

Preferring the One in the Middle: Further Evidence for the Centre-stage Effect

PAUL RODWAY*, ASTRID SCHEPMAN and JORDANA LAMBERT

Department of Psychology, University of Chester, Chester, UK

Summary: The location of an item influences a person's preference for that item, but it is unclear whether there is a preference for items located on the right or in the centre. In replication of the centre-stage effect, it was found that when participants were presented with a line of five pictures, they preferred pictures in the centre rather than at either end. This applies when the line of pictures was arranged horizontally or vertically and when participants selected from five pairs of identical socks arranged vertically. The results support the centre-stage explanation of location-based preference rather than the hemispheric difference or body-specific accounts. Implications of the effects of location on consumer choices and preference decisions are discussed. Copyright © 2011 John Wiley & Sons, Ltd.

INTRODUCTION

When choosing an item from a range of items, the choice that people make is influenced by the characteristics of the various items. However, one factor that influences choice, which people may not be aware of when making their decision, is the item's location. Several studies have found that an item's location can influence preference for that item (Wilson & Nisbett, 1978; Shaw, Bergen, Brown, & Gallagher, 2000; Valenzuela & Raghurir, 2009). It is possible that an item's location can influence choice in a wide range of situations, including consumer choices in shops and online, responding to questionnaires, selecting a member of a team and when choosing political candidates during television debates. As every object occupies a location and preference choices are made by people very frequently, it is important to understand how location can influence preference decisions (Shaw et al., 2000; Raghurir & Valenzuela, 2006; Valenzuela & Raghurir, 2009).

The exact nature of location-based preferences is equivocal, with some studies finding a preference for items on the right side (Nisbett & Wilson, 1977; Kruglanski, Chun, Sleeth-Keppler, & Friedman, 2005) and other studies a preference for items located in the centre (Christenfeld, 1995; Shaw et al., 2000; Raghurir & Valenzuela, 2006; Valenzuela & Raghurir, 2009). The aim of the current series of experiments was threefold: first, to determine which location increases preference for an item; second, to determine whether location-based preferences occur when the items are presented in a questionnaire; and finally, to test different theoretical accounts of location-based preferences.

The first evidence that location influenced preference was reported by Nisbett and Wilson (1977) who found that when 52 consumers were asked to make a choice between four identical nylon stockings arranged in a line, they preferred the rightmost stockings. The preference for stockings increased the further right they were positioned, with 12% of participants selecting the leftmost stockings, and 17%, 31%

and 40% of participants selecting stockings in the next three rightward positions (Wilson & Nisbett, 1978). Wilson and Nisbett (1978) tentatively suggested that the right-side preference (RSP) was a temporal order effect rather than a position effect, with participants moving from left to right and selecting the last item in the line after all the options had been considered.

In replication of Nisbett and Wilson's study, Kühberger, Kogler, Hug, and Mösl (2006) conducted four experiments, which examined whether participants' introspections could predict the RSP before they completed the task. In addition to finding that participants had some ability to predict the RSP, they found that a trend ($p < .10$) toward an RSP only emerged when the items (identical shirts) were separated by 70 cm but no evidence of a side preference when they were separated by 1 cm. The separation of approximately 70 cm is similar (but smaller) to that used by Nisbett and Wilson (approximately 90 cm). On the basis of these results, Kühberger et al. suggested that the spatial separation of the items is crucial to obtaining the side preference and that if the separation is sufficient, then participants will show a preference for the last item considered.

A further replication of Nisbett and Wilson's study was conducted by Kruglanski et al. (2005) who proposed that a decision in Nisbett and Wilson's task was largely governed by two factors: the desire to make a good choice and the desire to reach a decision quickly. Kruglanski et al. predicted that the RSP would emerge when the participant's desire to reach a decision quickly gained precedence, because after considering the options (with people proceeding from left to right), it would be fastest to reach a decision by selecting one of the last items they considered. In one condition, the importance of making the best choice was increased by emphasising the accuracy of the choice. In a second condition, the need to make a quick decision was increased by putting the participants under time pressure. The results were in line with predictions, with 81% of participants choosing the two rightmost choices in the time-pressure condition and only 33% of participants choosing the two rightmost positions in the accuracy condition.

An alternative explanation of the RSP was proposed by Drake (1987) who suggested that it could be caused by the

*Correspondence to: Dr Paul Rodway, Department of Psychology, University of Chester, Parkgate Road, Chester CH1 4BJ, UK.
E-mail: p.rodway@chester.ac.uk

way emotions are differently lateralised in the hemispheres (see also Casasanto, 2009; Puccinelli, Tickle-Degnen, & Rosenthal, 2006), with the anterior region of the right hemisphere having a greater role in mediating negative emotions and anterior regions of the left hemisphere (LH) having a greater role in mediating positive emotions (Davidson, 1984, 1992). If the LH has a greater role in positive affect, it might cause items on the right side to be viewed more positively (Reuter-Lorenz & Davidson, 1981) and therefore promote the RSP. This is because items viewed on the right side will have a greater tendency to go to the LH, even in free view situations (Jansari, Tranel, & Adolphs, 2000), and orienting attention to the right of space is believed to activate the LH (Kinsbourne, 1970). In support of this interpretation, it has been found that emotional faces presented on the right are perceived more positively than when presented on the left (Davidson, Mednick, Moss, Saron, & Schaffer, 1987; Natale, Gur, & Gur, 1983; Jansari *et al.*, 2000) as are cartoons (Dimond, Farrington, & Johnson, 1976) and neutral faces (Rodway, Wright, & Hardie, 2003). Hemispheric differences in emotional processing have also been used to explain the right-seat preference in cinemas (Okubo, 2010), and there is therefore a range of evidence in favour of a hemispheric asymmetry explanation of the RSP.

A further possible cause of the RSP is that it is a product of the tendency to associate the right side with good things and the left side with bad things (see McManus, 2002 for a review). The idea that an association between right and good (and left and bad) can influence location-based responses has been extensively examined by Casasanto (2009) who proposed the body-specificity hypothesis (see also Phaf & Rotteveel, 2009; Beilock & Holt, 2007; Cretenet & Dru, 2004, 2009), which suggests that the way people interact with the world influences their thoughts about the world. Because right-handers respond more to the world with their dominant right hand, they learn to make associations between the right side of space and positive attributes and the left side of space with negative attributes, whereas left-handers form the opposite association. In a series of experiments using a forced-choice task with two locations, Casasanto found that right-handers were more likely to place items with positive attributes (e.g. a good animal) in a box on the right side and items with negative attributes in a box on the left side, whereas left-handers did the opposite and placed positive items on the left side. On the basis of these findings, Casasanto suggests that the RSP might be a product of right-handers being more numerous in the population and in the sample used in Nisbett and Wilson's study. As explained by the body-specificity hypothesis, right-handers associate the right side with positive items, so they might have viewed items on the right as more preferable.

Other evidence, from the field of consumer psychology, suggests that instead of an RSP, there is a preference for items located in the centre of an array (Christenfeld, 1995; Shaw *et al.*, 2000; Raghbir & Valenzuela, 2006; Valenzuela & Raghbir, 2009). In the study of Kühberger *et al.* (2006), when the participants were asked to predict what results would be obtained, they predicted that there might be a bias toward choosing items in the centre, suggesting that they had

reasons for thinking that the central items would be preferred. In relation to this, Raghbir and Valenzuela (2006) found that when people decided to retain or eliminate a participant from a group, the people who occupied central positions were less likely to be eliminated. They termed this the 'centre-stage' effect and suggested that people's choice decisions are guided by the heuristic that 'important people occupy the middle'. They examined data from the television show 'The Weakest Link' and found that viewers overestimated the performance of people in central positions and overlooked their errors, causing them to be less likely to be eliminated. This suggested that viewers were not simply paying more attention to people in the centre but that central positions are believed to be occupied 'by good (or important) people' (Raghbir & Valenzuela, 2006, p. 70). In a further series of experiments, Valenzuela and Raghbir (2009) found that the centre-stage effect generalised to beliefs about products, with products in the centre (of a line of three) viewed as most popular and chosen most often.

Valenzuela and Raghbir's (2009) results replicate those of Christenfeld (1995) and Shaw *et al.* (2000) who also found a preference for items in the centre. Shaw *et al.* showed that participants had a much greater tendency to select the middle highlighter pen from a set of three similar pens, and they proposed that an attentional focus towards the central item might cause the central preference. However, Valenzuela and Raghbir (2009) used indirect measures of attention, such as memory and visualisability of central items, and found that memory was less accurate for items in the centre position. They therefore concluded that the evidence was more consistent with a centre-stage heuristic causing the preference for central items rather than an effect of attention.

It is apparent from the literature that different studies have obtained different location-based preferences. Despite there being several potential explanations of the RSP and substantial evidence for a rightward bias when the choice is between two options (e.g. in emotion and body-specific studies), the original RSP reported by Nisbett and Wilson has not been extensively replicated. Moreover, when choosing from three or more items, the evidence for a preference for items occupying the centre is more consistent. Therefore, the first aim of the current study was to examine which location promotes preference. It was believed that this would enable a greater understanding of the causes of location-based preferences and the circumstances under which an RSP or a central preference may emerge. A further aim was to examine, for the first time, whether location-based preferences can be obtained for items arranged in a questionnaire. It was reasoned that if certain locations promote preference (centre preference, or the RSP) and this is caused by body-specific effects, or a centre-stage heuristic, or hemispheric differences in emotion, then location-based preferences might also emerge when participants have to select between items arranged in a questionnaire (rather than on a table). In addition, as items are often selected in questionnaires (and from booklets, catalogues and screens), it examined the possibility that the effects of location on preference would be obtained in a much wider range of presentation formats.

EXPERIMENT 1

Introduction

This first experiment examined the effects of item location on item preference by using a questionnaire where each choice question consisted of five pictures arranged in a line. Nisbett and Wilson used identical real stockings where participants might have thought they were using subtle differences in the colour and texture of the stockings to guide their choices. As these attributes are not present in pictures, using identical pictures was likely to have caused participants to question the aim of the study and potentially make random responses. Therefore, it was decided to use similar pictures of the same item, or type of item, (e.g. five pictures of butterflies, the same breed of dog, the same waterfall) arranged in a line. As the pictures were different, but similar, it was expected that preferences for particular pictures would emerge but that such preferences might not eliminate potential effects of item location on item preference.

Rather than having only four items, as in Nisbett and Wilson's study, a central option was included to test the possibility that a central location might promote preference more strongly than other locations (e.g. Valenzuela & Raghurir, 2009). If the centre-stage heuristic operates, then there should be increased preference for items located in the centre resulting in a significant quadratic trend in the data. With the recent findings of Valenzuela and Raghurir, and those of other studies using a central location, we predicted that there would be an increased preference for items located in the centre.

The alternative theoretical accounts of location-based preference provided by the body-specific and hemispheric explanations predict different results from the centre-stage account. To test predictions derived from the body-specific hypothesis, we used right-handed participants and manipulated the preference question, with half of participants asked to choose the item they most preferred and half of the participants the item they least preferred. If, as suggested by the body-specific account, an RSP is caused by an association between right and positive, in right-handers, then they should have a bias towards the right when selecting the item they most prefer. This should result in a significant linear trend with increased preference for items on the right. If right-handers also associate the left with negative attributes, then there should be a tendency for them to select the left side when asked to select the item they least prefer. This should also result in a significant linear trend but with the items on the far left chosen more frequently as the least preferred items. The hemispheric activation account of location-based preferences would predict the same linear trends as the body-specificity account, with left hemisphere activation (and an RSP) when making the most prefer choice and right hemisphere activation (and a left-side preference) when making the least prefer choice.

Participants

One hundred right-handed participants (65 females and 35 males) from the University of Chester and South Cheshire College (mean age = 22.3; $SD = 5.15$), completed the

questionnaires. Handedness was determined by self report as this has proved to be a very accurate and reliable measure of handedness (Casasanto, 2009). Fifty participants completed the 'most prefer' questionnaire, and 50 completed the 'least prefer' questionnaire, with 10 participants completing each of the five different versions of the questionnaires.

Materials

The questionnaire consisted of 17 questions, and each question consisted of five pictures arranged in a line. The pictures in each question were different examples of the same item, or type of item, and came from picture databases (<http://www.theperfectpicture.org.uk/> and Google images). They were selected to be similar to each other, to reduce actual differences between items, whilst also being distinct enough to provide genuine choice. Examples included pictures of butterflies, specific breeds of dog (e.g. five border terriers), scenic views, flowers, roses, autumnal trees, tropical beaches, waterfalls and wolves. The pictures were printed in greyscale to eliminate effects of colour on preference and make the images even more similar to each other. Each picture was 2.3 cm wide and 2.01 cm high. The picture presented at location 1 was positioned 1.3 cm from the left edge of the page, and each picture was separated by 1.5 cm. The picture at location 5 was positioned 2 cm from the right edge of the page (A4 paper, 21 × 29.7 cm).

Depending on the condition participants were allocated to, above each line of five pictures was the statement 'Which of these do you most prefer?' or 'Which of these do you least prefer?'. The words 'most prefer' and 'least prefer' were presented in bold. There were three questions on the first five pages and two questions on the last page.

To examine the effect of item location independently from item preference, the location of the items was counterbalanced, using a Latin square, across five different versions of the questionnaire. Each new version was constructed by moving the items one position to the left [or to the end of the line (location 5) if they were previously at location 1] so that each item was presented in each location equally often across participants.

Procedure

The participants were approached and asked whether they would be willing to participate in the study. They were told that their participation was voluntary and that they had the right to withdraw at any time. They signed a consent form and then completed the questionnaire.

Results

The mean percentage choice of items at each location for the 'most' and 'least' prefer questionnaires is presented in Figure 1. The data show greater selection of 'most prefer' items when they are located in the centre than at either end of the line and slightly greater selection of 'least prefer' items when they occupy location 5.

To examine the prediction that items in the centre would be most preferred, we conducted a trend analysis on the

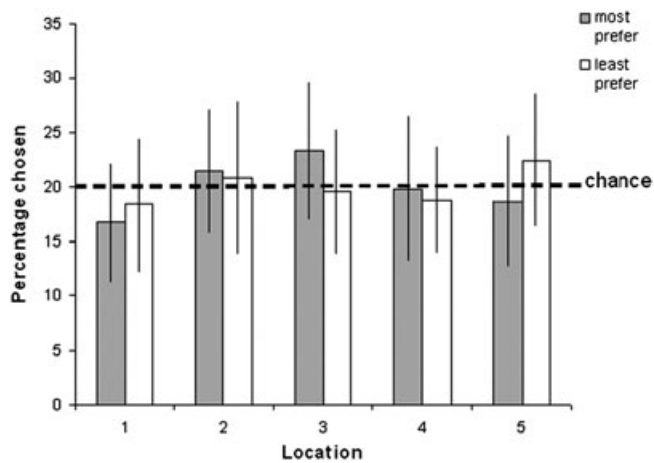


Figure 1. Mean percentage choice of items at each location for the ‘most prefer’ and ‘least prefer’ questions in Experiment 1. Bars represent 95% confidence intervals

preference data with Location (1, 2, 3, 4 and 5) and Preference question (‘most prefer’ and ‘least prefer’) as factors. For the quadratic trend, there was a significant interaction between Location and Preference question, $F(1, 98) = 5.48, p = .021, \eta^2 = .053$. A trend analysis for the ‘most prefer’ question revealed a significant quadratic trend, $F(1, 49) = 8.3, p = .006, \eta^2 = .15$, reflecting higher preference for items in the centre and lower preference for items at the two end locations (see Figure 1). In contrast, for the ‘least prefer’ question, the analysis of trends was not significant.

To ensure that centre choice did not simply indicate indifference to similar items, we examined the effect of individual items on choice decision. A series of 1×5 chi-squared analyses was conducted for responses to each question (see Table 1). For the ‘most prefer’ question, significant preferences for individual items were demonstrated for 16 out of the 17 questions. Similar strong preferences were also obtained for the ‘least prefer’ question with participants

showing significant preferences for individual items in all but two questions. These results show that the participants were not choosing items randomly or selecting the central option because of indifference, as has been suggested to occur on some rating scales (see Kulas, Stachowski, & Haynes, 2008), but were choosing the items based on their specific preferences. Recall that we used item-to-location counterbalancing. Thus, it appears that the centre-stage effect emerges because of a location-based preference and not as a result of indifference.

Discussion

When participants chose the item they most preferred, there was a significant trend for participants to select an item located in the middle position rather than the end positions. This replicates the centre-stage effect (Valenzuela & Raghubir, 2009; Shaw et al., 2000), but in a completely different task, using pictures rather than products and a questionnaire rather than real items. When choosing the least preferred item, the item’s location did not significantly influence preference. There was no RSP for either choice decision. If anything, the numerical trend was in a direction opposite to those predicted by the body-specific account in the ‘least prefer’ condition, with a non-significant numerical trend towards right choices.

These results show that item location influenced item preference and that the effect of location depends on the choice being made. The lack of evidence for an RSP is likely to be due to the differences between this study and the research reported previously, including the fact that the items were presented simultaneously (rather than being considered in sequence), a different presentation format was used and the items were not identical. The results therefore do not question the validity of the RSP but suggest that it may only be present in limited circumstances and does not transfer to questionnaires or when non-identical items are used.

Table 1. Percentage choice of each item for the 17 questions in the ‘most’ prefer and ‘least’ prefer questionnaires in Experiment 1

Question	Preference									
	Most					Least				
	1	2	3	4	5	1	2	3	4	5
1 Butterflies	38	6	28	8	20	10	6	8	68	8
2 Butterflies	10	14	18	54	4	36	24	18	4	18
3 Flowers	50	6	16	14	14	2	30	28	10	30
4 Mushrooms	20	10	32	6	32	26	2	8	54	10
5 Fields	32	8	18	26	16	8	54	10	12	16
6 Terriers	8	6	24	12	50	26	20	12	34	8
7 Butterflies	42	38	6	6	8	4	0	10	36	50
8 Roses	16	18	8	32	26	68	14	4	2	12
9 Island	20	42	12	8	18	12	16	34	24	14
10 Swans	10	12	10	20	48	30	44	18	8	0
11 Rock forms	18	26	28	8	20	6	30	14	34	16
12 Swamp	12	24	28	10	26	8	16	22	42	12
13 Horses	50	18	10	10	12	20	12	16	28	24
14 Trees	6	14	38	20	22	78	2	4	8	8
15 Waterfall	34	20	24	8	14	0	24	4	62	10
16 Weimaraners	34	8	46	4	8	20	38	6	18	18
17 Wolves	24	24	32	10	10	12	4	32	32	20

Importantly, the results also do not support potential explanations of how location might influence item preference in this task. For example, the body-specificity hypothesis and the hemispheric hypothesis do not appear able to explain why the middle location resulted in an increase in preference for items. In addition, the effect does not appear to be caused by participants simply selecting the middle item because of indifference to the questions, as has been suggested to occur for questionnaires (e.g. Kulas et al., 2008). Analysis of item preferences showed that for each question, specific items were consistently preferred despite the similarity of the five items, showing that the participants were making decisions based on the features of the individual items (in addition to being influenced by the item's location). Therefore, Valenzuela and Raghbir's (2009) centre-stage account remains the most convincing explanation of these results.

EXPERIMENT 2

Introduction

The second experiment examined the effects of array format on location-based preferences. It examined whether the tendency to prefer the item located in the centre extended to vertically arranged items. Although Experiment 1 did not find evidence that the effect of location on preference was caused by body-specific associations, it is possible that it is influenced by universal semantic associations between locations and attributes. As Casasanto (2009) proposes, in vertical arrays, top positions are universally associated with positive attributes and bottom positions with negative attributes. If this association influences location-based preferences, there should be a significant linear trend to prefer items in higher positions when the items are arranged vertically (see also Chandon, Hutchinson, Bradlow, & Young, 2009). However, if the centre-stage heuristic continues to determine the effects of location on preference in vertical arrangements, then there should still be a preference for items in the centre. Therefore, a significant quadratic trend should be obtained if the centre-stage effect operates for vertical arrangements in questionnaires.

Participants

Thirty five right-handed participants (20 females, 15 males) from the University of Chester (mean age = 21.1; $SD = 2.4$) took part in the study. Handedness was determined by self report.

Materials

The same questionnaire used in Experiment 1 was used in this experiment. However, the questions (again consisting of five pictures) were now arranged vertically as columns, with the first picture in the top location and the fifth picture in the bottom location. For each question, each picture was separated by 7 mm on the vertical axis. Each question was also separated from the next question by 4 cm. Three questions were presented on the first five pages (A4 paper), and two questions were presented on the last page.

Procedure

The experiment was identical to Experiment 1 except that the items in each question were arranged vertically and only the 'most prefer' questionnaire was used.

Results

The mean percentage choice of items at each location is presented in Figure 2. As can be seen, the participants show greater preference for items when they are located in the centre than when they are at the top or bottom locations.

To investigate the relationship between location and preference, we conducted a trend analyses on these data. There was a significant quadratic trend, $F(1, 34) = 5.32$, $p = .027$, $\eta^2 = .135$, with participants showing increased preference for items located towards the centre (locations 2, 3 and 4) and least preference for items at the top (location 1) and bottom (location 5) locations. No other effects were significant.

Discussion

In replication of Experiment 1, a significant quadratic trend was obtained with participants tending to prefer items in the centre rather than at the top and bottom locations. This demonstrates that the effect of location on preference is robust and generalises to the vertical arrangement of items. The results also suggest that, for questionnaires, the location-based preference effect is not caused by a universal association between the top position and positive attributes, as there was no evidence that the top position increased preference for items. These results support the centre-stage account and suggest that items occupying central locations are the most preferred even for vertical arrangements. Finally, the results suggest that the centre preference does not depend on specific left-to-right eye scanning patterns people have acquired from reading and which they may use when choosing from a horizontal line of items.

EXPERIMENT 3

Introduction

The previous experiment demonstrated that the centre-stage effect generalised to questionnaire items arranged vertically.

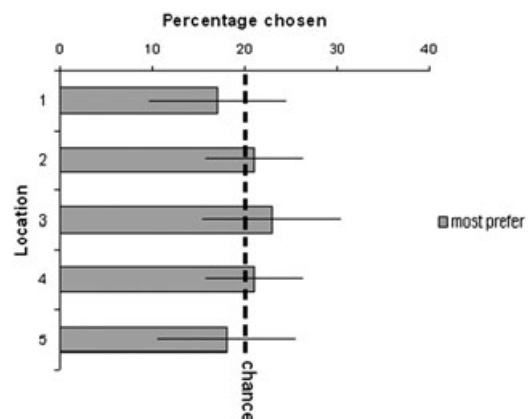


Figure 2. Mean percentage choice of items at each location in Experiment 2. Bars represent 95% confidence interval

It is possible, however, that because the items in the questionnaire were viewed by participants on a page placed horizontally, the association between height and positive attributes was eliminated and did not influence the preference decision. That is, with real items arranged vertically, the actual height of the items in space will be highly salient and may influence preference choices if higher locations are associated with positive attributes. Therefore, Experiment 3 tested whether the centre-stage effect was also present for real items arranged vertically or whether the universal association between greater height and positive attributes now determined preference decision.

In this study, the participants were presented with a vertical line of five identical pairs of white socks. To control for the possibility that participants might select items that were closest to eye level, the height of the display was manipulated. On the basis of the results of Experiment 2, it was predicted that the centre-stage effect would still operate with real items and that participants would prefer the central pair of socks irrespective of the height of the display.

Participants

One hundred participants (50 males and 50 females) from the University of Chester (mean age = 23.96; $SD = 8.68$) took part in the study. There were 92 right-handed and eight left-handed participants. Fifty participants (27 females, 23 males) chose the socks when the display board was in a high position and 50 participants (27 males, 23 females) chose the socks when the display board was in a low position.

Materials

The five pairs of white socks were attached to a sheet of A1 (59.4 × 84.1 cm; in portrait orientation) sized blue card. The blue card displaying the socks was then attached to a portable whiteboard and easel, which had adjustable height settings. The socks were displayed at two different heights (High display and Low display) during the experiment. For the high display condition (approximately at head height), the top edge of the sock display was 171 cm above the ground, and for the Low display condition (approximately at thigh height), the top edge of the sock display was 99 cm above the ground. For both display positions, the top pair of socks was placed 12 cm below the top edge of the display board, and the remaining four pairs of socks were positioned in a vertical line below this top pair, with each adjacent pair separated by 17 cm (measured from the centre of the pairs of socks).

Procedure

Each participant was tested individually in a quiet room. They were instructed that they would be presented with a vertical line of five pairs of white socks and they would be asked to point to the pair of socks that they most preferred. The experimenter recorded the participant's response. Half of the participants were presented with the High sock display and half were presented with the Low sock display.

Results

The number of participants choosing the pair of socks at each location for the High display and Low display conditions is presented in Table 2. As can be seen, the pattern of responding for the two display conditions was similar.

The total number of participants choosing pairs of socks at each location is presented in Figure 3. The data show that most participants chose the middle pair of socks and that the pairs of socks in the lowest two locations were chosen least.

A chi-squared test of goodness-of-fit was performed to examine whether the five identical pairs of socks at each location were equally preferred. This showed that preference for the five pairs of socks was not equally distributed ($\chi^2(4, N = 100) = 29.1, p < .001$, with the pair of socks in the centre most preferred and socks in locations 4 and 5 the least preferred. Additional binomial analyses showed that the choice of socks in the middle location differed significantly from chance (20%, $p < .05$), whereas the choice of socks in location 1 did not differ significantly from chance. Therefore, in replication of the centre-stage effect, the pair of socks in the middle location was the most preferred. An additional binomial analysis showed that the choice of socks at location 4 was significantly lower than chance ($p < .006$). Therefore, although preference was greatest for the central pair of socks, there was significantly reduced preference for the pairs of socks at the two lowest locations.

Discussion

This experiment demonstrated that the centre-stage effect obtained with items arranged vertically in a questionnaire generalises to real items arranged vertically. The results therefore add further support to the centre-stage effect.

Table 2. Number of participants choosing sock pairs at each of the five locations when the display was High or Low in Experiment 3

	Number of participants choosing socks				
	Loc 1	Loc 2	Loc 3	Loc 4	Loc 5
High	14	12	14	6	4
Low	12	13	20	4	1

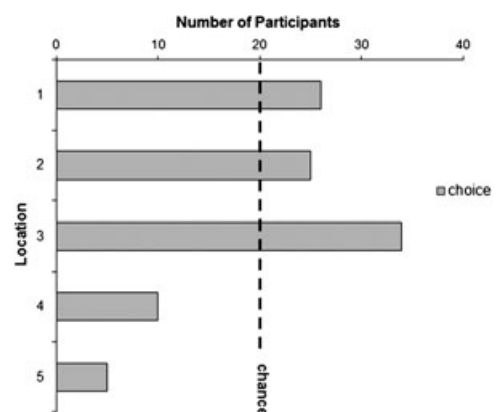


Figure 3. Number of participants choosing pairs of socks at each location in Experiment 3

However, although the central pair of socks was the most preferred, there was also a significant reduction in preference for pairs of socks at the lowest two locations, which did not depend on the actual height of the socks in space but on their relative height in the line of socks. This finding provides some support for the view that the universal association between height and attributes influences location-based choice, with a markedly reduced preference for the socks at the lowest two positions. It therefore appears that both the centre-stage heuristic and the height-association bias might have been operating to influence preference, so that there was a reduction in preference for the two lowest options and a concomitant increase in preference for the top two options, although preference was still greatest for socks in the centre.

It is possible that the reduced preference for the items at the two lowest locations emerged in this experiment, but not in Experiment 2, because of differences between the experiments. For example, in Experiment 3, identical items of clothing were used, but in Experiment 2, non-identical pictures of items were used. This could have changed the nature of the participant's decision, perhaps with the decision based on the quality of the product rather than on preference, even though participants were asked to choose by preference. A further possibility is that the relative location of the items in space was much more salient in Experiment 3 than it was for Experiment 2, which caused the association between greater height and positive attributes to influence choice in Experiment 3 but not in Experiment 2.

Taken together, the results of Experiment 2 and Experiment 3 suggest that the choice of real consumer items displayed in a shop may be more influenced by an association between height and attributes than are pictures of those items displayed on a screen or in a catalogue. However, the centre-stage effect appears to operate both with real items and pictures of items so that items in the centre remain the most preferred.

GENERAL DISCUSSION

This series of experiments shows that the location of an item presented in a questionnaire can influence preference for that item. The exact pattern of preference depends on the question asked, but when items are presented in a vertical or horizontal line, there is a clear tendency to prefer items at the centre and have lower preference for items at end positions. Therefore, the centre-stage effect reported by Valenzuela and Raghurir (2009) and others (Christenfeld, 1995; Shaw et al., 2000) was replicated on three occasions but with an entirely new task and in a vertical arrangement. It was also shown that the centre-stage effect with questionnaires was unlikely to emerge as a result of indifference.

When real items were presented vertically, there was evidence for a centre-stage effect. However, the results also indicated that an association between relative height and positive attributes can influence preference, with items at the two lowest locations showing reduced preference and an equivalent increase in preference for items at the two top locations.

Our results suggest that the RSP does not generalise to questionnaires and may not be present in most typical choice scenarios. As proposed by Kruglanski et al. (2005), the RSP could depend on items being considered in sequence and having limited time to make the decision (see also Valenzuela & Raghurir, 2009). When items are presented simultaneously, there is consistent evidence that the middle item is preferred (Shaw et al., 2000; Christenfeld, 1995; Raghurir & Valenzuela, 2006). The failure to obtain the RSP in the three experiments reported is also unlikely to be due to using five locations, and a centre location, rather than the 4 locations used by Nisbett and Wilson. This is because Christenfeld (1995) still obtained a preference for the two middle options when choosing which toilet cubicle from four identical cubicles to visit and when circling one x from a row of four identical x's.

The results of these experiments question the validity of the hemispheric (Drake, 1987) and the body-specific accounts (Casasanto, 2009) as universal theories of location-based preference because both theories are unable to predict choice behaviour when there are three or more locations. When there is a central location, there is a preference for items located in the centre, and it is not apparent how either theory is able to explain this preference. In choice situations consisting of two locations, body-specific associations can determine choice (Casasanto, 2009), but this does not seem to be the case when several locations are used. It seems that the circumstances under which body-specific effects influence location-based choices need to be explored in greater detail.

To conclude, the effects of location on preference observed in these experiments add to the body of evidence clearly demonstrating that location plays an important role in preference decisions. The results may also have many practical implications. If item location influences preference during the millions of purchasing choices that occur every day, it will be exerting a substantial influence on consumer behaviour. Moreover, choices from a range of options are made in many other contexts (e.g. legal and occupational), and it remains to be investigated whether the central preference remains with other formats and whether it extends to other types of decision. As choices play a crucial role in many aspects of human functioning, the role of location in choice has the potential to exert great influence.

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