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Bathing in Japan: Applying a practice theory vocabulary to energy use through ethnography

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ABSTRACT

The theoretical frameworks describing the dynamics of energy demand influence the ways in which policy-makers conceive of energy use and consider feasible interventions. Practice theory approaches are widely applied to energy demand studies as an alternative to individual behavior-based ones that tend to aggrandize the explanatory dominance of human agency or structure. However, applications of practice theory that respond to these economic or behavior-based descriptions of energy use are overwhelmingly placed in Western settings. This fieldwork-based ethnographic investigation applies a practice theory approach to a description of common bathing practices in a non-Western context: Japan. This case situates and extends practice theory applications, emphasizing the need to understand the embeddedness of culture in energy use. The findings suggest that (1) breaking down a bathing practice into its elements, (2) exposing its interdependencies with other practices, and (3) examining the ways it reproduces itself and other practices offers a realistic and insightful approach for conceptualizing energy intensive practices. Bathing in Japan is intertwined in many other aspects of life in Japan that must first be taken into account before developing feasible policy on sustainability. This study concludes by highlighting ways in which practice theory informs political interventions on energy use.

1. Introduction

Aside from encouraging the development of low-carbon energy sources, managing energy demand is an object of political involvement to reduce the damaging effects of climate change [1–3]. Before drafting political change, policymakers have their own conceptualizations of why and how their constituents use energy, and under what circumstances. The frameworks describing the dynamics of energy demand from which policy makers draw influence the ways in which they conceive of energy use and consider feasible interventions [4]. It is the reflection on and application of one such pre-policy framework on which this paper focuses.

Shove [5] argues that economics and psychology overwhelmingly influence energy demand policies, leading to an understanding of energy use as being mainly a product of individual choices. The prevalent ABC (Attitude, Behavior, and Choice) perspective in climate change policy captures this choice-based conception of energy use, where attitudes reflect environmental values that drive the types of behavior that individuals choose to adopt [5:1274]. Accordingly, policy tends to be aimed towards incentivizing people to change to more pro-environmental consumer behaviors and lifestyle habits [6:141].

In contrast, policy informed by a sociotechnical approach, Sorrell

[7:80] argues, goes beyond influencing individual choices by identifying *collective* impacts on personal choices and challenging the socio-technical systems that enable and restrict those choices. One particular sociotechnical framework responds to the limits of individual behavior-based understandings of energy: practice theory. A practice-based explanation of social change is one that explains social dynamics without aggrandizing the explanatory dominance of either human agency or structure [6:22]. Practice theory achieves this by focusing on how a practice emerges by recruiting, what Reckwitz [8] calls, ‘carriers’ of practices, persists by making links within and between practices, and disappears by breaking them.

Practice theory does not prescribe specific policy recommendations. Instead, it serves as another perspective from which policymakers can draw to form realistic and insightful understandings of practices related to energy use. Therefore, it is worthwhile to augment the literature concentrating on analyzing energy demand policies [i.e. 9–11] with an exploration of a practice theory perspective behind the political initiatives.

Practice-based explanations of energy use are not new. In fact, recent studies on energy use in this journal apply and even extend practice-based approaches by combining them with other social theories (i.e. material geography— [12]; sensory ethnography— [13];

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distributed agency— [14]; affect— [15]). While these sorts of theoretical practice-based hybridizations offer unique frameworks, each build off of and add to practice theory as their conceptual starting point. This demonstrates the firm extent to which practice theory, in whatever derivative form, persists in modern social scientific explanations of energy use as a response to the limitations of ABC-based explanations.

However, as Ho [12] and Khalid and Sunikka-Blank [16] acknowledge, applications of practice theory on consumption and energy use have been overwhelmingly limited to Western countries (i.e. [17–21]). Developing practice-based discussions of energy consumption with empirical studies only in Western contexts limits its applicability to practices, values, and cultural institutions found elsewhere [16:122]. In this journal, Sovacool et al. [22:96] and Galvin and Sunikka-Blank [23:67] call for more ethnic diversity in applications of practice theory as they relate to energy use. Instead of reviewing household energy use in general, this study focuses specifically on bathing as an energy intensive practice. Accordingly, I extend insights from practice theory East and merge them with findings from my fieldwork in Japan to capture the intricacies of bathing practices and their connections to energy use.

In Japan, cleanliness habits tend to be quite different from those in the West. As opposed to most people of Western countries, most Japanese people shower *and* bathe daily, almost always sequentially with family members [24:795,31]. This is done either in the home or one of over 20 thousand public hot spring baths [25,38]. In a country where bathing is a daily obligation and a hobby, an acknowledgement of both the consumption of energy to heat water and the reasons supporting the enmeshment of bathing in Japanese culture are significant. Up until now, studies that apply practice theory to specifically describe consumption related to bathing and showering tend to only use case studies in Western countries [i.e. 18,26,27]. This ethnographic study applies a practice theory perspective outside of much-used Western contexts to make sense of and describe what lies behind all of this energy use.

An understanding of energy use in Japan requires more than an awareness of how much energy is consumed, but what services it provides and how cultural values, such as notions of comfort and cleanliness, co-evolve with the energy intensive bathing practices [28,29]. My ethnographic approach builds off of previous work on energy use in Japan by Wilhite et al. [24], sharing the assertion that cross-cultural perspectives help expose culturally-based values and assumptions that would otherwise go unnoticed in descriptions of energy use. Whereas [24] broadly address Japanese domestic energy use to include bathing, this study hones in on bathing practices in Japan, describing them in detail. Instead of attributing these sorts of common bathing patterns to factors that *drive* individual behaviors, practice theory centers its analysis on the practices surrounding bathing, themselves.

Methodologically, I use practice theory to untangle these hygiene practices into their elements, expose the interdependencies among them and other practices, and unveil some of the pathways in which these practices reproduce themselves. I hope to demonstrate that for most Japanese people, choosing to shower and take a long, hot bath instead of merely showering briskly in Western fashion boils down to more than attitude and concomitant choices. In Japanese culture, ‘the bath is much more than a simple act of cleansing; it is an act immersed in symbols, in ideas’ [25:117].

Section 2 provides an energy context for bathing in Japan while Section 3 introduces practice theory as it applies to descriptions of energy use. Section 4 succinctly outlines the methodology of the study. I present my findings in Section 5 before concluding and briefly reflecting on potential practice theory policy implications in light of the findings in Section 6.

2. An overview of energy consumption related to bathing in Japan

Heating water to support daily bathing and showering—practices

that are integral to Japanese culture, social life, and even, according to [30], national identity—has implications for national energy consumption. A 2017 survey by Noritz [31] finds that 76.2% of middle-aged Japanese participants bathe ‘almost every day’ and 98.1% bathe at least once a week in the winter and 50.4% and 78.9% in the summer, respectively. On an individual level, it’s difficult to precisely determine how much energy one uses. Such a calculation depends on negotiable factors such as water temperature, tub size, and shower time. However, MacKay [32:50] offers an estimation that in the UK that a typical bath requires about 5 kWh and a shower 1.4 kWh of energy. In Japan, the Agency for Natural Resources and Energy estimates the average tub to be 200 L, almost twice that of [32]’s calculation, suggesting that a bath requires 9.1 kWh [33]. Most people (63.8%) shower as well as bathe, according to [31]. Showering is conducted often before *and* after the bath since family members typically share the bath water after it is reheated or partially replenished between bathers.

When the majority of a population showers and bathes daily, the proportional energy consumption dedicated to bathing is substantial. On a collective level, an estimated 27% of household energy is used for heating water in Japan, compared to just 14% in the EU [34:47,35]. Energy consumption related to water heating in Japan has increased by about 50% since 1975, while space heating has remained about the same [36:181]. This reflects the growing significance of bathing in Japan as compared to space heating methods for keeping warm, a method that has become more prominent in Western countries. By comparison, energy for space heating in the UK has increased about 60% from 1975 to 2010 while energy for heating water has decreased about 30% [37:35–36]. Both space heating and bathing provide warmth, but the dominance in growth of one source to another within a national scope is related to the additional services they offer to clean, connect, and relax, nested within a scene of other culturally influenced practices.

Aside from private baths, Japan’s public baths require both geothermal and fossil fuel intensive methods of heating and pumping. Every minute, *onsen* baths pump and heat 2.5 million Liters of water from the over 3 thousand hot spring areas [38]. In addition to being consumers of energy, hot springs prevent Japan from developing its significant geothermal resources [34:125]. The government’s insistence on preserving its hot springs ensures that 80% of its geothermal resources remain protected. Of the actively used geothermal sources, 87% of their energy heats public baths [39:104]. The strong cultural value in bathing not only affects the way Japan uses its energy services but also the way it develops its energy sources.

Energy use related to bathing is significant enough that the Japanese government issued policies to specifically address reducing heat consumption in bathing. In 2005, ‘Warm Biz’ aimed to reduce heat consumption in the cold months, saving an estimated 1.41 million tons of CO₂ per winter on the generation of heat [40]. Within the list of energy saving measures, one such recommendation is to cut the amount of heat consumed in bathing. The Japanese Ministry of the Environment urges people to cover the bath when vacant, reduce transition times between each subsequent bather to avoid reheating the bath, and reduce shower time by turning off the shower while lathering [41]. This policy reflects the government’s acknowledgement of bathing as being a notable contributor to energy use.

Despite bathing’s firm grip on the national energy scene, the International Energy Agency [34:44] recognizes that ‘Japan has a long tradition of effective energy efficiency policies and measures’. Accordingly, ‘Warm Biz’ encourages people to bathe, an energy intensive practice, in a sustainable way by following suit with other governmental initiatives aimed at lowering energy use. Like ‘Warm Biz’, ‘Warm Share’ urges people to share domestic heat as a means to propagate close social interaction. Example suggestions include inviting over neighbors to share a hot pot meal, which warms the body and the room. Also, families should heat and share only one room in the house like they share bath water, which interlocks family members’ temporal

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