Recognizing Energy Dilemmas and Injustices: An Interview Study of Thermal Comfort

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Abstract: This article argues for the importance of recognizing local energy dilemmas and injustices that may arise in the wake of energy saving ambitions. Such energy justice dilemmas can occur anywhere, even in the wealthier parts of the world. Qualitative interviews were conducted immediately before energy efficiency renovation in a Swedish housing area, and perceptions of thermal comfort were used to illustrate the arguments of the article. The results show little compatibility between the housing company’s energy saving ambitions and the tenants’ wishes for a comfortable home. It is such discrepancies between the main actors of a renovation process, in habits, experiences and expectations, which tend to produce energy dilemmas and injustices. In the article, it is suggested that a more emic (insider’s) view should be adopted within the building and housing industry. An attempt to change from an etic (outsider’s) perspective to an emic perspective may help housing companies to find compromises with tenants. As illustrated through the example of thermal comfort, energy injustices can then more easily be avoided, and the well-being of tenants increased.

Keywords: building renovation; emic view; energy efficiency; energy justice; energy dilemma; thermal comfort

1. Introduction

Some authors have used the term ‘climate justice’ to describe the state of the world, mostly referring to the uneven impacts of climate change, such as rising sea levels, and extreme weather leading to drafts, fires, or floods [1–3]. They have also used the term to denote the fact that future generations will bear the cost of our current actions; alternatively, that the norms of minimum standards are escalating in a time when we need to save energy. Day et al. [4] have particularly argued that there seems to be an in-built conflict between the global objectives to reduce energy consumption, and the needs of much of the Global South to extend access to energy services. Relevant to the purpose of this article is the term ‘energy dilemma’, which has been put forward by Wilhite [5] to describe this asymmetrical global development during the past century. This development has, according to Wilhite, led to the striking global gap in per capita energy use and, consequently, a situation with huge challenges.

The aim of this article is to contribute to the discussions above, but to do so by raising the question of how we may handle particular cases of conflicts between energy saving and energy justice, or whether these need to be in conflict at all. The article contends that local energy dilemmas may occur in the wake of energy saving ambitions, even in the wealthier parts of the world.

When buildings are renovated and altered to become more energy-efficient, different ways of perceiving and relating to issues such as comfort, standards, economy, or well-being are likely to occur. Irrespective of whether such differing perspectives among tenants, housing management, construction workers etc. are congruent or clash completely, they always need to be handled one way or another. Therefore, situations where residential housing is being modified through various renovation and
energy efficiency measures can be particularly important to study. A specific case of energy-efficient building renovation and, particularly, the way this relates to perceptions of thermal comfort is used here to exemplify and illustrate the discussion about local energy dilemmas and energy justice.

1.1. Preparing for Energy Efficient Renovation—A Case Study

In the 1960s and 1970s, the Swedish 'Million Homes Programme' gave rise to a boom in suburban areas and fast construction of new residential housing throughout Sweden. Today, most of these housing areas are in considerable need of renovation and, even though the renovation rate is low [6,7], various attempts are being made to refurbish the buildings and make them more energy-efficient. One of these areas in a mid-Swedish town includes 40 similar three-story brick buildings. In three of these, slightly different methods of renovation have been tested. This process has been studied, and some of the results are used here to illustrate the arguments of the article.

The situation in Sweden is different than in other countries. In the UK, for example, climate policies are largely funded through electricity and gas bills which, in turn, tend to put an additional heavy burden on lower-income households [8]. This, however, is not the situation in the Swedish case since these households have heating costs included in the rent. Even though they are not able to influence the temperature and thermal comfort in their flat to any great extent, their discomfort does not have such a direct link to which bills they can afford to pay. The dilemma could rather be described as an imbalance and state of tension between the tenants’ well-being on the one hand and the housing company’s plans to renovate the building and save energy on the other.

1.2. Methods and Approaches

This article uses for illustration a small interview study which was conducted immediately before a planned building renovation. Fifteen household members in ten households were interviewed during November and December 2015. At that time, 33 of the 36 flats in the three-storey building were inhabited. The weather was mild for the season in this part of Sweden, with outdoor temperatures varying between +6°C and −7°C.

When searching for suitable interview households, the following criteria were set up in collaboration with other researchers in the research team: flats should be of varying size and located in all three stairwells, at least one of them should be a gable end flat, tenants should preferably be of varying background, and both men and women should be included. The selected households and flats subsequently were as follows: eight of the interviewees were women, seven were men; five individuals (two couples and the man in one household) were between 45 and 60 years old, the other ten interviewees were between 25 and 35 years old; six households had a Somali background, while four had a Kurdish background; the number of years they had been in Sweden varied strongly; and the number of household members in each flat varied between two and ten individuals. The size of the flats was distributed as follows: one five-room flat (gable end flat), five three-room flats, and four two-room flats.

The interviews were conducted in their homes, and as many adults of the household as possible were asked to participate in the interview. The interview method was a so-called, semi-structured qualitative method, where the aim is to resemble a conversation with the interviewee as the main narrator. A number of methodological ways were used to facilitate this narration. One was the so-called “house-touring”, where household members are asked to describe their experiences of the flat while showing the interviewer around. The tenants were also asked to describe their use of the flat during a “normal day”, to compare their experiences of this flat to previous accommodations, and to describe memories of previous experiences of heat or cold. Photography was also used to encourage further conversation [9,10].

The research questions were put together in collaboration with the rest of the research team (which included technical researchers). The questions concerned, in various ways, the tenants’ experiences of temperature (heat/cold) and draft (air/ventilation), as well as their varying ways of handling these
experiences. Questions concerning temperature and air quality included the question of whether the tenants perceived their flats as adequately warm, and whether there were any cold surfaces or draft. Questions were also asked concerning comfort variations in different parts of the flat as well as yearly/seasonal variations. Questions concerning individual differences (e.g., age, gender etc.), and comparisons with previous experiences (e.g., previous dwellings, memories, etc.) were also asked. Regarding ways in which tenants try to achieve thermal comfort, questions were asked concerning clothing, use of the flat, and other measures.

There were several methodological difficulties, of which the first concerned the difficulty in reaching the households in the first place. After discussions with the housing company and a tenant organisation, the plan to send out an introduction letter to introduce the interview study was replaced by knocking doors, and a Somali-speaking employee at the housing company was engaged as an interview assistant. In three of the four Kurdish-speaking families, interpretation had to be made to the Kurdish dialects Sorani and Kurmanji, respectively. The limited linguistic understanding between the interviewer and interviewee tended to affect the possibilities of carrying out a sufficiently deep conversation. Misunderstandings were also more frequent than usual in interview-situations, and this tended to limit the number of adults who were present during interviews.

Another important difficulty was the limited financing for the interview study. This limitation meant that there was not enough time to meet with each household on more than one occasion. The options to create trust and a good relation between interviewer and the interviewee were therefore limited, and this too affected the depth of the tenants’ stories. With only one interview occasion, it was not possible to investigate the tenants’ backgrounds, reasons for moving to Sweden, current life situations, or experiences of previous accommodation, indoor thermal comfort or outdoor climates.

2. Results

The company who owns the buildings, and the tenants in one of the buildings, were two of the most important social actors during the investigated renovation process. In this situation and time period, some aspects stood out as being particularly important for each of these actors.

With low maintenance costs and continuous rents coming in, this area of residential blocks has in the past merely generated income for the housing company. That situation changed, however, as the buildings became increasingly worn and stricter national energy directives for new and existing buildings, called ‘near zero energy building regulations’ [11], are coming into force.

The most important renovation concerns among the tenants differed quite radically from those of the housing company. The concerns of the tenants in this situation were all related to the home in one way or another. Since many of them spend most of their day in their flat, thermal comfort is an important part of their perception of their homes and influences whether they are able to feel at home or not. Therefore, their struggle to cope with thermal discomfort on an every-day basis and to find ways of making the flat feel less cold became a main concern for many of them. However, the sense of comfort at home is not just linked directly to warmth. Aspects such as the ability to cover the windows to protect from the gaze of outsiders is also an essential part of feeling relaxed, comfortable, and at home, as was the possibility to be bare footed and dress lightly.

2.1. Controlling Thermal Comfort

The housing company had two main strategies to save energy. One was to insulate the buildings and provide them with new roofs and energy efficient heating systems. The other strategy was to inform the tenants on how to handle the new heating system, but also to try and regulate their energy consumption through technical means e.g., by limiting hot water use via the installation of low-flow devices in kitchens and bathrooms.

Another means for the housing company to make the buildings energy efficient was to regulate the supply water temperature to the radiators. The company aimed for an indoor set temperature of 20.5 °C during daytime and 19 °C during night-time. The day temperature is just above the minimum
requirement of 20.0 °C [12]; however, it is under 21 °C, which is the normal “design-temperature” for residential blocks in Sweden [11]. Consequently, the company managed to balance on the required minimum, even though the perceived temperature may vary over the year and sometimes be a bit lower than the recommended level, especially during spring and autumn.

By installing radiator thermostats with lockable temperature adjustment, tenants were also prevented from increasing indoor temperatures as much as they would like. The tenants usually desire a much warmer indoor climate than the housing company managers consider feasible and warmer than that which is generally recommended. The managers were also of the opinion that many of those who live in this area have difficulties in handling thermostats correctly. These two aspects were the main reasons why the thermostats which were installed can be locked and are as simple and sturdy as possible.

2.2. Pockets of Vulnerability

The Scandinavian countries have the lowest degree of domestic energy poverty in Europe, while Eastern, Central, and Southern Europe have the highest degree due to poorly insulated homes and more income poverty [13]. The Scandinavian countries also have the lowest number of people who are unable to keep their homes adequately warm; however, pockets of more vulnerable groups can be found everywhere. This is one of the points made in this article, and an issue which should have bearing on many European contexts today.

The residential block, which is used to illustrate the arguments of this article, is almost entirely inhabited by new Swedes. Many of them are young women who spend the majority of their days in their flats which, particularly before renovation, were draughty and poorly insulated in comparison to normal Scandinavian standards.

Interview results here showed vulnerability to thermal discomfort. Such discomfort could not be detected through thermal measurements which were made in some of the flats [14], but rather was revealed by tenants interviewed before the renovation who all described their flats as ‘cold’ or ‘very cold’, and most of them suffered from this cold and had complained about it.

The fact that certain categories, such as children, the elderly, or those in poor health, can be more vulnerable to heat or cold than others may seem obvious [12]. It may be more difficult to detect and recognise those who are unused to cold thermal conditions, those who become vulnerable due to a worrying life situation, or those who simply spend long hours in a chilly home and have little opportunity to do anything about their situation. The ongoing research among new Swedes in one of the Swedish ‘million programme areas’ sheds light on individuals who are in a situation where they may be extra vulnerable to cold conditions and this needs to be more clearly recognised.

2.3. The Gender Bias

Some interviewees stated explicitly that the women in the households suffer more from the cold than the men. Most women also expressed discomfort, often in a powerful and explicit manner; with strong and firm emotion in her voice, one of the women stated that “It is very cold!! I am freezing all the time!” Another example is the woman who complained about her aching feet and how the cold made her feel unwell, while a third woman described how the cold floor made her toes go numb. This stronger sense of discomfort, which nearly all female tenants expressed during the interviews, fits well into the larger picture drawn by Karjalainen [15] in his thorough literature review on indoor thermal comfort. Karjalainen shows that, when many laboratory and questionnaire studies are put together, a clear pattern arises. It appears that, irrespective of outdoor climates, women tend to be less satisfied with indoor climates than men, particularly in cold conditions. Women are also more sensitive to deviations from an optimal thermal environment and tend to express more dissatisfaction than men within the same indoor thermal environment. All this is in line with our interview results. There may be physiological explanations for this, such as gender variations in body mass, surface area, core temperature, blood flow, sweating, etc., or there could be explanations related to psychological,
situational, or culture-specific aspects (see references in Karjalainen 15:106f). According to Karjalainen, the important point here is that, irrespective of the reasons for variations in male and female thermal sensation, this gender issue needs to be taken seriously.

2.4. Coping Strategies

In their paper on fuel poverty in older ages, Chard and Walker [16] base their discussion on coping strategies and acceptable living conditions from an interview study in households with older people. These older tenants generally seemed content with wearing additional layers of clothes or blankets during the winter. Apparently, they merely regarded this as a natural part of their regular routine and practices, and they rarely talked about these coping strategies in explicitly negative terms. However, this was not the case among the interviewed women in the interview study. These women complained severely about how cold they were and how much they suffered because of this; they complained to the interviewer, to the housing company, as well as to neighbors and friends.

Nearly all the women who were interviewed before renovation had added extra clothing to their ankle-length dress and head covering during the interview, and some told us that they do so when they feel cold. They would add a sweater or cardigan to their dresses, wear long trousers underneath the dress, or a knitted shawl around their shoulders. Some of the women describe how they also cover themselves with a blanket or quilt when they feel cold, either temporarily when sitting still or, in one case, more often lying down under a quilt in the least chilly room, the bedroom. One of the women stated that she, despite covering herself up with warm clothes and extra blankets, was not able to keep warm when sitting still to watch TV or videos. In two households, it was revealed that extra blankets or quilts were used during the night, and one of the women told us that she was still frozen despite double quilts. They usually have five or six extra blankets in the bedroom to use when it becomes too cold.

Those who live in the investigated building had a variety of strategies to try to keep warm. Many tenants repeatedly tried to increase the temperature by adjusting thermostats on the radiators (without success) or closing the fresh air inlet to shut out the cold. Some of them reported draughts, cold or poorly functioning radiators to the housing company. Some of them bought cheap extra radiators and some even began to use the oven as a heater. A few tenants had installed thick carpets as protection from the cold floors. A couple of them were also careful to prevent curtains from covering radiators, or would drape the curtains on the window sill (to protect from draughts); one man even insulated the windows himself, while for others they would simply avoid the coldest spaces.

Table 1 provides an overview of the interview study’s results:

|   | The primary focus of the housing company in the current situation is to renovate the building and save energy, while the primary focus of the tenants is to achieve a comfortable home. |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2. | The women are freezing much more than the men, and some of them express strong suffering.                                                                                                             |
| 3. | The tenants are freezing significantly more than what could be detected from measurements.                                                                                                          |
| 4. | The interview study reveals unexpected vulnerability to thermal discomfort.                                                                                                                         |
| 5. | The housing company tries to regulate the tenants’ energy use through technical means.                                                                                                          |
| 6. | The tenants coping strategies do not suffice.                                                                                                                                                   |
| 7. | The housing company’s ambition to save energy is not compatible with the well-being of the tenants.                                                                                              |

3. Discussion

The energy saving strategies of the housing company described here are in line with those of the Swedish Government and the European Union [17–20]. All these agreements leave little room to question the strategies of the housing company. However, there is a risk with ‘near doxa’ agreements
such as these that too much can be taken for granted, and that particular situations, injustices, and those who may be more vulnerable to cold conditions than others are ignored.

The basic goal behind thermal comfort standards, i.e., to achieve as few unhappy tenants as possible, is commendable in many ways. Nevertheless, ‘Fanger’s model of thermal comfort’, on which most standards are based, is being increasingly criticized, and various suggestions for adjustments and complements have been put forward [21–23]. One critical voice, which is also confirmed by this interview study, is the one by Karjalainen [15] who argues that women have more need for individual temperature control than men, and that thermal comfort standards should be based more on female requirements. If females are satisfied with their thermal comfort, Karjalainen says, it is highly probable that males can also accept it. To alter the basis for current comfort standards is not sufficient, however. The use of generalized predictions, estimations, and regulations often need to be complemented with investigations of specific local contexts and situations.

This Swedish renovation study is a good example of how easily important aspects of an actual on-going situation can fail to be recognized if uniform generalizations are allowed to dominate over other perspectives. The strong legitimacy which both national guidelines and international thermal standards lent to the housing company’s decisions on thermal comfort seems to be one of the main explanations why the company largely missed the fact that many tenants suffered severely from cold conditions.

3.1. To Take a Tenants’ Perspective

Another explanation why the housing company largely failed to recognize the severe thermal discomfort among tenants may be found in their role as owners and decision-makers. Leijonhufvud and Henning [21] analyzed a similar situation in their study of professional groups in a historic house museum. The cold indoor climate of this museum had, just as for the tenants in this interview study, become an embodied experience and integral part of the practices among housekeepers and guides. Leijonhufvud and Henning described the relation between housekeepers/guides and building managers/conservators as a reverse relationship, where the amount of time each of them spent in the building was related to their options when determining indoor space temperatures. Both the museum and tenant case studies showed an imbalance, i.e., where those who have the greatest decision-making power concerning the indoor climate are also the ones who are personally the least affected by it.

This so-called reverse relationship, in terms of experience and power, is an important aspect which may help to explain the difficulties for the housing company management to take a tenants’ perspective. In one sense, they are aware of the strivings among tenants for higher temperatures as complaints are handed into the company, and radiator regulators are not always so carefully handled. Nevertheless, the main response from the company has been to try and increase their own control over the heat. One such measure has been to prevent the tenants from increasing indoor temperatures in the flats by installing lockable radiator thermostats. One may argue that this action is understandable, given that otherwise the temperatures would most probably go up far beyond current levels. This is, however, not a problem-free solution.

3.2. The Dilemma

Some researchers have argued that thermal comfort for all can only be achieved when tenants have effective control over their own thermal environment [15,23]. Others argue that the way one experiences thermal comfort in one’s home tends to be affected by the extent to which one’s free will is being circumscribed [24–26]. The tenants in this interview study lacked opportunities to control their thermal comfort as they did not “own” their heat. This was partly due to the ownership structure (owner of the buildings, the heating equipment, etc.), but was also an effect of the housing company’s outsider perspective on the tenants and their normative way of relating to them. The managers of the housing company and the tenants of the buildings differed considerably in their respective roles and perspectives on thermal comfort. They differed in what they experienced and prioritized, differed in
their respective strategies, expectations and hopes for improvement, and differed in the impact they could have on comfort and other renovation issues.

Thus, the two ways of perceiving and relating to thermal comfort has clearly became a dilemma, where the housing company’s ambition to save energy was not compatible with the well-being of the tenants. The dilemma seemed to crystallize as a question of how cold those who live in these buildings needed to be in order to save energy or, alternatively, as a question of weighing the importance of energy saving against the importance of allowing tenants to control their heating. However, the situation for the tenants also threatened a backlash directly on the actual saving of energy, rendering the building less energy efficient than planned. As mentioned above, low indoor temperatures with few options to regulate temperatures resulted in actions such as buying extra heaters, closing ventilation, or using ovens as heaters. When adding this to the question of justice and respect towards the tenants, it could be well worth looking for other solutions.

One solution could be to look for respectful compromises where both actors contribute as well as benefit. In this case, it could mean that tenants were offered radiator thermostats which are slightly adjustable up to, for example, two or three degrees more than now. It could be that well-functioning and aesthetic blinds were installed for tenants who want privacy but who agree to let the sun in certain hours per day. Alternatively, it could be to provide better floor heating or covering to meet tenant wishes to be barefooted at home. Compromises of this kind would not only increase the life quality of many tenants but would also improve the status of the housing area, which, in turn, the housing company would benefit from.

3.3. Policy Implications—Suggestions

Results from the interview study have led to several implications for policies in contexts and situations where energy efficient measures are taken. Since the study was made in a situation of building renovation, the suggestions are directed particularly toward housing and construction companies embarking on energy efficient renovation.

First, the fact that each case of energy efficient renovation is specific and unique in some sense must be taken more seriously than what is often the case today. From a technical point of view, there is nothing new or odd with such a statement. Most cases of renovation must involve a mixture of general knowledge about construction, etc., as well as knowledge about the particular building which is to be renovated, such as the year it was built or specifications about the current heating system and other technical solutions and systems which may need to be replaced, etc. However, the same must apply to knowledge about those who live in a building. There seems to be a tendency that insights concerning tenants and how they may be affected by a renovation are confined to a more general level. In this Swedish interview study, for instance, the generalized idea about thermal comfort overruled any specific concerns and did so in an unproblematised manner. Another example from this study was the tendency, among the management, to equate a “social perspective” with the responsibility they felt towards their tenants to keep the rent at a moderate level. One implication of this is that generalised, generic, and quantitative methods and models need to be complemented by models and policies which manage to take specific contexts and situation into consideration [27–29].

The second policy implication involves a complementary switch of perspective, where an outsider’s ‘ethic’ view on tenants is replaced with a more empathetic ‘emic’ view, where tenants’ own experiences, habits, and modes of thinking are taken into serious consideration. This also implies that near-equal attention and respect is given to both sides of the renovation process; to those who initiate and carry out this material change as well as to those who will live through it. Leaving the normative stance behind means that housing company management can no longer look upon the tenants as having a “knowledge deficit”, as bluntly put by Jenkins [30]. Jenkins means that this is how end users of energy services tend to be treated: as individuals with a knowledge deficit which needs to be fixed with information or installation of technical products [e.g., 18]. With a normative, outsiders’ perspective, he says, there is a risk of missing out on valuable knowledge and insights from marginalised groups [30].
The third policy implication of this article emphasises the importance of further developing a respectful dialogue between housing companies and tenants. In the studied renovation process, one could argue that the information flow went both ways with the housing company arranging information meetings for the tenants and tenants informing the company about problems with their flats. However, to date, there has not been a full-scale interactive dialogue through which compromises or negotiations may be formulated and, given language and cultural barriers, this may be difficult to accomplish. Nevertheless, there are ways of coming closer to a respectful interaction, where some of the more urgent wishes and needs of the tenants are highlighted and where the two actors are communicating on a near-equal level.

The fourth implication for renovation policies is that no renovation project should be carried out unless important concerns among tenants are well integrated into the ordinary planning process. The information needs to be there for the company to take into consideration at each step; when the renovation is being planned and investigated, when economic calculations and decisions are made, when construction work is carried out, etc.

Table 2 summarizes the policy implications

|   |   |
|---|---|
| 1. | Generalized, generic and quantitative methods and models need to be complemented by models and policies, which manage to take specific contexts and situations into consideration. |
| 2. | A normative outsider’s view on tenants should be replaced by a more empathetic ‘emic’ view, where tenants’ own experiences, habits, and modes of thinking are taken into serious consideration. |
| 3. | A respectful interaction between housing companies and tenants should be sought, where some of the more urgent wishes and needs of tenants are highlighted, and where the two actors are communicating on a near-equal level. |
| 4. | No renovation projects should be carried out unless important concerns among tenants become well integrated into the ordinary planning process. |

Further research needs to be done on specific methods and models so a more respectful emic view can be implemented, and these four policy implications can be carried out in practice. Considering the methodological difficulties of the related interview study, it is particularly important to develop easy-to-use models for qualitative investigations which are designed in a way, and at a level, which housing companies can handle.

4. Conclusion: Justice Recognition

The main concerns of the housing company and tenants in the related interview study turned out to be strikingly different. The varied ways by which these actors experienced and handled thermal comfort was used to illustrate a more general problematic, namely how to find ways of combining energy efficiency measures with well-being and justice.

It was seen, for instance, how the housing company followed all the comfort standards and national regulations concerning indoor temperatures but failed to take into consideration specific characteristics among the tenants, such as a more than average vulnerability to cold conditions. If the thermal experiences among these tenants had been recognized, and their needs for higher-than-average room temperatures respected, it might have been possible to find a better balance in which both the receivers and providers of energy would try to contribute [30]. With respect to the fact that many of the women, in particular, spend a large part of their day in the flats and with consideration for their specific needs and wishes, habits, experiences and modes of thinking it would have been possible to find ways of saving energy without creating energy injustices.

Simcock and Mullen [1] have raised the question of justice and the need for more academic work which explores, both conceptually and empirically, the justice implications of policies to reduce energy demand. Further, Sovacool and Dworking [2] have been critical of the fact that routine energy analyses
do not offer suitable answers to the many difficult aspects of equity and morality which arise in the wake of climate change. It is in the vein of these critical voices that the present article has been written.

So far, research in the field of ‘fuel poverty’, ‘energy poverty’ or ‘energy justice’ has mainly focused on certain groups whose health and well-being is considered to be particularly precarious due to cold and draughty indoor climates; the old or disabled people, the chronically ill, and, to some degree, also children [4,13,31,32]. As Walker and Day [32] argue, certain groups may sometimes have special needs. Older people may, for instance, require more home heating than others for physiological reasons, or because they may spend more time at home than those who are working. However, the majority of these studies has focused on those who have difficulty to afford a certain energy service, or who lack access to such service [3,8,33]. The many older people in the UK who cannot afford to keep their homes warm is a frequent subject matter [4,8]. In this article, the focus has not been on affordability, but on pockets of more vulnerable groups in a Swedish suburban area and their lack of options to keep their homes adequately warm.

Even though the terms ‘energy poverty’ and ‘fuel poverty’ overlap to a great extent with the ‘energy justice’ concept, the increasing use of the latter mirrors a growing emphasis on a just and fair treatment of those who are deprived of certain energy services. In particular, the ‘justice recognition approach’ seems useful for the arguments of the current article. Articles by Walker and Day [32] and Jenkins et al. [30] refer back to the work of Frazer, who at an early stage defined and formulated some categories of misrecognition. This interview study which has been related here gives support to Walker and Day’s argument [32], that an alternative to the distributional approach to social justice is to emphasise relationships and to look upon social injustice as a failure to show certain human beings the same respect as others and to allow them equal rights.

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**References**

1. Simcock, N.; Mullen, C. Energy demand for everyday mobility and domestic life: Exploring the justice implications. *Energy Res. Soc. Sci.* 2016, 18, 1–6. [CrossRef]
2. Sovacool, B.; Dworking, M. Energy justice: Conceptual insights and practical applications. *Appl. Energy* 2015, 142, 435–444. [CrossRef]
3. Walker, G.; Simcock, N.; Day, R. Necessary energy uses and a minimum standard of living in the United Kingdom: Energy justice or escalating expectations? *Energy Res. Soc. Sci.* 2016, 18, 129–138. [CrossRef]
4. Day, R.; Walker, G.; Simcock, N. Conceptualising energy use and energy poverty using a capabilities framework. *Energy Policy* 2016, 93, 255–264. [CrossRef]
5. Wilhite, H. The Energy Dilemma. In *Development and Environment, Practices, Theories, Policies*; Bjørkdahl, K., Nielsen, K.B., Eds.; Akademika Publishing: Oslo, Norway, 2012.
6. EU. *Evaluation of the Energy Performance of Buildings Directive 2010/31/EU, Evaluation Roadmap*; European Commission: Bruxelles, Belgium, 2015.
7. Flack, M.; Utfall Danielsson, C.; Nyström, S. *Förslag på Styrmedel för Ökad Renoveringstakt*; Report for the Swedish Energy Agency and the National Board of Housing, Building and Planning; Copenhagen Economics: Copenhagen, Denmark, 2015.
8. Bickerstaff, K.; Walker, G.; Bulkely, H. Introduction: Making sense of energy justice. In *Energy Justice in a Changing Climate. Social Equity and Low-Carbon Energy*; Bickerstaff, K., Walker, G., Bulkely, H., Eds.; Zed Books: London, UK; New York, NY, USA, 2013.
9. Pink, S. Home Truths. In *Gender, Domestic Objects and Everyday Life*; Berg: Oxford, UK; New York, NY, USA, 2004.
10. Pink, S. Doing Sensory Ethnography; SAGE: Los Angeles, CA, USA; London, UK, 2006.
11. The National Board of Housing, Building and Planning. Boverkets Författningssamling; BFS 2017:6. BEN 2; The National Board of Housing, Building and Planning: Stockholm, Sweden, 2017.
12. The Public Health Agency of Sweden. Folkhälsomyndighetens Allmänna råd om Temperatur Inomhus; FoHMFS 2014:17; Folkhälsomyndighetens författningssamling: Stockholm, Sweden, 2014.
13. Bouzarovski, S. Energy poverty in the European Union: Landscapes of vulnerability. WIREs Energy Environ. 2014, 3, 276–289. [CrossRef]
14. Henning, A.; Sattari, A. Evaluating thermal comfort in a Swedish block of flats: A methodological comparison. In Proceedings of the International Conference Healthy Buildings 2017 Europe, Lublin, Poland, 2–5 July 2017, Paper ID 0070. ISBN 978-83-7947-232-1.
15. Karjalainen, S. Thermal comfort and gender: A literature review. Indoor Air 2012, 22, 96–102. [CrossRef] [PubMed]
16. Chard, R.; Walker, G. Living with fuel poverty in older age: Coping strategies and their problematic implications. Energy Res. Soc. Sci. 2016, 18, 62–70. [CrossRef]
17. EU. Directive 2012/27/EU of the European Parliament and of the Council. 14.11.2012; Official Journal of the European Union: Luxemburg, 2012.
18. Hautajärvi, H.; Landfors, K. Så när Öffentliga Fastighetsägare 2050-Målen, En Studie av Framgångsfaktorer; UBO (Utveckling av Fastighetsföretagande i Öffentlig Förvaltning): Stockholm, Sweden, 2013.
19. SOU. Kraftsamling för Framtidens Energi, SOU 2017:02. In Betänkande av Energikommissionen; Statens Offentliga Utredningar: Stockholm, Sweden, 2017.
20. Swedish National Audit Office. Bilaga 3: EU:s och Sveriges klimat- och energimål'. In Granskningar Inom klimatområdet 2009–2013, Slutrapport: Hållbar utveckling-klimat (RiR 2013:19); Riksdagens Interntryckeri: Stockholm, Sweden, 2013.
21. Leijonhufvud, G.; Henning, A. Rethinking indoor climate control in historic buildings: The importance of negotiated priorities and discursive hegemony at a Swedish museum. Energy Res. Soc. Sci. 2014, 4, 117–123. [CrossRef]
22. Nicol, F.; Humphreys, M.; Roaf, S. Adaptive Thermal Comfort. Principles and Practice; Routledge: London, UK; New York, NY, USA, 2012.
23. Van Hoof, J. Forty years of Fanger’s model of thermal comfort: Comfort for all? Indoor Air 2008, 18, 182–201. [CrossRef] [PubMed]
24. Engvall, K. Upplevt Inneklimat i Sex Energisnåla hus–en Jämförande Studie Mellan år 1 och år 5; Stockholmsprojektets boendeundersökning. Utredningsrapport nr 1997:2; Utrednings- och statistikkontoret: Stockholm, Sweden, 1997.
25. Henning, A. Can Qualitative Methods Support The Development of More Flexible and Energy Saving Thermal Comfort? In Proceedings of the Conference Proceedings (CD) for the International NCEUB-Conference ‘Comfort and Energy Use in Buildings: Getting Them Right’, Windsor, UK, 27–30 April 2006.
26. Stoops, J.L. The Physical Environment and Occupant Thermal Perceptions in Office Buildings. An Evaluation of Sampled Data from Five European Countries; Department of Building Services Engineering, Chalmers University of Technology: Göteborg, Sweden, 2001.
27. Bastholm, C.; Henning, A. The use of three perspectives to make energy implementation studies more culturally informed. Energy Sustain. Soc. 2014, 4, 3. [CrossRef]
28. Henning, A. Making Energy Interventions More Effective: Situation, Interaction, and Precondition. Int. J. Hum. Soc. Sci. 2015, 5, 9.
29. Liu, Y.; Dijst, M.; Geertman, S.; Cui, C. Social Sustainability in an Ageing Chinese Society: Towards an Integrative Conceptual Framework. Sustainability 2017, 9, 658. [CrossRef]
30. Jenkins, K.; McCauley, D.; Heffron, R.; Stephan, H.; Rehner, R. Energy justice: A conceptual review. Energy Res. Soc. Sci. 2016, 11, 174–182. [CrossRef]
31. O’Sullivan, K.; Barnard, L.T.; Viggers, H.; Howden-Chapman, P. Child and youth fuel poverty: Assessing the known and unknown. People Place Policy 2016, 10, 77–87. [CrossRef]
32. Walker, G.; Day, R. Fuel poverty as injustice: Integrating distribution, recognition and procedure in the struggle for affordable warmth. *Energy Policy* **2012**, *49*, 69–75. [CrossRef]

33. Day, R.; Walker, G. Household energy vulnerability as assemblage. In *Energy Justice in a Changing Climate, Social Equity and Low-Carbon Energy*; Bickerstaff, G., Walker, G., Bulkeley, H., Eds.; Zed Books: London, UK; New York, NY, USA, 2013.

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