A Personal Construct Psychology based investigation into a Product Service System for renting pushchairs to consumers

This paper explores how consumers construe a Product Service System (PSS) for the supply of pushchairs. A PSS is a system of products, services, networks of actors and supporting infrastructure designed to be more sustainable than traditional business models. PSS face an implementation challenge in consumer markets and this case based research explores some reasons for this. The study applies Personal Construct Psychology (in particular, Repertory Grid Technique) which has not previously been used in relation to researching PSS.

Results suggest that PSS might be difficult to implement in relation to pushchairs. Renting pre-used equipment may meet resistance because of a perceived risk that acquisition by this means might endanger infants. Participants in the study construed buying new products from specialist infant product shops as being the best way of acquiring them. Accordingly PSS providers may, for instance, have to implement certified quality assurance processes in order to reassure consumers.

Key Words:

Personal Construct Psychology; Product Service Systems; Pushchairs; Sustainable Consumption; Repertory Grid Technique

1. Introduction

Researchers across the fields of sustainable design, sustainable consumption and industrial ecology (among others) have been exploring the opportunities presented by Product Service Systems (PSS). PSS is an innovative means of product acquisition which, though not a sustainability panacea (Tukker and Tischner, 2006; Tukker, 2004; Tukker, 2015) is one of the possible solutions, out of a mix of innovations, that could lead to a more sustainable future (Cook, 2014). PSS are important as they could enhance the resource productivity of the economy and bring about resource efficiency (Mont, 2002). A PSS is "a system of products, services, networks of actors and supporting infrastructure that is developed to be competitive, satisfy customers and be more environmentally sound than traditional business models" (Mont, 2002, p.139).

Examples of PSS in consumer markets are car sharing companies such as Zip Car and bicycle sharing schemes such as the Santander sponsored scheme in London, UK (Catulli et al., 2013). PSS have been classified in a variety of ways, including Tukker's (2004) eight variants. However, the most popular taxonomy (cf. Hockerts, 1999; Cook et al., 2006) is:

(i) product orientated PSS, when service is added to a product owned by customers, such as in the case of maintenance contracts;
(ii) use orientated PSS, when customers access the use of a product without acquiring ownership of it, such as in the case of car clubs; and
(iii) result orientated PSS, when customers acquire results, such as in the case of call answering services (Hockerts, 1999; Cook et al., 2006).

These three types of PSS are said to have different advantages in terms of resource efficiency, with marginal benefits being gained for product orientated PSS, to considerable benefits for result orientated PSS (Tukker, 2015). Use orientated PSS is said to promise factor two efficiency gains i.e., large gains (Cook, 2014; Tukker, 2015), and therefore it is a likely target for further research.

However, in spite of their hoped for benefits, PSS are facing an implementation challenge (Vezzoli et al., 2015), especially in consumer markets as opposed to business to business contexts (Catulli, 2012; Rexfelt and Hiort af Ornäs, 2009). This challenge has been problematized as one of failure to gain diffusion in these markets (Mylan, 2015) and is matched by the paucity of research in PSS from the consumer studies perspective (Rexfelt and Hiort af Ornäs, 2009).

Research conducted in consumer markets includes Meijkamp's (1998; 2000) investigations into car clubs and Schrader's (1999) research relating to car sharing and launderettes. Methods used have included attitude surveys made through the lens of Rogers' (1995) Diffusion of Innovation theory, whilst Catulli (2012) and Catulli et al. (2013) used qualitative methods, including focus groups, to investigate how consumers view PSS, and Bardhi and Eckhardt (2012) operationalized a socio-cultural perspective, using ethnographic interviews as their method. Whilst qualitative methods can offer good insights they do not, of course, provide evidence of the views of a larger population. However, both quantitative and qualitative methods have been criticized because of the so-called "attitude behaviour gap" (Kalafatis et al., 1999) or "values action gap" (Shove, 2010) which occur when people behave in ways that are inconsistent with their stated attitudes and values.

Noting the lack of research into PSS using psychological perspectives in general and Personal Construct Psychology ("PCP", Kelly, 1955/1991) in particular, in this article the authors explore the utility of using PCP to study the diffusion of PSS. The authors' research question is: "How do consumers construe a PSS in the context of renting pushchairs?"

This paper is structured as follows: (i) the research on the relationship of consumers to PSS and remanufactured/refurbished products is outlined; (ii) the context of the study is explained; (iii) the conceptual framework adopted is explicated; (iv) the methodology used is described; (v) the findings are reported and discussed, and (vi) conclusions and directions for further research are offered.

2. Consumers, PSS and remanufactured products

This section reviews the literature on the relationship of consumers to PSS and the integration of remanufactured and refurbished products into rental based services. PSS are problematic because they require user sacrifices (Tukker, 2004). Without ownership rights to a product, consumers may feel that they have insufficient control over the products acquired via the PSS (Tukker, 2015) or that they cannot access them on demand (Schrader, 1999; Catulli, 2012). For example, cars accessed via a car club may not be available when they are booked by another user. Renting or leasing products as part of a PSS involves relinquishing ownership of them at the end of the rental period. This could be a problem for consumers, as ownership of products may help them construct their identity (Belk, 1988; Richins, 1994). By renting, consumers may also forego the right to personalize and customize products (Snare, 1972). Personalization is important for consumers for some products, as they construct their identity by personalising

them (Mugge et al., 2009). Bardhi and Eckhardt's (2012) research on the car club company Zip Car revealed that consumers considered renting cars a temporary solution (even a "distress purchase") and that they did not identify with the rented vehicles.

Using products that are refurbished or remanufactured may be perceived by consumers as having to make a further sacrifice, as they might prefer owning brand new products that don't have a "history" (Michaud and Llerena, 2010). Remanufacturing is often a necessary component in PSS offerings (Sundin et al., 2009). Remanufacturing is "a process of returning a used product to at least original equipment manufacturer (OEM) original performance specification from the customer perspective" (p.724). Importantly, such a process should be supported by a quality assurance process and a warranty at least equal to that of a new product (Sundin et al., 2009).

Mont et al. (2006) proposed a PSS which consisted of the provision of remanufactured pushchairs by way of renting them. That study suggested that consumers living in urban areas could be interested in the savings that might derive from accessing the use of a product through a PSS. However, that study left many questions unanswered on the potential reaction of consumers to remanufactured pushchairs.

To make them more suitable for PSS, products need to have certain characteristics, such as modularity (Linder and Williander, 2015) that would make them easier to remanufacture or refurbish. Canning (2006) found that consumers are vital links in the refurbishing/remanufacturing supply chain, as they have a role in returning the products in a timely way and in a condition acceptable to the supplier, for refurbishing or remanufacturing. In order to play their part in the remanufacturing/refurbishing process, consumers need information and education from suppliers (Canning, 2006). Canning's (2006) research, however, was not conducted in a PSS context. Consumers are generally willing to pay less for remanufactured and refurbished products than for new ones (Michaud and Llerena, 2010). However, Michaud and Llerena (2010) also found that information on the environmental benefits of remanufactured products, may incentivise consumers to pay as much for remanufactured products as for new ones.

Consumers may also be concerned about contamination and other health and safety issues that they believe could be associated with pre-used or pre-owned products (Catulli, 2012). A further concern is that remanufactured products may be of lower quality than new ones, so consumers may need evidence that these goods are as good as new (Michaud and Llerena, 2010).

Use of pre-owned and remanufactured products is also associated by some consumers with economic disadvantage and, potentially, a "stigma" might be attached to such goods (Williams and Widebank, 2006). Consumers may also be concerned with fashion currency and possible obsolescence of remanufactured and refurbished products (Linder and Williander, 2015; Cooper, 2004). Remanufactured products that are not in line with current fashion may be less attractive for fear of social disapproval (Cooper, 2004).

Finally, not all consumers are interested in remanufactured products (Michaud and Llerena, 2010) - they may simply want to own something that is brand new. However, a PSS based on remanufactured products may appeal to consumers who are interested in saving money (Linder and Williander, 2015) or in environmental benefits (cf. Linder and Williander, 2015; Shama, 1985; Craig-Lees and Hill, 2002).

3. The context of the study and type of PSS

The context of the present study is a collaborative Action Research project which involved a use orientated PSS pilot, namely a Government funded project dubbed "Re-Engineering Business for Sustainability" (REBUS). The project explored consumers' response to an infant equipment PSS based on pushchairs for rent, and deliberately designed to reduce resource use and satisfy demand. The PSS enabled rented pushchairs to be used sequentially by different users until the end of the lifespans of the pushchairs. In the case of this PSS, some of the pushchairs that were rented out were refurbished, and this was made explicit in communications with possible subscribers. In the refurbishing process, the pushchairs were thoroughly checked for defects, functionality was verified, and parts were replaced as needed. Refurbishment is a less radical process than remanufacturing, but full remanufacturing was not an option in this project because of funding limitations. However, professionally refurbished products might be *perceived* by consumers as being similar to remanufactured ones.

The partners involved in the project were a major manufacturer of infant car seats and pushchairs, who contributed a range of equipment to the project, and a parental charity which acted as an interface between the research team and the participants.

As part of the pilot project more than a thousand parents from across the UK were recruited to rent pushchairs (and car seats together with related accessories), paying a fee in advance for six months' use of the product, the amount of the fee varying with the product supplied. Although car seats were not the focus of the present research, there are some interesting

possible insights arising from their rental and some of these will be alluded to in this article. One of those insights was that the rental of car seats seemed to be far more successful (in terms of units rented) than the renting of pushchairs. This prompted the decision to investigate consumers' construing of a PSS based on pushchairs. It was felt that this exploration would yield telling information about the challenges to PSS implementation outlined by Vezzoli et al. (2015), not least because a pushchair is a far more complex piece of equipment to manufacture than a car seat, as it has many more parts and features. Pushchairs are also far more "on display" than car seats and the authors were interested in how consumers would feel about the "status" of using a rented piece of equipment, that is highly visible to both significant others and the general public - especially in the light of research by Thomsen and Sørensen (2006) in this regard.

The research undertaken by Mont et al. (2006) into pushchairs offered as a PSS (cited in section 2 above), did not gather data about how consumers viewed the PSS. In the present study, the authors used a variety of methods to explore how a sample of people construed various ways of acquiring pushchairs, including renting them (i.e., the PSS mode of acquisition). From a marketing point of view, it makes sense to survey consumers who have *not* yet experienced PSS, as it is a relatively new way of providing a product. Of course, in the future, it would also be useful to research participants who have experienced a Product Service System. The next section explains the conceptual framework for the study.

4. Conceptual framework

The authors' research applied Personal Construct Psychology ("PCP", Kelly, 1955/1991 and used PCP methodologies (in particular, Repertory Grid Technique) to explore how participants "construed" different ways of acquiring pushchairs, including acquisition by way of a PSS. A person "construes" something by applying (usually at a very low level of awareness - i.e., not consciously) their bipolar personal constructs (e.g., *likely to be safe to use -v- may not be safe to use*) to a situation, thing or person. That is quite different from the general "attitudes" that a person (or a group of people) holds about a given issue, which will usually have a far lower predictive power because of the so-called "attitude-behaviour" gap (Kalafatis et al., 1999). How someone construes something determines how they will actually *behave* and this notion is central to PCP. Kelly (1955/1991) says: "The construing process may be said to govern all forms of behaviour, verbal and non-verbal, 'conscious' and 'non-conscious'" (p. 668). Construing as the determinant of behaviour is not merely a theoretical position, it forms the

basis of the professional practice of PCP in both clinical and non-clinical settings. For example, in the context of her (clinical) research, Fransella (1972) says: "It cannot be reiterated too often that how we construe an act, person, place or thing determines how we behave in relation to that act, person, place or thing." (p. 69). And, as a leading PCP practitioner states: "It should be stressed that constructs are not simply verbalised thoughts ... our behaviour itself is seen as an aspect of construing in that by 'behaving' we seek to test out our expectations of the outcome of an action." (Dalton, 1994, p. 16).The logical and theoretical implication to the personal construct approach to behaviour described above, is that for behaviour to change (e.g., for consumers to choose to acquire a product in a novel way such as by a PSS), *reconstruing* may well have to take place: "People construe themselves and their worlds and then act according to their construing (Landfield and Epting, 1987). They do not react directly to their physical worlds but to their interpretations of it... When interpretations are based on these created meanings, it is always possible to change them." (Viney, 1996, p. 78)

The relationship between construing and behaviour described above has mainly been explored in the clinical realm, but it applies equally to non-clinical contexts (see e.g., Fransella, 2003a; Winter and Reed, 2016). Exploring how a person or a group of people construe something in the necessary detail is no easy matter, and personal construct psychologists have developed an extensive range of methods specifically for doing this (see e.g., Caputi et al., 2012; Fransella, 2003b; Jankowicz, 2004). The next section explains the methods the authors used.

5. Method

To see how a sample of present, past and potential pushchair users construed acquiring pushchairs in different ways (including renting through a PSS) the authors conducted a "diagnostic research" survey (see e.g., Fransella, 1988; McGettigan et al., 2013; Reed and Page, 2016) using Repertory Grid Technique. Repertory grids are unusual instruments in that they contain both qualitative and quantitative data in the *same* inventory. They are not "off-the-shelf" questionnaires, but are individually designed to address the specific research question being asked. Their aim is to gather highly focused data relating to the construing of a given population towards a specific issue, in order to gain an in-depth understanding of why people are behaving as they are now and how they are likely to behave in the future, in a given context. The diagnostic research method is divided in three stages. First, the researchers elicit personal constructs using PCP qualitative methods. Then, those constructs are categorised and constructs representing those categories are incorporated into a grid format containing a rating

scale. Finally, the repertory grid thus created is used to gather quantitative data. The details of that process now follow:

Stage 1: This stage consisted of conducting 10 one to one structured, confidential interviews using PCP techniques to generate bipolar constructs (e.g., *hygienic -v- unhygienic*). The interviews were conducted with expectant mothers or women who already had young children. Participants were recruited through the parental charity independently of the pilot PSS. The purpose of the interviews was to elicit the bipolar "personal constructs" that a sample of people use to differentiate between various ways of acquiring pushchairs.

To elicit a representative sample of personal constructs from a homogeneous population in a given context, only small numbers of people need to be interviewed as people commonly apply similar constructs to the context in question. This proved to be the case in this study as evidenced by the fact that similar constructs emerged repeatedly from different interviewees.

The primary technique used in the interviews was the PCP technique known as the "Triadic Method" (Kelly, 1955/1991). This involves a participant being presented with three index cards (a "triad") at a time from a selection of cards. In this case there were 12 cards and on each card a different "element" (i.e., a different way of acquiring a pushchair) was written. The elements were:

Please insert Table 1 here

Interviewees were asked to think of ways in which two of the elements in the triad presented to them were alike, but different from the third. When they gave their answer (e.g., *hygienic*), they were then asked for the opposite in meaning to them (e.g., *unhygienic*) thus making a full bipolar construct i.e., *hygienic -v- unhygienic.*

To elaborate the meaning behind the construct labels, the PCP techniques of "laddering" (Hinkle, 1965) and "pyramiding" (Landfield, 1971) were also used in the interviews. Such questioning enables the interviewer to elaborate the meanings behind the constructs they elicit from the interviewee. A person's personal constructs do not exist in isolation, they are arranged in a hierarchical system (Fransella, 2016), with some being more important, value laden constructs ("superordinate constructs") and some being less important, more 'concrete' constructs ("subordinate constructs"). Laddering was used to elicit superordinate constructs, whilst pyramiding was used to elicit subordinate constructs. Laddering consists of asking "why" questions. For example: "You have said that you prefer pushchairs with large wheels

rather than small wheels. Can you tell me why you think this?" After being given the answer, the interviewer will then ask the interviewee for the opposite in meaning, thereby creating another bipolar construct. By continuing to use "why" questions in this manner (with appropriate variations of the wording of the actual questions asked), the interviewer can climb the "ladder" of constructs and the values that underlie a person's choice of pole for the initial construct, can thus be identified.

Pyramiding, in contrast, is about asking "how" and "what" questions to elicit more "concrete" meanings. For example, the construct *properly refurbished -v- poorly refurbished* may be elicited from an interviewee. In order to understand what the interviewee means by *properly refurbished,* they would be asked a question such as "How would you know that a pushchair has been properly refurbished?" They may reply "Because it has a certificate from someone reputable confirming that it has been". In order to get finer details, the interviewer may then ask "What sort of body would you regard as being reputable?" The interviewee may reply "Well, it would have to be from someone authorised by the manufacturer of the pushchair". For more detailed descriptions of laddering and pyramiding, see e.g., Stewart and Stewart (1981); Fransella (2003b).

The use of laddering and pyramiding also assists in the categorising process described in Stage 2, below, because the information these procedures elicit enables similarities and differences in the meaning of constructs to become apparent.

Stage 2: Categorising the bipolar constructs into "bipolar themes" to be used in the repertory grids. This was done jointly by the authors. Each of the constructs elicited in the one to one interviews was written on a separate record card and, after considerable discussion and negotiation, the cards were sorted into piles with similar meanings. An appropriate bipolar "theme" describing each pile was then decided on by the categorisers.

Stage 3: Designing the repertory grids and loading them onto a survey website. The website was accessed by participants through a link distributed via e-mail by the parental charity. Participants were made aware of the nature of PSS in the e-mails they were sent containing the link.

Repertory grids are a matrix form of questionnaire. The style of the matrix form used in the diagnostic research method, is to have the element titles as headers, each one on a separate page. Underneath there are rows consisting of the bipolar themes (the constructs), with a 7 point

rating scale being provided for each row. A reduced number of elements were used in the repertory grid than were used for eliciting the constructs. The number of elements was reduced for the following reasons:

(1) The authors thought that some of the elements were too similar to make it worth including them. It was decided that the following elements fell into this category:

- A pushchair bought from a friend (too similar to "Buying a pushchair from a neighbour")
- A second-hand pushchair bought through an advert in a newsagent's window. This was thought to be too similar to "Buying a second-hand pushchair on e.g., Facebook or eBay".

(2) The element "A pushchair lent to you by a friend" was considered to be too vague for use in the repertory grid, because too much additional information (i.e., the terms on which it was lent) would have been required for respondents to apply some of the constructs to it.

(3) The element "A pushchair you see dumped at a waste recycling centre that you take home". This element was omitted from the repertory grid because, though useful as an "extreme" mode of acquisition for the purpose of comparing and contrasting elements in the construct elicitation interviews, it was not considered as being likely to add useful information if it was included in the repertory grid - not least because it is probably a very unusual mode of acquisition of a pushchair.

Respondent fatigue was also a consideration in removing the elements in what was, in any event, a long questionnaire.

The one to one construct elicitation interviews not only generate constructs but provide information about the clarity of the wording used for the elements. Accordingly, the wording of the elements used in the repertory grids was amended to make them as understandable as possible to respondents who, in contrast to interviewees who participated in the one to one interviews, would not have an interviewer present when they were completing the online survey.

The elements used in the grid were:

Please insert Table 2 here

The constructs used in the grid were:

Please insert Table 3 here

Participants were asked to rate each of the elements on each of the constructs, using a 7 point rating scale. In this repertory grid there were 8 elements and 11 bipolar themes, so each participant could provide a possible 88 "cells" of ratings data. In addition, in order to get a measure of the relative importance of the constructs, participants were asked to rank the constructs in order of personal importance to them (equal rankings were not allowed). This combination of rating and ranking data enabled a very detailed understanding of participants' construing of the different ways of acquiring pushchairs, to be obtained. The questionnaire also contained several questions about demographic and other variables. These related to: gender; age; ethnicity; number of children in the participant's family; household income; pushchair ownership (and, if a pushchair was owned, the means by which it was acquired); whether the participant thought that hiring/renting a pushchair was a good idea; whether the participant had ever hired/rented a pushchair; whether the participant thought that renting a car seat was a good idea and whether the participant had ever hired/rented a car seat.

6. Construing of PSS by the consumer sample

A total of 166 participants commenced the online survey (22 males and 144 females). The number of people who were emailed a link to the survey was 9,039, giving response rate of 1.84%. The response rate was disappointing in spite of a reminder being sent. However, the parental charity sends out frequent emails to its membership and the authors understand that these emails often contain links to surveys. Accordingly, the authors wonder whether the regularity with which members are invited to take part in surveys, might have dissuaded people to become participants particularly if, as with the authors' survey, the subject matter may be seen by prospective participants as somewhat esoteric. The response rate was lower still for later items in the survey questionnaire, and only 86 participants completed all of the survey (a response rate of .95%). It is not known why the response rate deteriorated as participants made their way through the survey, but participant fatigue could have been a factor.

None of the mean ratings given for any of the sub-groups of the variables (e.g., income and ethnic background) were sufficiently different for them to be worth exploring further, so there will be very few references to these variables in this section. Before looking at the details of

how different ways of acquiring pushchairs were construed by the whole sample[1], in terms of the mean ratings given by participants, the relative rank ordering of the constructs will first be considered. The mean rank order of the constructs (n = 86) running from 1st (most important) to 11th (least important) is:

Please insert Table 4 here

Charts showing how the sample construed the various modes of acquiring pushchairs are given in the Figures below; these show the mean ratings given on each construct for the different ways of acquiring a pushchair (the "elements"). In order to illustrate the results as clearly as possible, the construct poles have, where necessary, been "reversed" so that all the "positive" poles are on the 7 side of the rating scale and all the "negative" poles are on the 1 side of the rating scale. This process does not alter the meaning of data, as long as both the ratings and the labels for the poles are reversed (Jankowicz, 2004). In addition, for presentational purposes only, the graphical layout used by Fransella (1988) has been adopted to better illustrate the bipolarity of the constructs on which each element has been rated. Accordingly, after "reversing" the constructs, the 1 to 7 point rating scale was converted into a -3 to +3 seven point rating scale, with zero representing the "4" on the original 1 to 7 scale. As the available space on the charts does not permit both labels to be shown, only the labels for the positive poles of the constructs are shown on the charts (i.e., on the vertical axis). The bars on the right hand side of the chart show the mean positive ratings, whilst the bars on the left hand side show the mean negative ratings for the opposite poles of the constructs.

Figure 1

(n = 129)

Please insert figure 1 here

For example, in Figure 1 "Buying a brand new pushchair online" is positively construed on the construct *you know the condition of the pushchair when you acquire it* (as opposed to *not*

[1] As the sample size varied in respect of the ratings given for different elements, the number of participants responding for each element, is shown next to the respective chart.

being sure of its condition when you acquire it). However, on another construct it is somewhat negatively construed, in that it is seen as *not* being a particularly *cheap way of acquiring a pushchair*.

Figure 2

(n = 117)

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Figure 3

(n - 111)

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Figure 4

(n = 105)

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Figure 5

(n = 101)

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Figure 6

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Figure 7

(n = 98)

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Figure 8

(n = 98)

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7. Discussion

The results reported above relate to how the whole sample construed different ways of acquiring pushchairs. The results need to be read with the caveat that the survey sample was not representative of potential pushchair acquirers in general. For example, nearly all of the participants were white and middle class and, in addition, it was only possible to recruit females for the one to one construct elicitation interviews, as only females put themselves forward for the interviews. It is possible that male interviewees would have generated some different constructs. In addition, the data does not contain any information about *who* in a family makes the ultimate decision over pushchair acquisition. Some of the literature, e.g., Thomsen and Sørensen (2006) suggests that women have a predominant role in making this decision. Also, the relatively small number of participants in the various sub-groups of the variables, might well have occluded significant differences between the ratings. Finally, the survey did not explore the effect of normative/cultural influences on the decisions people make in relation to acquiring pushchairs. Nevertheless, the findings could be fairly representative of a discrete population of white, female, middle-class subscribers to the parental charity the authors worked with, who made up the great majority of survey participants.

The first part of this section will focus on how participants ranked the relative importance of the constructs. The three *most* important constructs (i.e., the ways of construing how pushchairs can be acquired) were, in order of importance:

1st: *Being sure that the pushchair is safe to use*

2nd: *Being sure that the pushchair is in a hygienic state*

3rd: *Knowing the condition of the pushchair before you acquire it*.

The three *least* important constructs were:

9th: *Difficulty of acquiring the pushchair*

10th: *Being an environmentally friendly way of acquiring the pushchair*

11th: *High/low status way of acquiring a pushchair*.

These rankings need to be borne in mind when considering the details of how participants construed the different ways of acquiring pushchairs. So too must the element "In your opinion, if you acquire a pushchair in the best possible way", as that gives an indication of the way of acquiring a pushchair that participants would ideally like - a benchmark, in other words.

As the focus of the survey was on PSS, this section of the report will concentrate on the element "Hiring/renting a fully refurbished pushchair from a pushchair company" (see Figure 6). In an earlier part of this section the authors listed the most important constructs for the sample. The mean ratings given on those constructs for this element indicate that participants construed hiring/renting a pushchair as follows:

1. *They don't really know if you can be sure that a rented pushchair is safe to use*
2. *They are not certain that you can be sure that a rented pushchair is in an hygienic condition*
3. *They are not really sure what condition a rented pushchair will be in before you acquire it*

Participants' concern about the safety and hygienic condition of a refurbished pushchair supplied as part of a PSS is perhaps not surprising, given the advice against renting pre-used baby products provided by expert advisers such as the NHS and the Baby Product Association (Baby Product Association, 2014; NHS) and the findings by Michaud and Llerena (2010) and Catulli (2012). If they were confirmed by further research, these indicators suggest that acquiring a pushchair by way of PSS may not be one of the more attractive ways of acquiring a pushchair. That said, it has to be borne in mind that participants would probably have a limited understanding of the hiring/renting process, simply because of its novelty in relation to this type of product. That very novelty may set a challenge to PSS diffusion for this type of product. This finding appears to corroborate previous research, namely that fear of careless use by previous renters colours the construing of a product acquired by way of a PSS (cf. Bardhi and Eckhardt, 2012; Catulli, 2012; Michaud and Llerena, 2010). Indeed, according to the data gathered in the present study, on the issues of safety and hygiene, renting a pushchair from a pushchair company (see Figure 6) doesn't really rate any better than acquiring a pushchair from a neighbour (see Figure 4) - which, presumably, is also likely to be a much cheaper way of acquiring a pushchair. When considering these findings, the reality of the existence of a large second-hand market for pushchairs needs also to be borne in mind.

However, safety and hygiene are matters on which a respected manufacturer of pushchairs may well be able to provide comfort e.g., by certifying the condition of the refurbished product, and participants seem to think that renting a pushchair *means that you do have somewhere to go back to if there is a problem with the pushchair*.

The relatively low importance given by consumers to having *freedom to do what they want* with the pushchair (e.g., to customise the pushchair in one way or another) contrasts with the literature cited above, relating to the apparent desire of consumers to personalize and customize products (Snare, 1972; Mugge et al., 2009).

Participants see renting a pushchair as being one of the more environmentally friendly ways of acquiring a pushchair (see Figure 6). As the mean rating on the element "In your opinion, if you acquire a pushchair in the best possible way…" suggests that participants also think that the best way of acquiring a pushchair includes doing so in a "green" way (see Figure 8). That being so, it might be thought that renting a pushchair would be attractive. However, "greenness" may be unlikely to greatly influence the way in which participants would actually acquire a pushchair. That is because the means of acquisition that is closest to the "best" way of acquiring a pushchair (Figure 8), is buying a brand new one from a baby products shop (see Figure 2), even though participants see this as being the *least* environmentally friendly mode of acquisition. Whilst this might be taken as confirming the so-called attitude-behaviour gap (cf. Kalafatis et al., 1999), the construing of participants may well be consistent with their likely behaviour because, relatively speaking, the issue of "greenness" is almost the least important issue (construct) to them, when considering the way in which to acquire a pushchair (see Table 4). From a PCP point of view, the most important constructs are crucial in understanding a person's complex decision making process (Caputi et al, 2012; Shaw and McKnight, 1981). It is a person's "juggling" of the relative importance of their constructs that has to be unravelled in order to understand why a person is making a decision which, at first sight, may seem to contradict an attitude they have said they hold.

Of those who said they had owned a pushchair at some time (n = 126) 65 had acquired the pushchair new from a shop and 35 online. Only one person said that they had rented a pushchair via an on line source. In an age where buying on line and renting products are becoming more common (Belk, 2014b; Belk, 2014a; Slee, 2015) this could be relevant, it may be that consumers will really want to see this type of product before they acquire it. This may reflect the high ranking of the construct *knowing the condition of the pushchair before you acquire it*.

Sixty one participants in the sample thought that renting a pushchair was a good idea (n = 155) but only 34 participants thought that renting a car seat was a good idea (n = 155). Bearing in mind that in the pilot PSS project, renting car seats seems to have been much more popular than renting pushchairs, future research could be directed at finding out if and why this apparent contradiction has occurred. In addition, it may be that in regard to car seats other issues (e.g., the ability to "upgrade" the seat as the child gets older) come to the fore. Finally, the difference between the number of participants who said they thought that renting a pushchair was a good idea and the sole actual renter could, perhaps, be seen as an example of attitude behaviour gap. It would be interesting to see how this apparent gap might be explained by exploring in more detail the construing of participants in the way described above i.e., in the paragraph that discusses the point that renting pushchairs is seen as a green, but also an unlikely choice of mode of acquisition.

8. Conclusions and indications for further research

The findings of this study suggest that PSS for renting pushchairs might be difficult to deliver successfully. Participants viewed ownership of pushchairs purchased through "traditional" retailers or online, as the best options in respect of the two most important constructs, namely those relating to safety and hygiene. On these constructs, none of the other modes of acquiring pushchairs came close to being construed in the ways that participants saw as being the best ways of acquiring a pushchair. Although sixty one participants saw renting a push-chair as a good idea in the general sense, this may be unlikely to be actioned because renting is not positively construed on these critical constructs. This indicates concerns that go well beyond matters relating to control that were noted by Tukker (2015).

As buying a brand new pushchair from a baby products shop was seen by participants as being closest to the best way possible of acquiring a pushchair, it is conceivable that pushchairs *rented* through a baby products shop might mitigate some their concerns e.g., because they may regard the more personal relationship between them and the supplier as important. Whether or not that is the case, the very high importance attached to safety and hygiene suggests that PSS providers of pushchairs will probably need to both implement robust refurbishment processes and certify that such processes have been undertaken, to reassure potential renters of the safety and condition of the pushchairs they are offering.

In the light of the foregoing, marketing communications used to promote PSS will probably need to detail and certify the quality controls that have been implemented, and to guarantee the

safety and hygiene of refurbished products, whilst emphasizing that robust refurbishment processes take place after each rental of the pushchair.

The findings also suggest that contrary to the indications given in previous research (Manzini and Vezzoli, 2003; Manzini and Vezzoli, 2005) advertising the expected environmental benefits of PSS may be unlikely to attract consumers, as the construct *being an environmentally friendly way of acquiring a pushchair*, is ranked as the second least important issue in relation to acquiring a pushchair. Also, when looking at the construct ratings for the "Best possible way of acquiring a pushchair" element, this construct is given the second least positive rating, supporting the view that participants seem to care little about this issue, in the context of how they acquire pushchairs.

As mentioned above, in the pilot PSS, rentals of car seats by the manufacturer were relatively more successful than pushchair rentals. Although the two types of rental were not conducted in conditions where the numbers of rentals could be properly compared, this could be an interesting indicator for further research. If such research found that car seats are indeed a more attractive prospect than pushchairs for PSS, it would be useful to find out why consumers construe renting the two products differently.

The amount of data gathered in a diagnostic research survey is extensive. It is hoped that even this limited study will have demonstrated that by using repertory grids it is possible to get a detailed understanding of how consumers view different ways of acquiring pushchairs. Further research could look at how consumers construe the use of PSS for a range of different products and compare how they construe the suitability or otherwise of PSS for those products. Such a study could help to develop an instrument by which an initial indication of the suitability (or otherwise) of PSS for a given product, could be gained.

More research could also be directed at studying the attitude-behaviour gap and the PCP concept that construing is the determinant of behaviour. Such research could lead to a better understanding of why people often say one thing, but then behave in a quite different way.

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Table 1 - Elements used to elicit constructs

1	A brand new pushchair bought off a website
2	A pushchair bought from a friend
3	A fully refurbished pushchair that is rented to you by a pram company
4	A second-hand pushchair bought on eBay
5	In your opinion, the ideal way to acquire a pushchair
6	A pushchair used by another child in your family (a “hand-me-down”)
7	A second-hand pushchair bought from a neighbour
8	A pushchair you see dumped at a waste recycling centre that you take home
9	A pushchair acquired through an NCT “nearly new” sale
10	A brand new pushchair bought from a specialist pram shop
11	A pushchair that is lent to you by a friend
12	A second-hand pushchair bought through an advert in a newsagent’s window

Table 2 - Elements used in the Repertory Grid

1	Buying a brand new pushchair online
2	Buying a brand new pushchair from an infant products shop
3	Buying a second-hand pushchair on e.g., Facebook or eBay
4	Buying a pushchair from a neighbour
5	Acquiring a pushchair that has been used by another child in your family or from a friend (a hand-me-down)
6	Hiring/renting a fully refurbished pushchair from a pushchair company
7	Acquiring a pushchair at an NCT nearly new sale
8	In your opinion, if you acquire a pushchair in the best possible way.....

Table 3 - The constructs used in the Repertory Grid

1	Means that you know what condition the pushchair is in before you acquire it -v- Means that you cannot be sure what condition the pushchair is in before you acquire it
2	Is not an “environmentally friendly” way of acquiring a pushchair -v- Is an "environmentally friendly" way of acquiring a pushchair
3	Means that you are doing the best you can for your child -v- Means that you may not be doing the best you can for your child
4	Means that you don't have anywhere to go back to if there is a problem with the pushchair -v- Means that you do have somewhere to go back to if there is a problem with the pushchair
5	Means that you cannot be sure that the pushchair is coming from a source that you can trust -v- Means that you can be sure that the pushchair is coming from a source that you can trust
6	Means that you can do what you like with the pushchair -v- Means that you cannot do what you like with the pushchair because it is going to be handed over to someone else
7	Could be a complicated way of acquiring a pushchair -v- Is probably an easy way of acquiring a pushchair
8	Is likely to be an expensive way of acquiring a pushchair -v- Is likely to be a cheap way of acquiring a pushchair
9	Is going to be seen as a “high status” way of acquiring a pushchair -v- Is going to be seen as a “low status” way of acquiring a pushchair
10	Means that you can be sure that the pushchair is in a hygienic condition -v- Means that you cannot be sure that the pushchair is in a hygienic condition
11	Means that you can be sure that the pushchair is safe to use -v- Means that you cannot be sure that the pushchair is safe to use

Table 4 - Construct rankings

Ranking n = 86	Construct
1st	Being sure that the pushchair is safe to use
2nd	Being sure that the pushchair is in a hygienic state
3rd	Knowing the condition of the pushchair before you acquire it
4th	Doing the best for your child
5th	Pushchair coming from a source you can trust
6th	Having somewhere to go back to if there is a problem with the pushchair
7th	Cost of acquiring the pushchair
8th	Being able to do what you like with the pushchair
9th	Ease/Difficulty of acquiring the pushchair
10th	Being an environmentally friendly way of acquiring the pushchair
11th	High/low status way of acquiring a pushchair