the 'floating summer cottages of the fibre-glass era', an image that the practitioners happily reinforce. It is, for example, customary to enter harbours with sails whereas this is seldom done with the fibre-glass boats. To be engaged in wooden boating is to be of character. As an owner of INT5m-yacht explains at the website of the class association: There is of course a set of common denominators of those persons who buy an old leaking hull, fix it to top condition, restore, maintain and enjoy the sailing of a yacht of tradition, professional craftsmanship and sailing performance (Nordlund, 2004b, translation from Swedish by the author). The contemporary practice of wooden boating thus makes distinctions also based on its own merits.

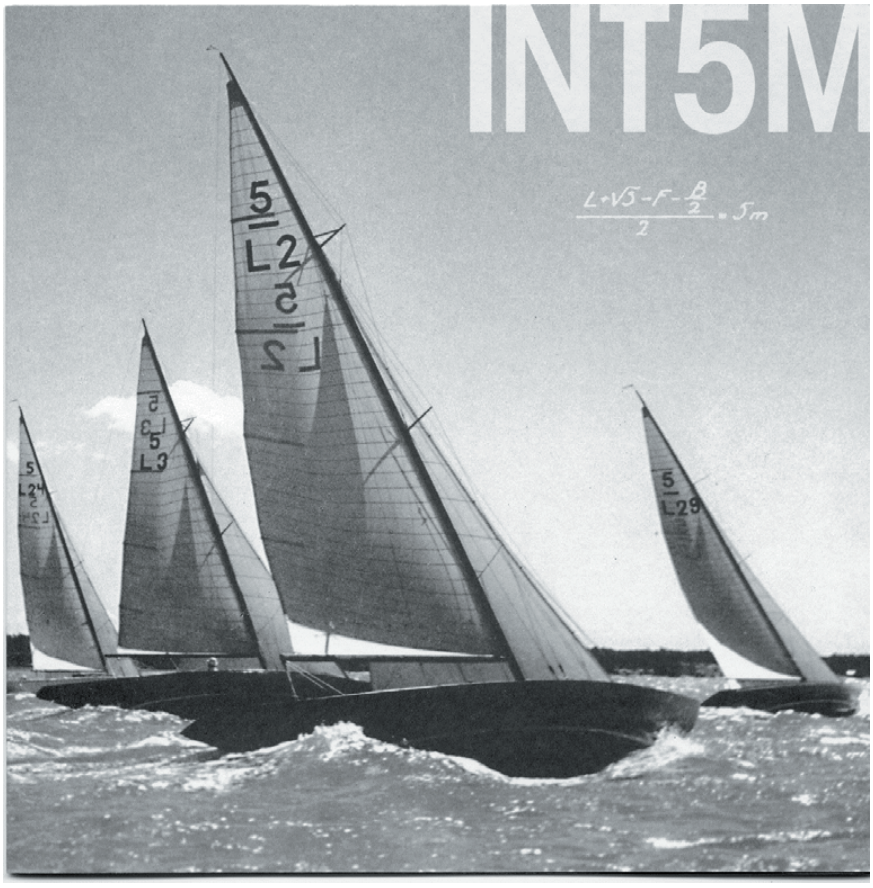


There is yet another, more introvert way of distinguishing a sect of wooden boating. Wooden boating is particular because it is thought of as particular by a sufficient number of people. A reflexive male practitioner admits that he does not like the wooden-boats-only gatherings because they strengthen the spirit to an anxiety-raising degree.

Crossing borders

While doing wooden boating, the practitioners employ their other skills and capabilities, and, in the same vein, the doing of wooden boating radiates to other doings. Expertise is transmitted both ways and the practicing of wooden boating grows contingent to the other spheres of life. On the one hand, those involved in doing wooden boating using the hobby as a source of ideas and report about their hobby in newspapers, dedicated magazines, books, TV-programs, and research reports. On the other hand, the doing of wooden boating relies on the conceptualisations, the skills and the material artefacts of other practices. The professionally delineated restoration principles of how the merging of new and old should be thought of are an example of involvement on a conceptual level. On the level of the skills and the material resources, the recent brochure of the Int5m–class provides a nice example; the layout of the brochure was done by an AD; the text by a copywriter and the printing was organized in an affiliated print-house by yet another member of the rather small boat class, which only has 29 registered boats.

The brochure also portrays another phenomenon which is present in wooden boating. The professions of visual and spatial design are well represented among the practitioners. Consequently, the praised aesthetic qualities of wooden boats, which are appreciated as facts by the practitioners, are articulated, enhanced and constantly reproduced with professional skills.



Professional boat-building

Professional boat-building is yet another way of practicing wooden boating that has become available through the state and local efforts to increase boat-building education and to convey the traditional knowledge from the hands of the few old builders to the heads of the younger generation. Professional boat-building is distinct in that practitioners are financially dependent on the doing of wooden boating. However, a growing share of the younger boat-builders have chosen their profession on much the same basis as the other practitioners have got and stayed involved in the practice. Furthermore, the skills and orientations of the schools are effectively spread also among the amateur-practitioners.

Elovirta (2003) describes the business culture of boat-builders as non-competitive and essentially individualistic. The builders have various motivations for their activity, but they are not in the business for money, ambition or competition and rather to make a living in a free and independent way. In more material terms, some see it as their mission to carry on tradition, transfer knowledge to younger generations and keep the old classics floating while others do aspire to small-scale batch production and aim to develop manufacturing technologies. These persons are not financially independent or secure in any particular way. According to Elovirta, the need and ability to earn extra income aside farming and forestry are common and the concerns about the profitability of the boat-building activity prevalent. He also reports that the builders feel forced to redirect their activity towards renovation and subcontracting and other activities such as maintenance courses, rental services, tourist services, which all take place more at the conditions of their customers.

The views on the potential customers are diverse. On the one hand, the builders lay their hopes on the environmentally-friendly image of wooden boats and the raising environmental consciousness. When the boat-builders were asked what should be done to promote wood as a construction material in boat-building, they turn towards the notion of unique handicrafts and hope for attitude campaigns which would educate the public to value handicrafts. In this context they also emphasise the notion of luxury (Elovirta 2003, p. 27), which is vividly apparent in the international wooden boat magazines. For example, the US based *Wooden Boat* magazine illustrated the differences in the maintenance costs of a few US boats. At the top end, the annual maintenance costs account for a third of the boats' value and an owner of a 40-foot boat is reported to annually pay 15 000 $ for a superior varnish finish on his/her boat (Rappaport, 2004). It is thus of no wonder that the boat-builders welcome the new rich and hope to catch some of them. On the other hand, some boat-builders also seem irritated by the lofty future visions. They request that the 'bubble of wooden boating' be exposed, because those who can afford new wooden boats do not commission them and those who aspire them, completely lack the required financial resources (Elovirta, 2003, 28).

Discussion: is wooden boating the practice and how does it work?

The above discussion has elaborated on the new ways to understand and appreciate wood as a boat-building material and sought to connect these developments to the ways of acting around wooden boats or doing wooden boating. Guided by a theory of practices outlined by Schatzki (1996 and 2001), Reckwitz (2002) and, concerning consumption studies, by Warde (2003), I have focused on the links between the symbolic content and the material content of the practice and the very doing of wooden boating.

To take a practice approach has many implications. A practice constitutes a nexus of doings and saying (Schatzki, 2001). It outlines an autonomous sphere of social life with internal criteria for the desirable, for the proper and for the effective, which guide and constrain the actions of individuals within the practice.[21] Understood in this way, practices empower individuals. They establish meanings and goals, approve of ways for striving towards those goals and, finally embody tacit know-how. They also grant rewards. In short, practices create social and cultural niches for individuals to live or to be in, and hence it is their ability to recruit and to make – or cease to make – sense that is of focal interest.

Another implication is that practice theory and its post-humanistic versions propose that non-humans have agency to reproduce and renew practices (Reckwitz, 2002). These thoughts call for analysis that goes beyond the notion of the material and social embeddedness of human action. Rather analyses within a practices approach should seek to take seriously and understand the nature of non-human agency.

Wooden boating offers different orientations and opens up different niches of being. In making distinctions, the orientations oppose each other; one praises the vernacular and the other the noble; one seeks originality while the other seeks functionality and technological advance. The meanings of the related objects are different and refer to different symbolic categories. Yet, to conclude that the differences in the ways of thinking and speaking about and appreciating boats distinguish separate practices within the phenomena of wooden boating does not correspond to the idea of practices being a nexus of *doings and sayings*.

In the case of wooden boating, it seems that doings are shared by a much wider constituency than sayings. Many tenets of proper doing are accepted by a wide community of practitioners regardless of the type of the boat; restoration work does make sense and should be directed towards authenticity; wood as a material requires a impregnation treatment every 15 years; mahogany hulls need to be taken out of the water before the pine hulls. Contrasting to these widely accepted and applied, but nevertheless rather recent tenets, there are very detailed and different views of how boats are beautiful; some argue that they could never think of owning a clinker-built sail-boats with their vernacular taste and feel delighted to dismantle a dock-house from a racing boat, while others regard the 'pure' racing boats as toys not good for the conditions of the sea. The conflicts and alliances are manifest in the wooden boating practice mainly on the symbolic level. On the level of doing these different camps unite into a practice of wooden boating.

What is the role of the "stuff" in the practice of wooden boating? Firstly, it could be argued that boats are in the focus of the practices and fetished by the practitioners. Secondly, it could be argued that physical tools are, just like skills, investments, which maintain a trajectory and reproduce the practice. However, the material artefacts can also have a more active role in defining the practice. Boats are not mere mirrors of the individual desires, but have some agency of their own; the fact that old boats are few, make humans behave certain way; corrosion and decaying wood place very concrete demands on humans and schedule their action and establish projects; in replication practices, history, even if read selectively, replays itself and assigns certain roles to humans.

How do practices recruit? Based on my findings with the wooden boating practice, I argue that explanations of recruitment often lay outside the practice itself. Initial exposure seems

[21] Warde (2003) has uses many different notions to describe the emotional and teleological contents of practices. He uses words desires (p3), goals (p10), values (p10), objectives (p10), aspirations (p10), orientation (p15), beliefs (p16), motives (p16) to describe the teleo-affective structures, which Schatzki (1996, cited in Warde 2003) refers to as embracing ends, projects, tasks, purposes, beliefs, emotions and moods.

coincidental or at most it is based a vague idea of its external benefits or in the symbolic content recognised by the wider audiences, rather than being based on the internal characteristics of a practice. Coincidental exposures are, however, also structured. Many have, for example, been exposed to the practice through family relations or social relationships in educational institutions. The practice of wooden boating is also extremely gendered; men and women have different ways of practising and the latter, in many cases, do not practice at all although being continuously exposed to the practice. Such an observation leads to the question of who is eligible to enter the practice and who is good for the practice. Furthermore, it also points out that the entry or the enrolment into the practice is already more determined by the practice itself than the initial exposure.

Practices do have different, inherent capabilities to create moments of exposure, which may affect the recruitment aside of the obvious class- or family-based continuity. For example, digital photography contains a highly visible component, which is relative easy to detect and understand especially in association with increasing computer literacy.Encounters with wooden boating are less frequent and 'co-incidental'. The reach of practices thus differs; some spread like an epidemic, while others are accessible by invitation only.

The initial exposure might take place in another, related practice, and thus it is necessary to consider the ways in which practices ally. Such kin-of-the-practices explanations are suggested by the mixture of different classes and lack of or deliberate undoing of social stratification apparent in wooden boating. Nevertheless, the way by which wholly 'incompetent' and 'fresh' novices have been introduced to the practice through their work- or schoolmates indicates that both the class-based recruitment and the explanation of the kin-of-practice are feasible and do not merge.

Schatzki (2001) claims that both individuality and social order arise from practices. I argue that understanding practices as social niches for individuals to be in, is one way to understand and incorporate this claim. What follows is that individuality does exist within practices and furthermore that individualistic explanations are useful in trying to understand why and how practices reproduce themselves, or as Schatzki phrases the issue, practice theory '… appropriates in transfigured form a variety of individualist *explanantia*, while grounding these in a supraindividual phenomenon …' (Schatzki, 2001, 5).

How is it then that the collective structures around wooden boats help or make the individuals desire and dedicate themselves to boating? What are the mechanisms that constitute orbiting trajectories for individuals and what is the centre of gravity within a practice of wooden boating? The notion of competition among practitioners seems false in the case of wooden boating. I would like to suggest that it is more about learning, becoming more skilful in making distinctions within the stuff of the practice. Surely, as Warde (2003) suggest, improved procedural skills and new gadgets enhance performance and yield increased satisfaction for the practitioner, and thus make the practice constantly re-appealing. However, 'performance' is also highly dependent on understanding the teleo-affective structures of the practice. Thus, the various ways of improving the cognitive skills are of relevance. On the other hand, it is also possible to learn emotional skills. Distinguishing, for example, different boat types and classes, eras of construction and even the peculiarities of individual designers is part of developing understandings, and may enhance the possibilities of pleasure-yielding day-dreaming.

Sailing is such an obvious area of illusory day-dreaming that Colin Campbell is one good starting point to elucidate the careers of carriers within wooden boating. Campbell (1987) claims that frustration and a desire for novelties are permanent states of modern consumers, because of the developed day-dreaming skills. This applies in the case of wooden boating as

well. Practitioners constantly learn new ideas of how to improve their boats and develop skills to evaluate different boats and designs. The dreaming is in fact very elaborate; there are the dreams in the case money did not matter, and the ones in which resource constraints, be they money, time or skill, are attended to more seriously. But whereas Campbell stresses the role of novelties stemming from the fashion institution, the novelties of wooden boating are, to a large degree, makings of practitioners themselves aided by a set of books and magazines and the Internet, by a fashion institution of a different kind.

Finally, there is the question of resistance. It is paradoxical that while the practitioners of wooden boating often seek to resist the technological and the economical imperatives of the market system, they frequently find themselves exhausted and exploited by the practice. Insofar as the practice fuels day-dreaming and creates needs, it seems merely to repeat a pattern, which characterises market-driven consumption. It is also obvious that class and gender systems are often merely reproduced within wooden boating. Furthermore, the deliberate efforts to create a 'new culture of wooden boating' are in line with and to significant degree driven by commercial interests. However, obligation, dedication, flow-states and group identities blend in. Many practitioners think of boat-ownership and boat-building as a trusted position and even a mission. Put in such terms, the imperative is different from the market imperative. Wider symbolic resources of the heritage movement, the understandings of restoration professionals, the skills of visual and graphical designers and new entrepreneurs within the craft have all fed a new practice of wooden boating. With such resources, doing wooden boating has claimed an autonomous position and started to make sense to individuals and groups also on its own terms.

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