

FOOD PHYSICS EVALUATION

TYNE & WEAR, AUTUMN 2009

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1. ABSTRACT

In October/November 2009 50,000 beer mats and 40,000 sandwich bags were distributed to pubs and bakeries across Tyne and Wear. They were printed with questions relating to food, drink and physics aimed at getting young people talking about physics. Face to face surveys were conducted to gather feedback on the campaign. Website surveys and statistics have also been evaluated.

The beer mats were most successful in engaging young people (under 35) and people who do not consider themselves interested in science. They were more likely to have read and discussed the questions. The lipstick and beer designs were the most popular overall. The straw design elicited the most text messages, followed by lipstick. These two designs were most popular with people not engaged with science. Extrapolation based on the survey data and the number of text messages received estimates that at least 3000 people read and discussed the beer mats during the campaign period.

Young people were less likely to have noticed the sandwich bags, but if they did notice them they were more likely to have read and discussed them. They also tended to find them more attractive and easier to understand than older people. The sandwich bags were not successful in engaging people who would not normally be interested in science, as they were much less likely to have noticed or read them, and none had discussed them with others. The biscuit and tea designs were the most popular. Rough estimates based on the surveys and number of bags distributed suggests that perhaps 1000 people read and discussed the sandwich bags during the campaign period.

There was increased traffic to Food Physics web pages during campaign period but it is impossible to say if this was due to beer mats/bags or due to increased visibility within IoP website through a link on the home page. A disproportionate number of people from Newcastle completed the online survey which may be an indication of increased traffic due to the campaign.

2. INTRODUCTION

The Institute of Physics (IoP) Food Physics campaign aims to bring positive experiences of physics to public audiences who do not expect to be exposed to physics. To this end, a series of physics-related beer mats and sandwich bags were distributed in the north east of England during Autumn 2009.

The campaign was live between 19 October and 15 November 2009, with the beer mats and sandwich bags being distributed to pubs and bakeries across Newcastle, Gateshead, South Shields and Sunderland. The campaign was supported by web content at www.physics.org/food-physics. The primary target audience for this campaign was young adults (approx aged 18 – 35).

This campaign is based on the physics of food and drink. It was developed by IoP in collaboration with the physicists at the Institute of Food Research (IFR) in Norwich. The supporting web content describes the physics behind each of the mats and bags and relates it to relevant, or up and coming research that physicists are doing into the area of food and drink.

This evaluation uses data from face-to-face surveys in North East pubs and bakeries and web statistics to analyse whether the campaign was successful in achieving its intended outcomes. These are;

Campaign intended outcomes:

- Reaching the target audience (young adults and people not normally interested in physics)
- Promoting discussion about physics in social groups
- Encouraging the target audience to visit physics.org
- Making physics interesting/accessible/relevant

The results and recommendations of this evaluation are presented in the following pages.

3. METHODOLOGY

3.1. DATA COLLECTION

Data collection for the evaluation involved a mixture of face-to-face surveys, online surveys and statistics.

Face to face interviews were conducted with staff and customers in pubs and bakeries. See Appendix 1 for a copy of the surveys. The surveys were carried out between 26 October and 13 November (weeks 2-4 of the campaign). Week 1 of the campaign was avoided to allow time for staff and regular customers to become familiar with the campaign.

To gain a representative sample approximately 20% of the pubs and bakeries participating in the campaign were surveyed. It was intended that the establishments chosen would represent a wide geographical and demographic spread with some,

but not complete, bias towards areas/establishments which are most likely to reach the young adult target audience.

The distribution of beer mats was not as demographically or geographically diverse as expected. Many of the pubs on the original list had not actually received the mats, and many pubs, despite having received the mats, were not using them. Therefore, it became necessary to simply survey any pubs which were using the mats and were willing to participate. This means a disproportionately high number of quiet local pubs in South Shields were surveyed.

Sixteen pubs (32% of the total) were visited. All had been called in advance to confirm that they had the mats and were willing to be surveyed. Surveys of staff and customers were conducted in nine of them (18% of the total, seven in South Shields, one in Newcastle, one in Gateshead). Of the others, four did not have the mats out, one was too busy and the remaining two were completely empty. The pubs were visited on either a weekday early evening or a Saturday afternoon, but were quieter than anticipated so only 47 customer surveys were completed, considerably short of the target 200.

Five bakeries (25% of the total) were visited – one in Newcastle city centre, two in Newcastle suburbs and two in a Gateshead suburb. Five staff interviews and 40 customer surveys were conducted. The bakeries were visited on either a weekday lunchtime or a Saturday morning.

An on-line survey was also available for visitors to www.physics.org/food-physics via a link at the bottom of the Food Physics page. Eleven visitors completed this survey.

Statistical data on the following was also collected and provided by IoP;

- Number of bags/beer mats distributed
- Numbers visiting www.physics.org/food-physics
- Number of people texting for answers to beer mat questions

3.2. DATA HANDLING

In order to assess the aims of the project the data from customers was processed in four different ways.

- By establishment (pub or bakery)
- By age (under/over 35)
- By gender (male/female)
- By level of engagement with science*

*The 'engaged' group includes the respondents who have either an HE qualification in a science subject or who responded positively (often or occasionally) to two or more of the questions on science-related leisure activities. The 'not-engaged' group includes all others.

4. BEER MAT CAMPAIGN

4.1 ABOUT THE PUBS VISITED



Mark	Pub
	Bee Hive Inn, South Shields, NE33 1TF
	Bridge Hotel, Newcastle upon Tyne, NE1 1RQ
	Chichester Arms, South Shields, NE33 4AA
	Durham Ranger, Gateshead, NE10 8JR
	The Maltings, South Shields, NE33 4PG
	The New Ship, South Shields, NE34 8DG
	Rosie Malone's, South Shields, NE33 1BH
	The Lookout Inn, South Shields, NE33 2AR
	The Vigilant, South Shields, NE34 6AE
	Other pubs, visited but not surveyed
	Other pubs, not visited

Bee Hive Inn, South Shields, NE33 1TF

The Bee Hive Inn is a local pub in a very deprived residential area. It was visited early evening on a Thursday. Customers were all middle aged, one group of workmen and a couple. 100% of those interviewed lived in the immediate local area. It is the most deprived area we visited (ranked 2132nd) with low income, high unemployment, poor health and educational attainment and high crime levels. [1]

Bridge Hotel, Newcastle upon Tyne, NE1 1RQ

The Bridge Hotel is a city centre pub which is part of a local independent chain. It hosts regular live music and has a beer garden which overlooks the River Tyne. It is popular with older (25+) city centre drinkers and visitors to the city. It was visited early evening on a Friday and had a varied clientele aged between 18 and 55. Of the 16 people interviewed none lived in the immediate local area, but ten

(62%) came from within 3 miles. Four (25%) of those interviewed came from outside the NE postcode area.

Chichester Arms, South Shields, NE33 4AA

The Chichester Arms is located on a shopping street, adjacent to a Metro station, in a residential area. It was visited late afternoon on a Thursday. The clientele was mixed in age but almost entirely male. Of the customers interviewed 71% lived in the immediate local area, whilst the remaining 29% were from the adjacent NE34 postcode. The local area is considered fairly deprived (ranked 3682) with low income, high unemployment and poor health. [1]

Durham Ranger, Gateshead, NE10 8JR

The Durham Ranger is a small local pub on a housing estate. It was visited on a Thursday afternoon and the customers were all middle-aged males from the immediate local area. The area is ranked 4897th for deprivation with particularly high unemployment and poor educational attainment. [1]

The Maltings, South Shields, NE33 4PG

The Maltings is a traditional style pub specialising in local ales with an on-site brewery. It was visited early evening on a Friday when it was very quiet. Two (67%) of the (male) customers interviewed were from NE33, the remaining one was from nearby NE32. It is in the same ward as the Bee Hive Inn with the same deprivation issues.

The New Ship, South Shields, NE34 8DG

The New Ship is a food-oriented pub on the outskirts of South Shields in the relatively affluent Cleadon Park area. It was visited at lunchtime on a Saturday and customers included families and couples. Of the three customers interviewed one was from the local area (NE34), one from nearby NE35 and another had travelled from Newcastle (NE4). The area is ranked around average for deprivation (13432nd) with income, education and health around average. Unemployment is above average. [1]

Rosie Malone's, South Shields, NE33 1BH

Rosie Malone's is an Irish themed town centre pub by the shops and market. It was visited early evening on a Thursday and contained a mixture of customers. Only two customers were willing to be surveyed, one of whom was from NE33 and the other from nearby NE34. It is in the same highly deprived area as the Bee Hive Inn and the Maltings.

The Lookout Inn, South Shields, NE33 2AR

The Lookout Inn is a local pub in a predominantly residential area, but opposite Arbeia Roman Fort. It was visited on a Saturday afternoon and the clientele consisted entirely of elderly males all of whom lived within a few streets of the pub. The area is moderately deprived (ranked 8163rd) with particularly high crime levels but average educational attainment. [1]

The Vigilant, South Shields, NE34 6AE

The Vigilant is a local pub with regular entertainment and pub meals. It was visited on a Saturday afternoon and customers were mainly young/middle-aged couple and groups of friends. Only two (29%) of the seven people interviewed were from the local area (NE34). Of the others, one was from nearby NE33, two from Gateshead (NE8) and two visiting from Manchester. The Harton area is the most affluent we visited, ranked average for deprivation (13973rd) with low crime and good access to services but slightly high unemployment. [1]

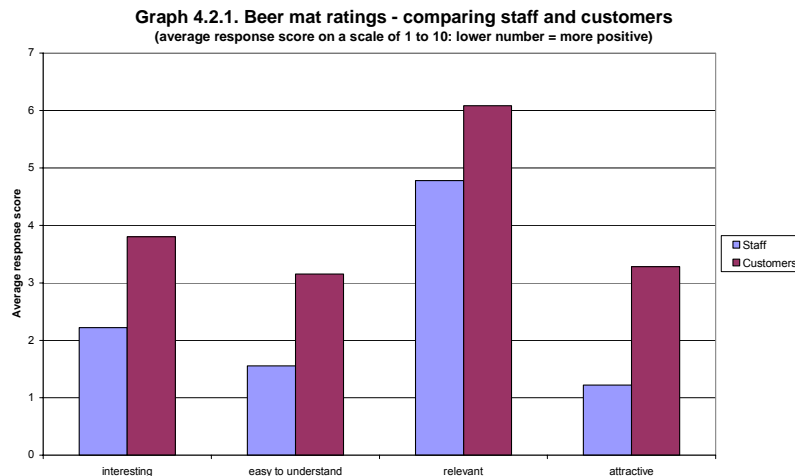
Other pubs, visited but not surveyed

In addition to the pubs listed above, another seven pubs were visited but could not be surveyed. Despite the fact that all had been called in advance to confirm they had the mats, four of these did not have the beer mats out. The Douglas Vaults (NE33 1AN) and the Harbour Lights (NE33 2AJ) said they hadn't got round to using the mats yet. Centurion (NE1 5DG) denied ever having received the mats and the Cluny (NE1 2PQ) said they give beer mats out on request rather than putting them on all the tables.

The remaining three could not be surveyed for practical reasons. The Wouldhave (NE33 1TA) was very busy (Friday evening, after work), but conversely the Steamboat and Mill Dam (both NE33 1EQ) were completely empty.

4.2 RESULTS OF PUB STAFF QUESTIONNAIRE

All the bar staff interviewed were generally positive about the campaign and rated the mats much more highly than the average customer (Graph 4.2.1).



Most (89%) said they had seen customers reading the mats, 56% had discussed the mats with customers and 78% had overheard customers talking to friends about them. Fewer, 22%, had seen customers texting for the answer, although a third had texted for the answer themselves. One barman said he had texted so that he could give customers the answers if they asked.

None had already visited the website but 44% thought they would visit in the future. The others said they weren't that interested.

Feedback from customers had generally been positive with people asking about them and saying it was nice to have a change. The only negative comment was that one barmaid said male customers didn't like the lipstick design.

Perhaps predictably the female bar staff all chose the lipstick as their favourite design, whereas the male staff chose the pint. Their reasons for making this choice also revolved around sexual stereotypes (how 'manly' or 'girly' they were perceived to be). One barmaid said that the colours of the lipstick one really stood out because they were unusual colours to see in a pub.

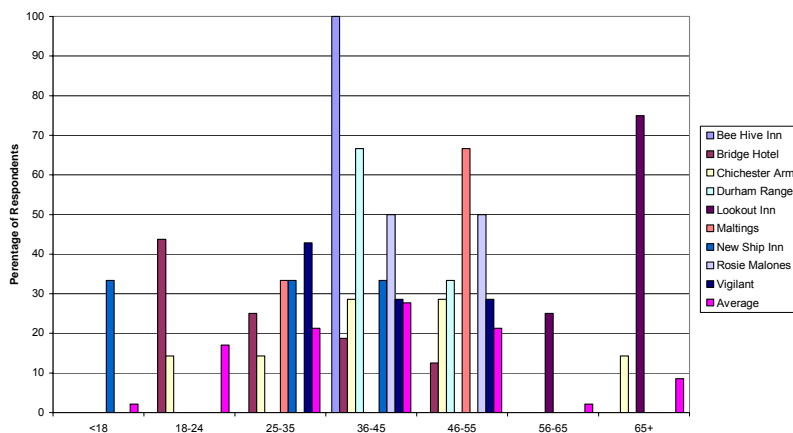
Three (33%) of the staff questioned though they could be improved by having more questions/designs and two (22%) wanted the answers on the back of the mats. One (11%) thought the design should be more 'manly'.

Only one was able to answer the question "What do they tell you about physics?" saying they "made you think".

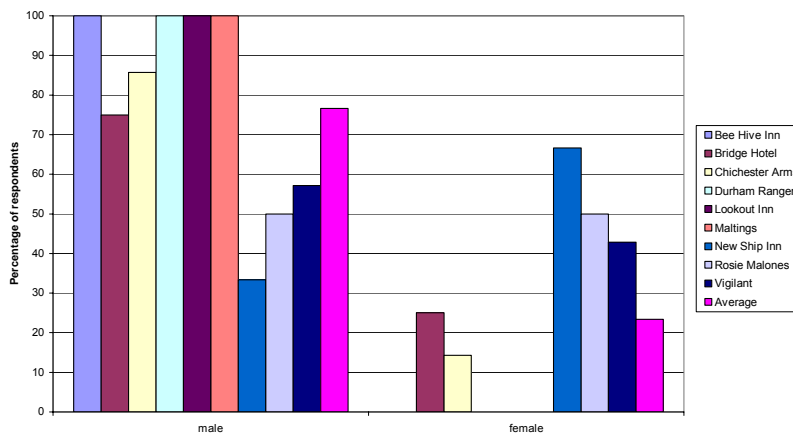
4.3 BASIC DEMOGRAPHICS OF THE CUSTOMERS SURVEYED

We surveyed a broad range of ages (Graph 4.3.1), but far more men (77%) than women (23%) (Graph 4.3.2) simply because there were fewer women in the pubs at the times we visited.

Graph 4.3.1. Age of pub customers

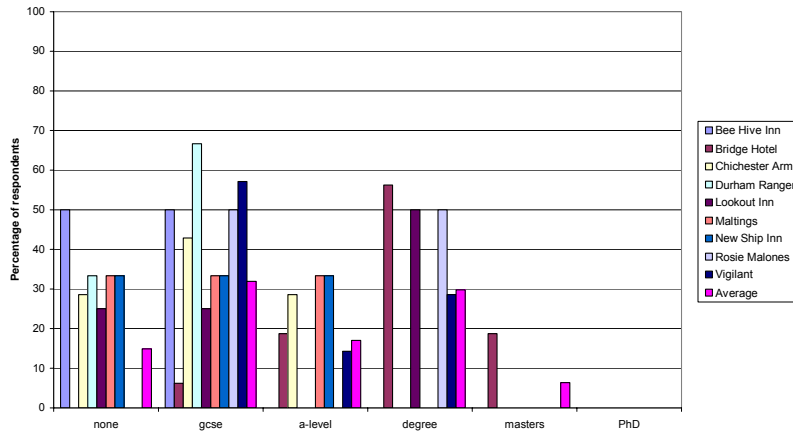


Graph 4.3.2. Gender of pub customers

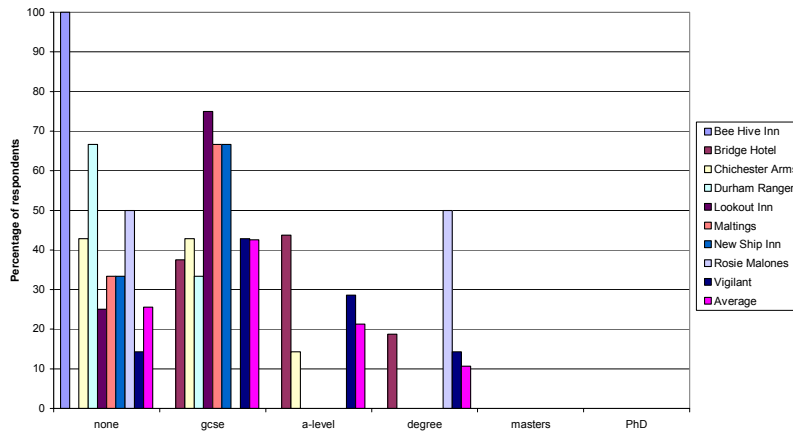


The customers' level of education was broadly in line with what would be expected from the deprivation data [1], *i.e.* highest level of education was found in the more affluent areas (New Ship and Vigilant) and the town centre pubs (Bridge Hotel and Rosie Malone's) which attract professionals. (Graphs 4.3.3 & 4.3.4)

Graph 4.3.3. Highest qualification any subject

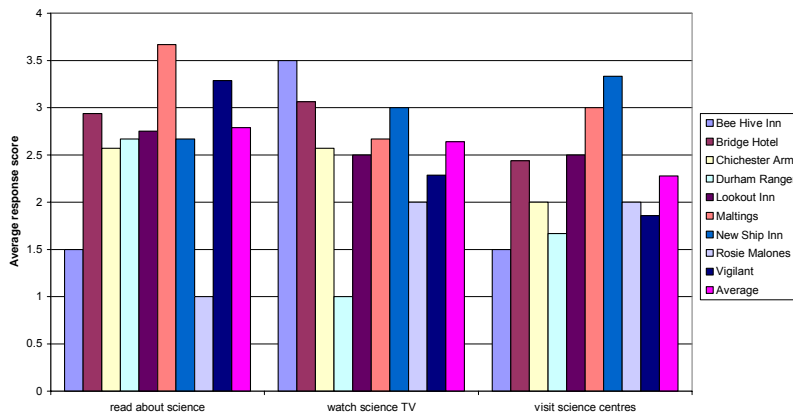


Graph 4.3.4. Highest qualification in a science subject



The level of engagement with science-related leisure activities did not seem to be linked to levels of education or social deprivation. (Graph 4.3.5)

Graph 4.3.5. Involvement in science-related leisure activities
(responses converted to numerical score 1=never, 2=rarely, 3=occasionally, 4=often)

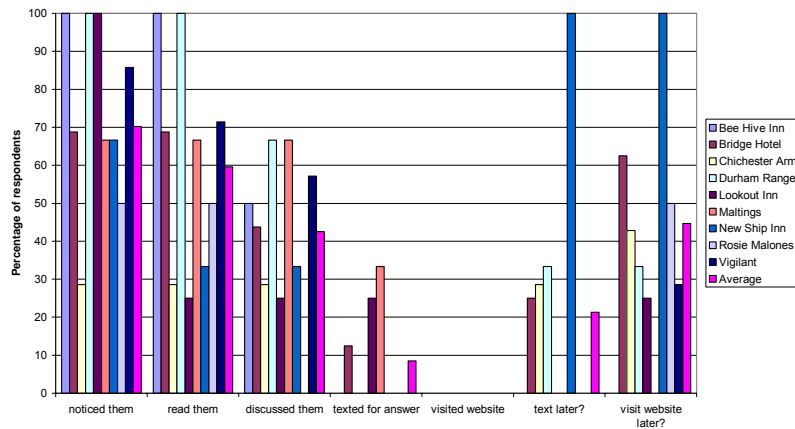


The demographic data suggests that, despite the male gender bias, a good cross section of customers was surveyed with a broad range of ages, education and interest in science. Overall 47 people were surveyed. When broken down for analysis, there were 19 aged under 35/28 over 35, 36 male/11 female and 25 engaged/22 not engaged with science.

4.4 EFFECTIVENESS OF CAMPAIGN TO REACH TARGET AUDIENCE AND PROMOTE DISCUSSION

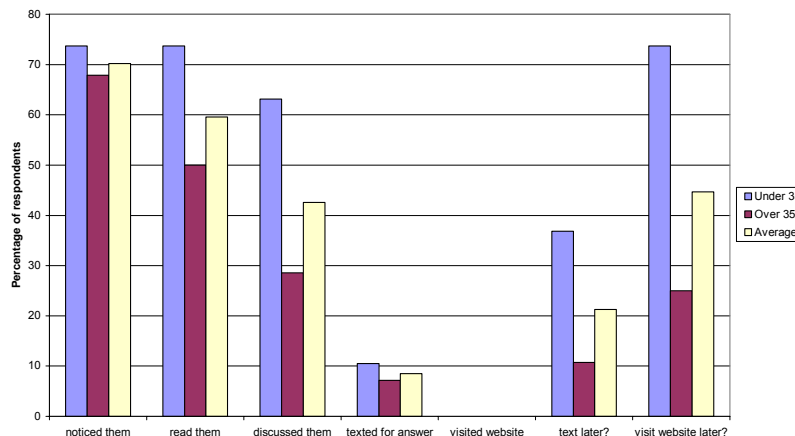
On average 70% of people interviewed had noticed the beer mats and 60% had read them, although this rose to 100% in some pubs. Almost half (43%) had discussed the mats with their friends. Only 9% had already texted for an answer and none had visited the website, but 43% thought they would go to the website later. (Graph 4.4.1) Of those who thought they wouldn't text or visit the website later the reasons given were either lack of phone/internet access (particularly common among older customers) or because they "weren't that interested".

Graph 4.4.1. Beer Mat Campaign Awareness and Engagement by Pub

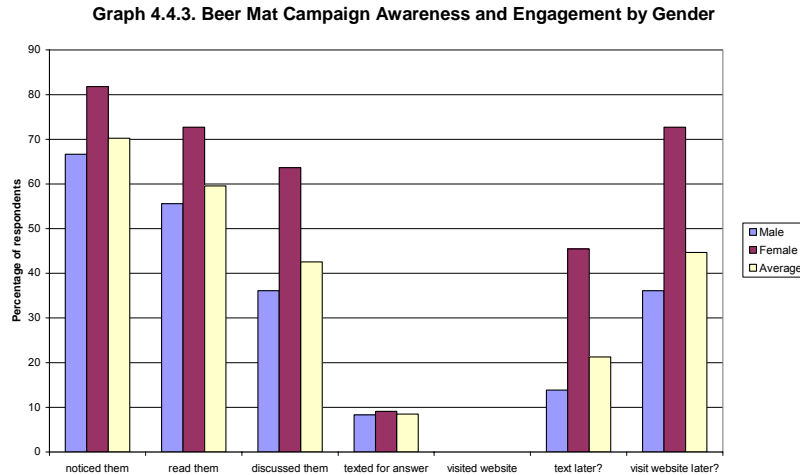


When the responses are broken down according to age, gender and level of engagement with science some interesting trends emerge. As Graph 4.4.2 shows although all ages are equally likely to have noticed the beer mats younger people (under 35) are much more likely to have read and discussed them. They are also more interested in following up what they have read by texting or visiting the website.

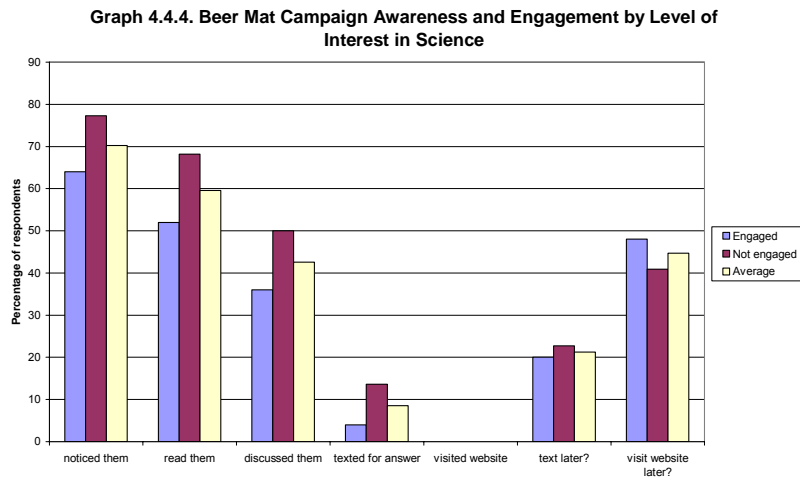
Graph 4.4.2. Beer Mat Campaign Awareness and Engagement by Age



Although targeting women was not a specific aim of this campaign they are a group who are typically less engaged with physics. The results of these surveys show that the beer mats were more successful at targeting women than men (Graph 4.4.3) with women more likely to read, discuss and follow up. However, this result is tempered by the fact that there were far fewer women than men in the pubs visited.



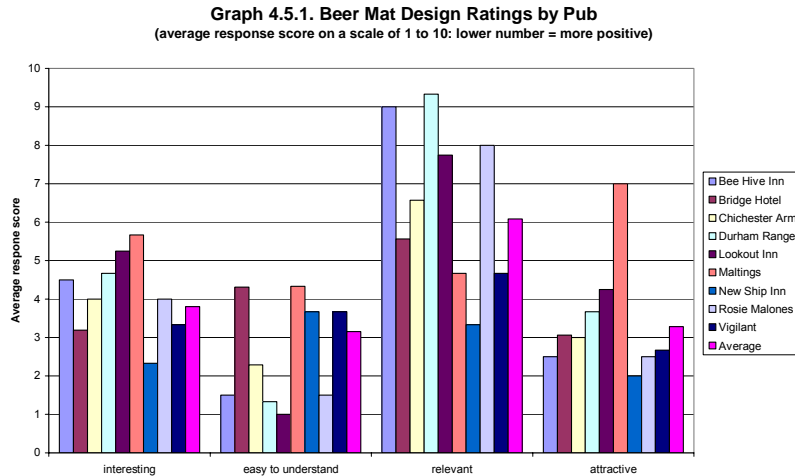
The beer mats also proved successful in engaging people who would not normally consider themselves interested in science (Graph 4.4.4). The 'engaged' group includes those with HE science qualifications or regular involvement in science-related leisure activities. As Graph 4.4.4 the 'non-engaged' group were more likely to have read and discussed the beer mats but were less likely to visit the website to find out more.



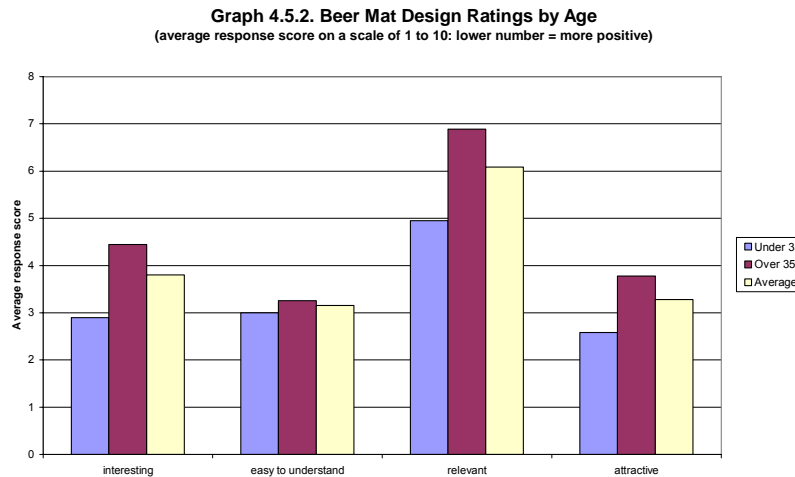
Overall, the beer mats appear to have been successful in reaching and promoting discussion amongst the target audience (under 35s and people not normally interested in science).

4.5 EFFECTIVENESS OF DESIGN TO COMMUNICATE THE CAMPAIGN MESSAGES

Customers were asked to rate the beer mats on a scale of 1 to 10 for how interesting they were, easy to understand, relevant and attractive they were (1 being the most positive score, 10 the least positive). Graph 4.5.1 shows the average responses received. The average score for most categories was between 3 and 4 (moderately positive). The average score for relevance was neutral/moderately negative implying that customers liked the beer mats, but found it harder to see how they were relevant to them.

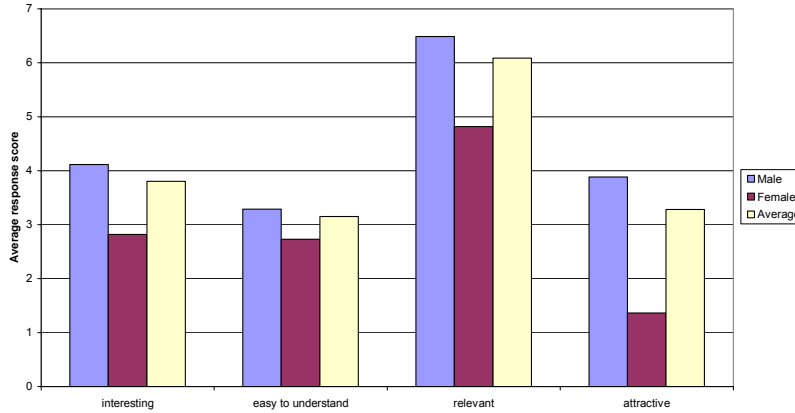


As Graph 4.5.2 shows 'Under 35s' were generally more positive about the beer mats than 'Over 35s', particularly how interesting, relevant and attractive they found them.



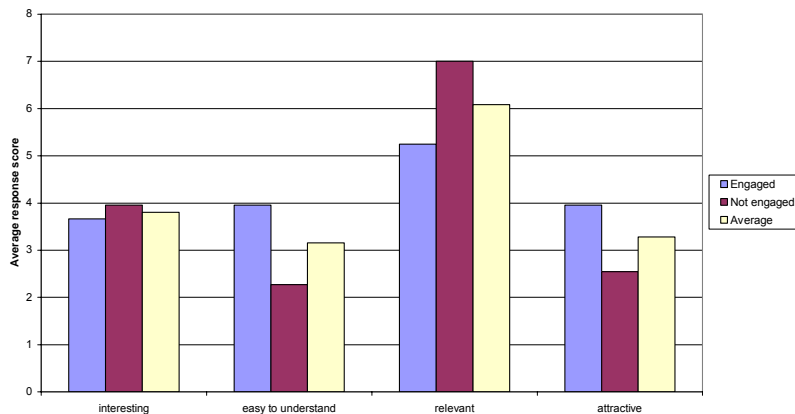
When the response are analysed by gender (Graph 4.5.3) it is clear the designs particularly appealed to women with a much higher attractiveness score. Women also found them more interesting and relevant than men.

Graph 4.5.3. Beer Mat Design Ratings by Gender
(average response score on a scale of 1 to 10: lower number = more positive)



People who are not generally interested in science rated the beer mats highly for attractiveness and ease of understanding, but were the less likely to find them relevant. (Graph 4.5.4)

Graph 4.5.4. Beer Mat Design Ratings by Level of Interest in Science
(average response score on a scale of 1 to 10: lower number = more positive)

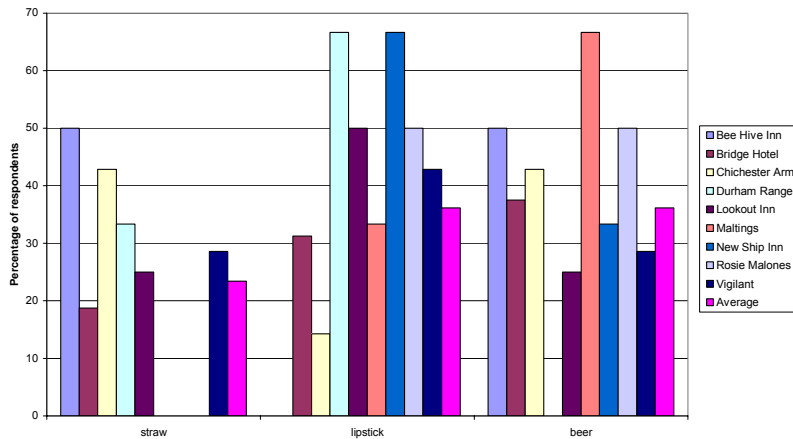


Favourite design

As Graph 4.5.5 shows, overall lipstick and beer designs were equally popular with 36% each. However, opinion on the lipstick design was divided as some people, particularly in the male dominated pubs, hated it.

Interestingly, this design preference is not reflected in the number of text messages received. The least popular straw design actually drew in the largest number of texts (Graph 4.6.2).

Graph 4.5.5. Most Popular Beer Mat Design by Pub



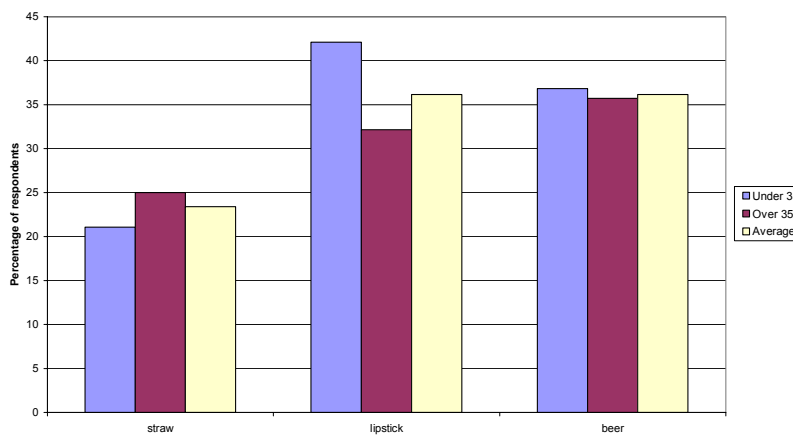
Reasons for choosing the straw included that it was a nice design (x3) and an interesting question (x3).

The lipstick design was popular for its bright colours (x4), eye catching/attractive design (x3) and for being the most girly (x3).

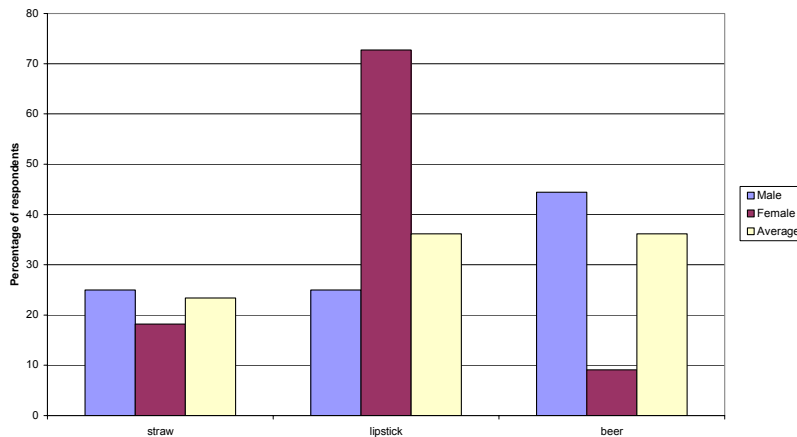
People who chose the beer design said they were most interested in that question (x8), that it had an attractive/eye catching/'manly' design (x5), it helped them learn something new (x1) or simply that they like beer (x4).

When the results are broken down by age (Graph 4.5.6), gender (Graph 4.5.7) and interest in science (4.5.8) the lipstick design becomes a clear favourite with the target audience for this campaign.

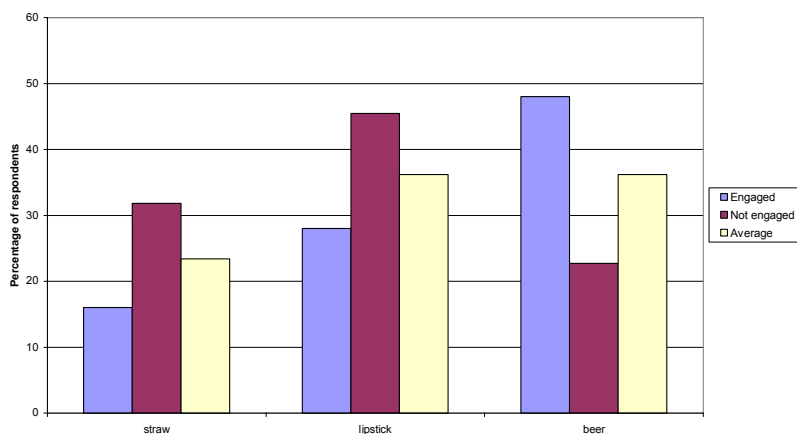
Graph 4.5.6. Most Popular Beer Mat Design by Age



Graph 4.5.7. Most Popular Beer Mat Design by Gender



Graph 4.5.8. Most Popular Beer Mat Design by Level of Interest in Science



Suggestions for improvements included brighter/lighter colours (x3), having the answer on the mat (x4), having more designs (x2), making them bigger (x1), less girly (x2), less childish (x1) and making the writing bigger (x1).

In response to the question “What do they tell you about physics?” the following responses were received;

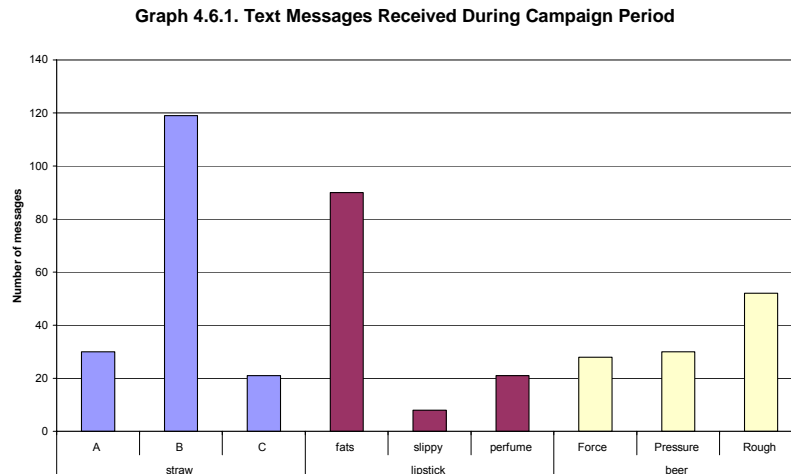
- not much as it doesn't tell you the answers
- physics can be interesting (x5)
- makes you more aware that physics affects everything you do (x2)
- makes you think (x2)
- we should all know elements of physics

Other comments about the beer mats included

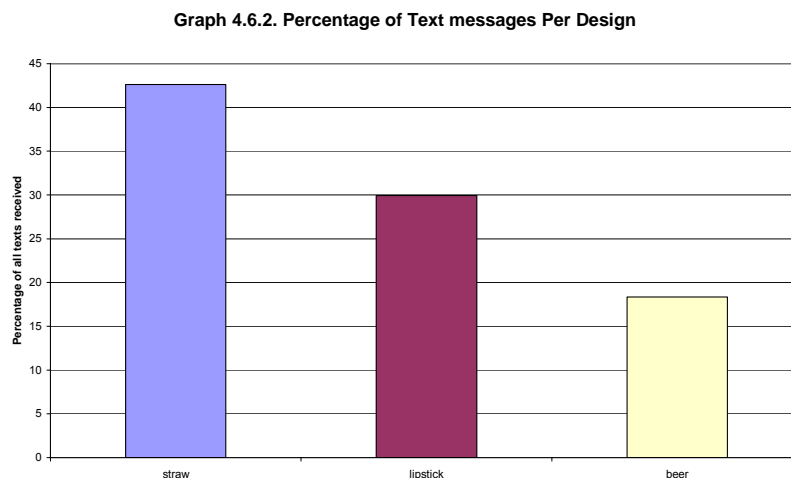
- helps to keep your brain working
- excellent talking point (x3)
- great idea (x4)
- something to read between drinks
- more interesting/educational than a normal beer mat (x2)

4.6 APPROX PROPORTION OF THE AUDIENCE TAKING PART IN THE CAMPAIGN

During the four week campaign period 399 text messages were received, from 305 unique telephone numbers. Graph 4.6.1 shows how these text messages were distributed across the mat designs and possible answers.



In contrast with the results for favourite design in 4.5 above, the straw beer mat elicited the highest number of responses, followed by the lipstick (Graph 4.6.2). Anecdotal evidence obtained whilst conducting the surveys suggest this may be because people found these questions easiest to answer – the straw challenge could be worked out from personal experience and bar staff said they knew greasy glasses could ruin the head on a pint of lager.



At the start of the campaign 50,000 beer mats were distributed to 50 pubs across Tyne & Wear. It is hard to calculate the level of engagement with the campaign but if we assume the people surveyed represented a reasonable cross section of customers some extrapolation is possible.

If we assume that the texters were discussing the beer mats with one other person when they sent the message that doubles the number involved in texting to 610.

9% of the people surveyed said they had texted for an answer. However, 43% said they had read and discussed the beer mats. So people were 4.8 times more likely to have discussed the mats than texted.

So, if the number of texters and friends (610) is multiplied by 4.8, this estimates that around 3000 pub customers across Tyne and Wear have read and discussed the mats during the campaign. This equates to approximately 60 people for every pub which received the beer mats. Intuitively this seems like a reasonable, but conservative, estimate.

Another way to estimate engagement might be to say that, of the 50,000 mats sent out, 43% (21,500) will have elicited a discussion. However, it seems unlikely that the pubs we visited would have got through 1000 mats each during the four week period, as they weren't that busy, so this calculation is likely to overestimate the true numbers.

5. SANDWICH BAG CAMPAIGN

5.1. ABOUT THE BAKERIES VISITED



Mark	Bakery
	West View Bakery, Forest Hall, NE12 7JL
	Chapel Bakery, Jesmond, NE2 2DJ
	Breadpoint, Newcastle upon Tyne, NE1 5UE
	Tasty Bake, Gateshead, NE8 1QP
	Superpie, Gateshead, NE8 1QQ
	Other bakeries, not visited

West View Bakery, Forest Hall, NE12 7JL

An independent, traditional, bakery set in a local shopping area within a mainly residential area. Other shops nearby include a small Sainsbury's supermarket, Gregg's and a number of independent shops. It was visited on a Thursday lunchtime and customers were mainly middle aged adults, although staff said they also attracted many pupils from a local comprehensive school. 100% of those interviewed lived in NE12. Forest Hall is ranked average (15552nd) in terms of deprivation with income, health and crime slightly below, but unemployment slightly above national average. [1]

Chapel Bakery, Jesmond, NE2 2DJ

Part of a Newcastle bakery chain, located on a shopping street within a residential area. Other shops nearby include Tesco Metro, Oxfam, Boots and some independent shops. It was visited at lunchtime on a Thursday and customers were mainly workmen but included some students and middle aged people. 40% of those interviewed were resident in NE2.

Jesmond is an affluent area with many students and professionals (ranked 17430th for deprivation). Income and educational attainment are above and unemployment is below the national average. However, crime levels are above average. [1]

Breadpoint, Newcastle upon Tyne, NE1 5UE

Breadpoint is an independent Chinese bakery within the China town area of Newcastle city centre. It is in an area with many pubs, cafes and restaurants. It was surveyed at lunchtime on a Thursday and customers were mainly Chinese adults, professionals working nearby and students from local colleges. Only 20% of the customers interviewed lived in the immediate vicinity of the bakery (NE1). Central Newcastle is considered a deprived area (ranked 6294th) with high rates of crime, high unemployment, below average income, poor health and below average educational attainment. [1]

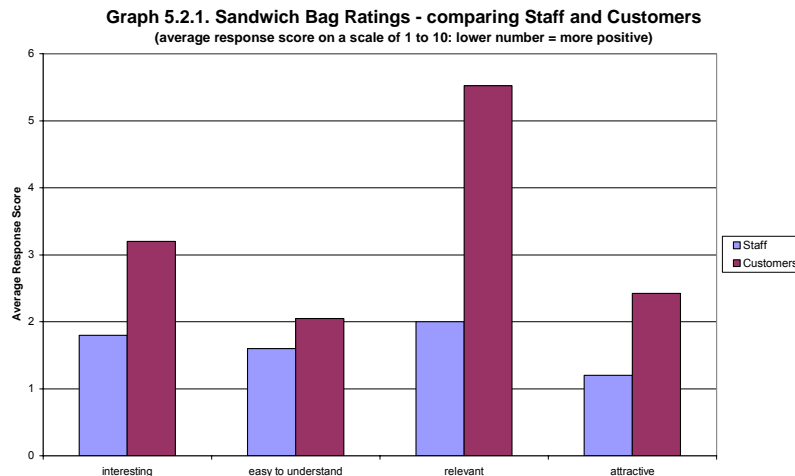
**Tasty Bake, Gateshead, NE8 1QP
Superpie, Gateshead, NE8 1QQ (staff survey only)**

Both these bakeries were visited as they were on the same street but customer surveys were only conducted at Tasty Bake. Both are independent bakeries on a local shopping street with few chain stores. The surveys were conducted on a Saturday morning and a wide range of customers were interviewed, 90% of whom were resident in the NE8 postcode area.

This part of Gateshead was the second most deprived area visited (ranked 2465th) with very low incomes, very high unemployment, poor educational attainment, high crime and poor health. [1]

5.2. RESULTS OF BAKERY STAFF QUESTIONNAIRE

All the bakery staff questioned were generally very enthusiastic about the campaign and pleased to have been involved. In common with the pub staff, they rated the bags much more highly than the average customer (Graph 5.2.1). Two said that the bags were very good quality and especially good for greasy foods.



All five surveyed said they had seen customers reading the bags, two had discussed the bags with customers and one had overheard customers talking about the bags. Two had already visited the website and one thought they would visit in the future. The other two said they weren't that interested.

None of the bakeries had had any negative comments from customers about the bags. Positive comments included customers saying they were amusing and better than plain bags. Breadpoint reported that a science teacher had come in and asked for a bundle of the bags to take into school.

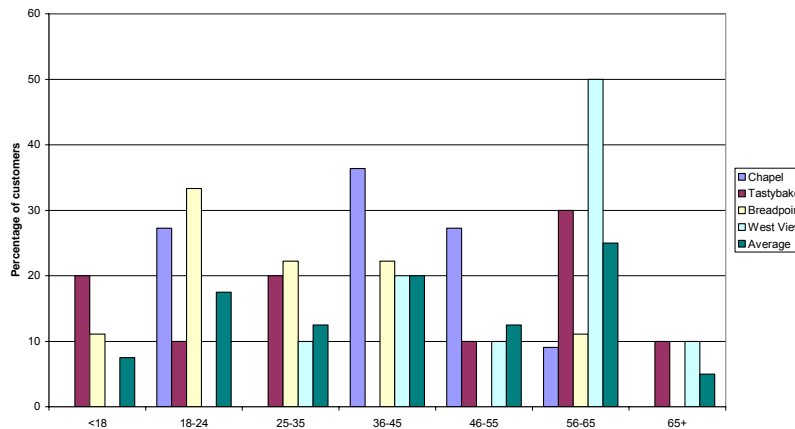
Three of the bakeries chose the biscuit as their favourite design. The reasons for this were that they could relate to it, it was a good conversation starter and they had tried the dunk test at home. The other two bakeries chose the tea design as their favourite. This was due to the bright colours and attractive design.

Several bakeries said they were disappointed to have only received one or two designs when they would have liked all three. One suggested that having the bags in different sizes would be good as they tend to use smaller bags for cakes and biscuits.

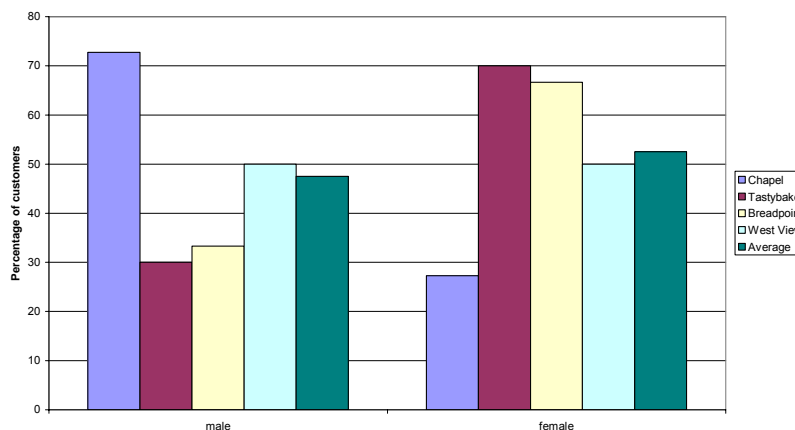
5.3. BASIC DEMOGRAPHICS OF THE CUSTOMERS SURVEYED

We visited three bakeries on weekday lunchtimes and one on a Saturday morning. Although certain age groups and genders predominated at certain bakeries, overall we interviewed a wide age range (Graph 5.3.1) and roughly equal numbers of male and female customers (Graph 5.3.2).

Graph 5.3.1. Age of bakery customers

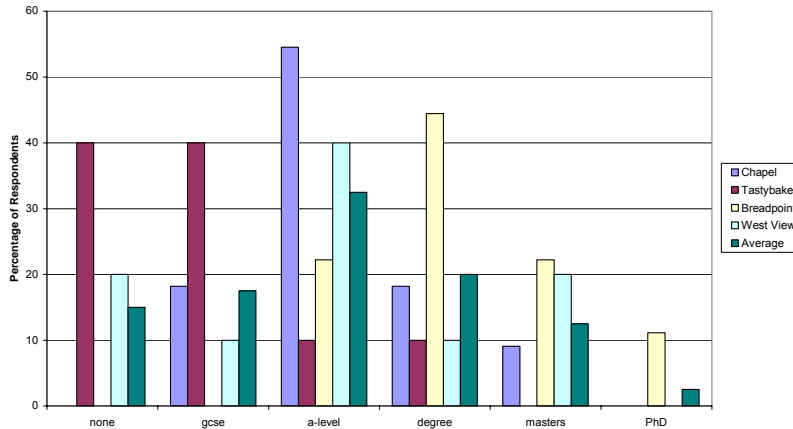


Graph 5.3.2. Gender of bakery customers

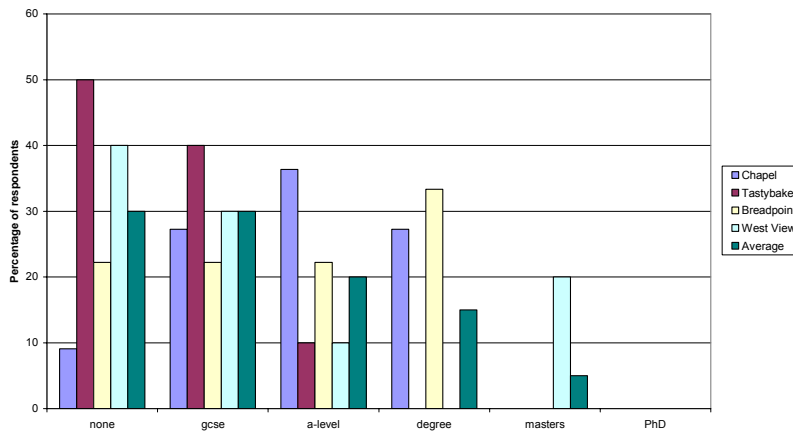


The distribution of qualifications was roughly in line with what would be expected based on the Neighbourhood Statistics [1], *i.e.* the lowest level of attainment was seen in the Gateshead Tastybake customers and the highest in city centre Breadpoint customers (Graphs 5.3.3 & 5.3.4).

Graph 5.4.3. Highest qualification in any subject



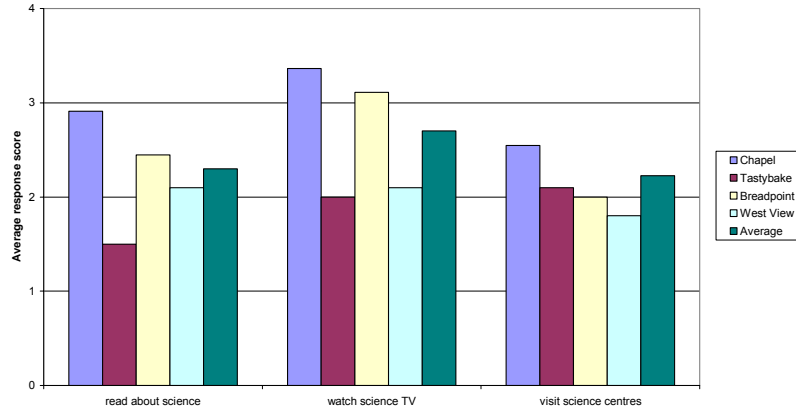
Graph 5.3.4. Highest qualification in a science subject



When asked about engagement with science-related leisure activities the results were generally in line with what might be expected based on level of education (Graph 5.3.5) although Tastybake customers were more likely than Breadpoint or West View customers to visit science centres or museums. This may be linked to their proximity (just across the river) to Life Science Centre.

Overall 40 people were surveyed. When broken down for analysis, there were 15 aged under 35/25 over 35, 19 male/21 female and 22 engaged/18 not engaged with science.

Graph 5.3.5. Involvement in science-related leisure activities
(responses converted to numerical score 1=never, 2=rarely, 3=occasionally, 4=often)

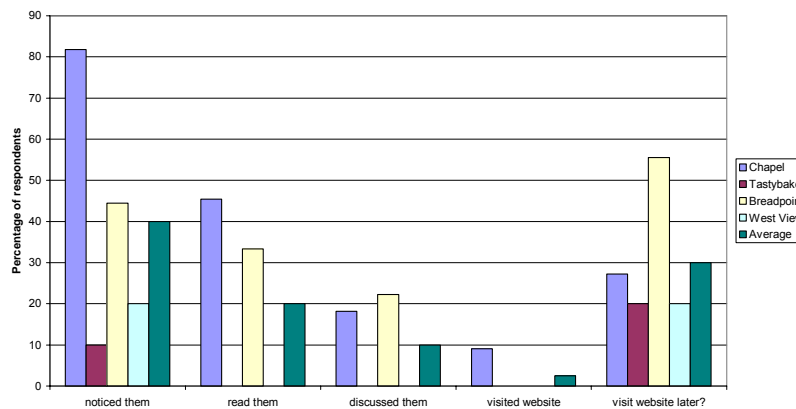


5.4. EFFECTIVENESS OF CAMPAIGN TO REACH TARGET AUDIENCE & PROMOTE DISCUSSION

On average 40% of people interviewed had noticed the sandwich bags and 20% had read them. Only 10% had discussed the bags with their friends. One person (3%) had already visited the website, but 30% thought they would go to the website later. (Graph 5.4.1)

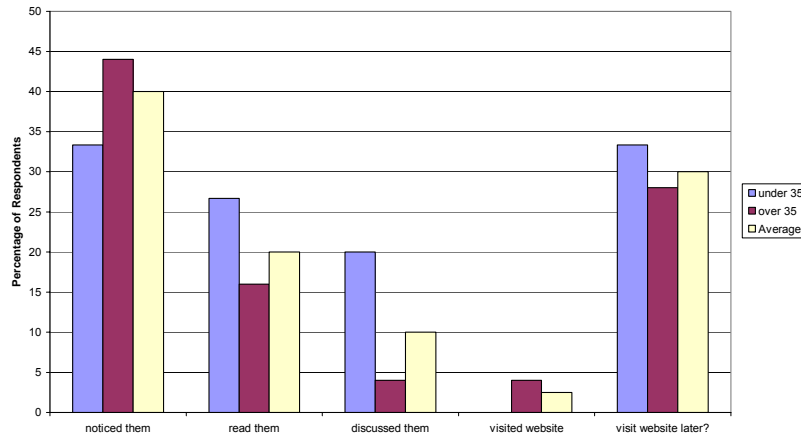
The people who said they wouldn't visit the website cited lack of time (x1), no access to the internet (x3) or not being sufficiently interested (x9) as the reasons why.

Graph 5.4.1. Sandwich Bag Campaign Awareness and Engagement by Bakery



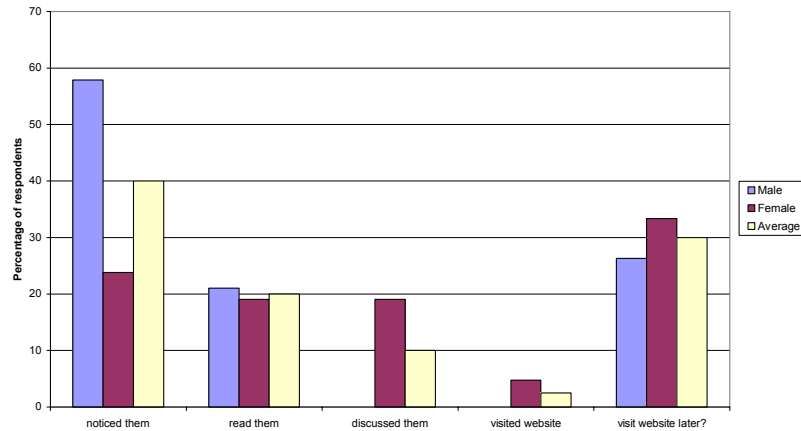
When the results are broken down by age, people aged under 35 were less likely to have noticed the bags but if they had noticed them they were more likely to have read them and much more likely to have discussed them with others (Graph 5.4.2).

Graph 5.4.2. Sandwich Bag Campaign Awareness and Engagement by Age



Men were more likely to have noticed the sandwich bags, but despite 21% having read the bags none of the men surveyed had discussed them with anyone else. (Graph 5.4.3)

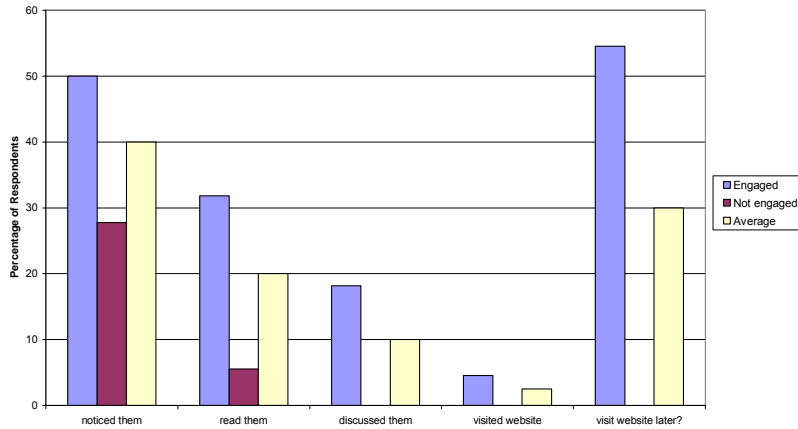
Graph 5.4.3. Sandwich Bag Campaign Awareness and Engagement by Gender



The sandwich bags were much less successful than the beer mats at engaging people who would not consider themselves interested in science. Although 28% of 'non-engaged' people had noticed the bags, only 6% had read them and none had discussed them with others. This is compared to 50%, 32% and 18% of 'engaged' people respectively. All the people who thought they would visit the website later were those who were already interested in science to some degree. (Graph 5.4.4)

Overall, the sandwich bags appear to have been partially successful in reaching the target audience of under 35s, but unsuccessful in reaching people not normally interested in science.

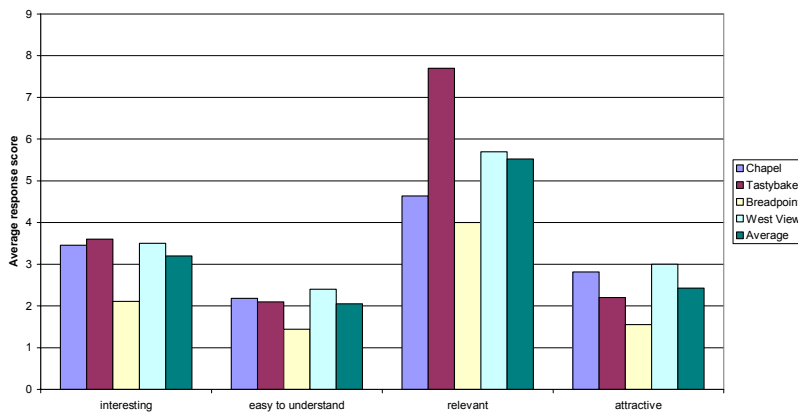
Graph 5.4.4. Sandwich Bag Campaign Awareness and Engagement by Level of Interest in Science



5.5. EFFECTIVENESS OF DESIGN TO COMMUNICATE THE CAMPAIGN MESSAGES

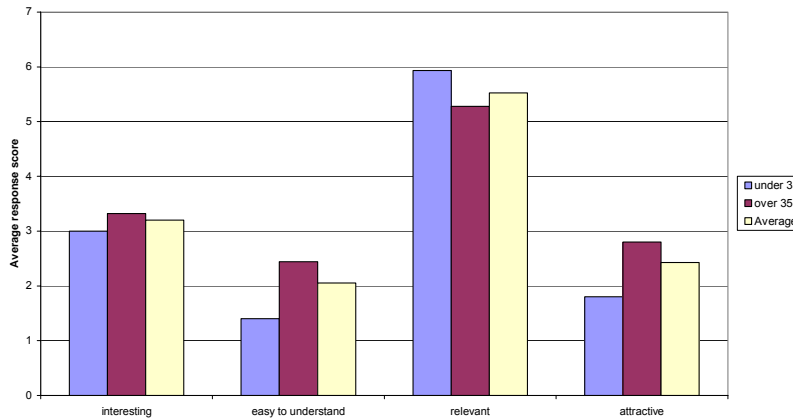
As with the beer mats customers were asked to rate the sandwich bags on a scale of 1 to 10 for how interesting they were, easy to understand, relevant and attractive they were (1 being the most positive score, 10 the least positive). Graph 5.5.1 shows the average responses received. The average score for most categories was between 2 and 3.5 (generally positive). The average score for relevance was neutral implying that customers liked the bags, but found it harder to see how they were relevant to them. This is the same pattern seen for the beer mats although the scores are, on average, slightly more positive.

Graph 5.5.1. Sandwich Bag Design Ratings by Bakery
(average response score on a scale of 1 to 10: lower number = more positive)



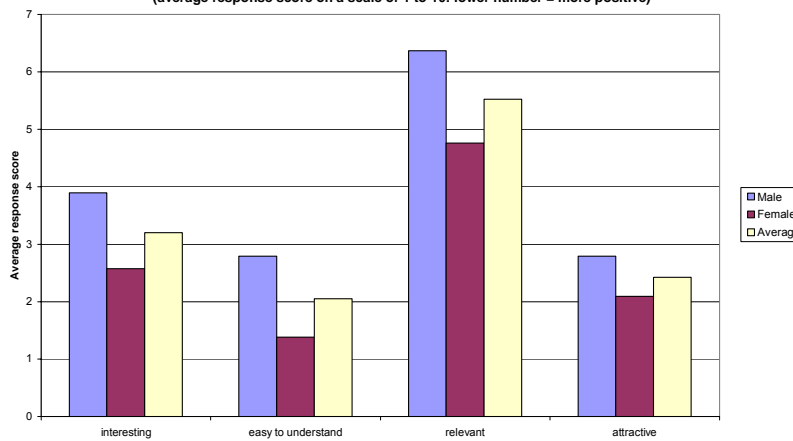
Graph 5.5.2 shows the ratings sorted by age. It shows that customers under 35 considered the bags very easy to understand and very attractive. However, they found them less relevant than people over 35.

Graph 5.5.2. Sandwich Bag Design Ratings by Age
(average response score on a scale of 1 to 10: lower number = more positive)



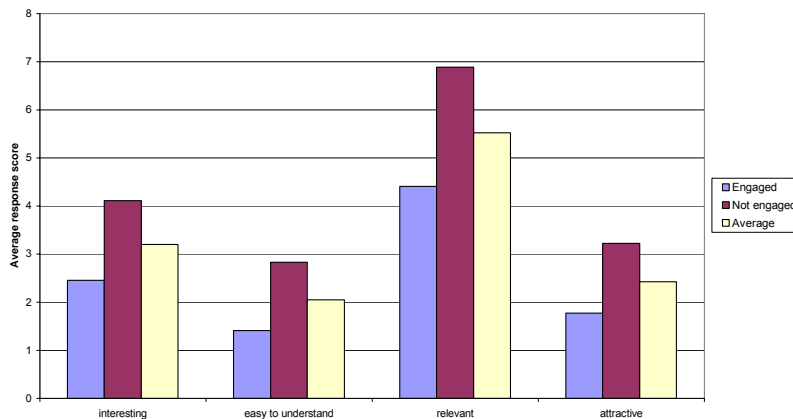
As Graph 5.5.3 shows women were more positive about all aspects of the bag design than men.

Graph 5.5.3. Sandwich Bag Design Ratings by Gender
(average response score on a scale of 1 to 10: lower number = more positive)



People who might be considered 'engaged with science' were noticeably more positive about the sandwich bags than their 'non-engaged' counterparts (Graph 5.5.4). The difference is most marked in the scores for relevance.

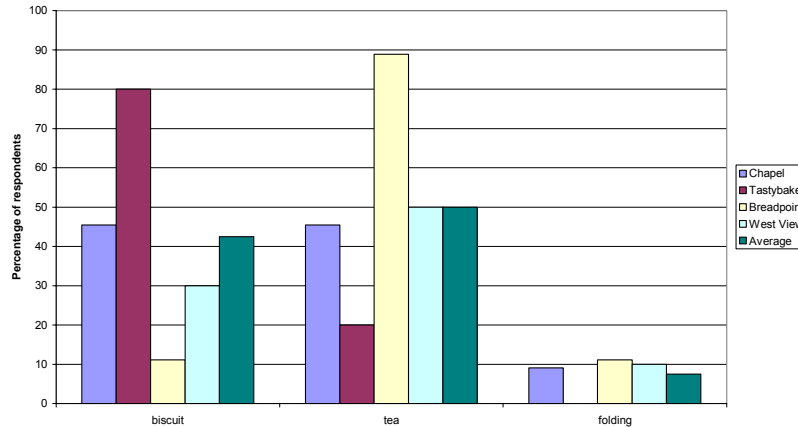
Graph 5.5.4. Sandwich Bag Design Ratings by Interest in Science
(average response score on a scale of 1 to 10: lower number = more positive)



Favourite Design

The most popular sandwich bag design overall was tea (50%) with biscuit close behind (43%) although the responses varied widely in different establishments (Graph 5.5.5).

Graph 5.5.5. Favourite Bag Design by Bakery



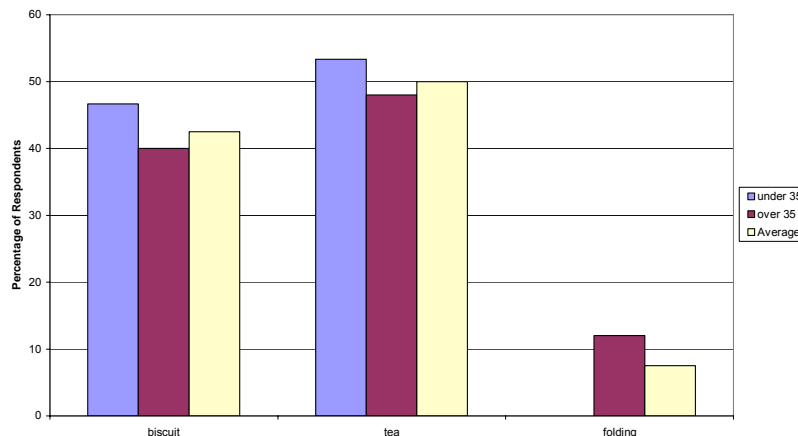
The tea design was popular for its bright colours (x12) and eye catching design (x5). However, one person said that the colour combination “messed with their eyes”.

People who chose the biscuit design said it had nice colours (x3), was eye catching (x3), liked the design (x3), it looked interesting (x1), was most relevant to them (x1) and because they liked biscuits! (x2)

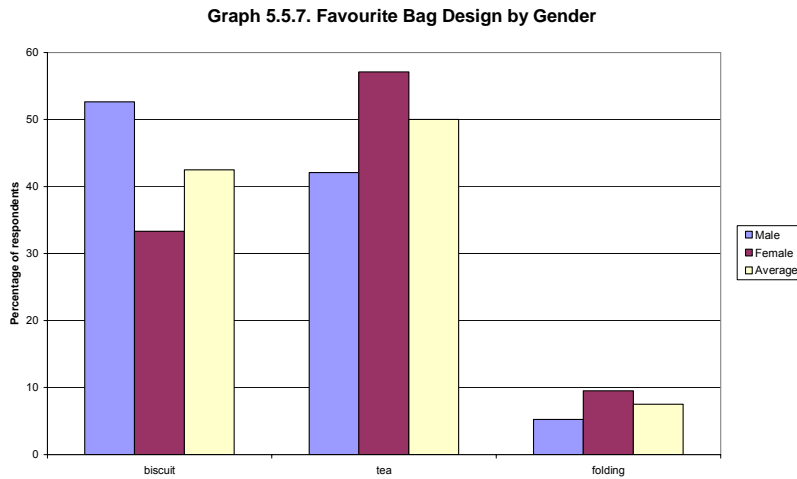
One person said they liked the folding bag because it gave you something to do after eating your food.

Plotting the results by age shows there was no clear difference between under and over 35s (Graph 5.5.6). Although no-one under 35 chose the folding bag as their favourite.

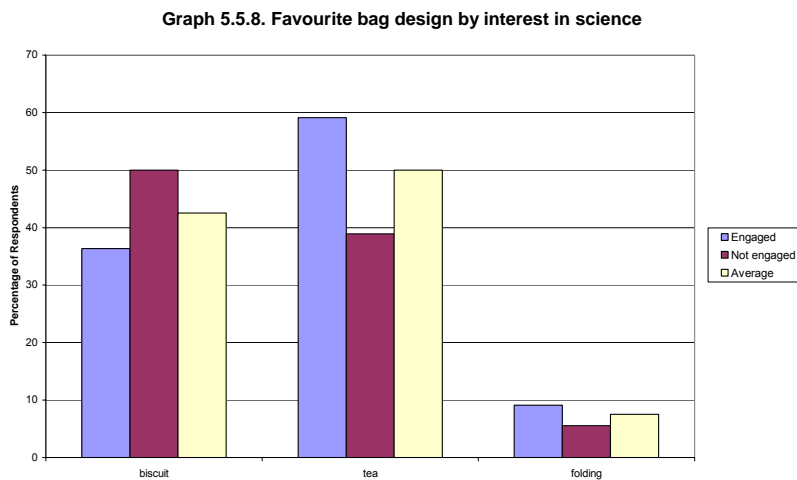
Graph 5.5.6. Favourite bag design by age



The tea design was most popular with women, whereas men most liked the biscuit design (Graph 5.5.7).



The biscuit design was also most popular with people who are not generally interested in science (Graph 5.5.8).



Suggestions for improvements included brighter/different colours (x2), having an alternative to the website for getting the answer (x1), more modern/simple designs (x2), and having less information/detail on them* (x2).

* People were shown a smaller picture of the design, not the actual bag

In response to the question “What do they tell you about physics?” the following responses were received;

- Physics is part of everyday life (x3)
- Hadn't thought of linking food and physics before
- It makes you think
- Nothing I didn't know already
- Physics can be attached to many things

Other comments about the sandwich bags included

- Brilliant idea (x2)
- Glad they are paper (biodegradable) (x2)
- Interesting (x2)
- Better than plain bags (x2)
- 'Homemade' design is nice (x1)
- I am going to read them now! (x1)

5.6. APPROX PROPORTION OF THE AUDIENCE TAKING PART IN THE CAMPAIGN

At the start of the campaign 40,000 bags were distributed to 20 bakeries (2,000 each). It is hard to estimate the true number of people engaged with the campaign. Based on the surveys 10% of people had noticed, read and discussed the bags. However, these seemed to be people who visited the bakery every day so were repeatedly exposed to the bags. Therefore, 40,000 bags would not represent 40,000 unique customers.

To allow for repeat customers, if 40,000 bags are equivalent to perhaps 10,000 unique customers then a reasonable estimate is that 10% (1000) of these read and discussed the bags and 3% (300) visited the website as a result.

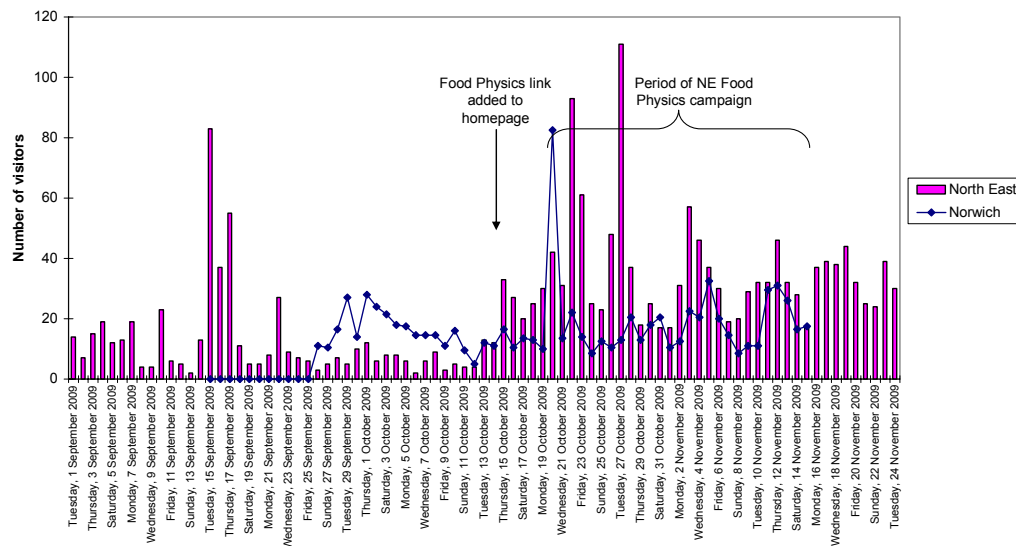
6. WEBSITE

6.1. EFFECTIVENESS OF THE CAMPAIGN IN INCREASING WEB TRAFFIC

A key aim of the campaign was to increase visits to the IoP website. As the data in Graph 6.1 shows traffic to the 'Food Physics' pages of the website did increase sharply during the campaign period. However, it is impossible to say whether this increase in traffic is due to people seeing the mats/bags or simply from seeing the 'Food Physics' link on the homepage.

The graph also compares the web traffic during this campaign and the January 2009 campaign in Norwich. Unfortunately, the web statistics software used then is different so the numbers are not directly comparable, but it does appear that the Tyne and Wear campaign has driven more traffic to the pages.

Graph 6.1. Food Physics Web Pages Visitor Statistics



The statistics suggest that the Food Physics pages were mainly attracting people who had been to the website before and were looking for new content. During the period 1 October to 24 November 2009 the Food Physics pages had 76.6% new visitors, 23.4% returning, compared to 83.4% new visitors, 16.6% returning for the site overall.

However, it is interesting that the Food Physics pages attracted much higher numbers of UK-based visitors. 38% of visitors to the Food Physics pages in this period were UK based, as opposed to only 15% of site visitors overall. Unfortunately, it is impossible to know whether these visitors were from the campaign area.

In addition, two of the eleven people who completed the web surveys were from Newcastle. Given that the North East only makes up a small proportion (4.3%) of the UK population they are disproportionately represented [2]. This is anecdotal evidence that people from the North East were visiting the website in increased numbers

6.2. WEB SURVEYS

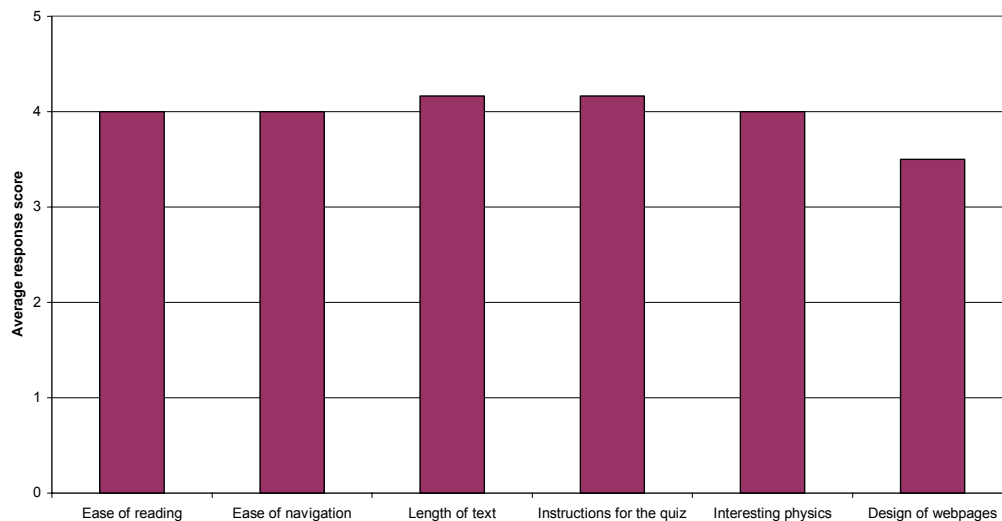
Eleven people completed the survey on the Food Physics page. Many questions mirrored those in the face-to-face surveys, but the responses are not all complete and only two had seen the campaign in Newcastle so they have not been included in the mat and bag evaluations above.

The majority (72%) of the people completing the survey were in the target 'under 35' age group, and for 69% this was their first visit to the website. It appears that most of the people who completed the survey would fit into the 'engaged in science' group, based on level of education and reason for visiting the site.

Of the designs the Lipstick beer mat was the most popular, mirroring the face-to-face surveys. 71% of people thought they would revisit and tell friends about the website.

Ratings for the design and content of the website are shown in Graph 6.2. Most aspects were rated good, although design was average/good.

Graph 6.2: Website ratings
(answer converted to score, excellent = 5, good=4, average=3, poor=2, very poor=1)



Comments left in various parts of the survey included

- Make the fold lines more obvious on the sandwich bag for folding paper bags.
- They couldn't be improved
- I think it and the bags and mats are a great idea
- It's very interesting

7. EVALUATION OF CAMPAIGN OUTCOMES

This aim of this study and report was to evaluate the effectiveness of the 'Food Physics' beer mats and sandwich bags. The findings are summarised here.

7.1 REACHING THE TARGET AUDIENCE & PROMOTING DISCUSSION ABOUT PHYSICS IN SOCIAL GROUPS

Based on this research the beer mats were successful in reaching people under 35 and people who would not normally be interested in science. These groups were more likely to have read and discussed them (Graphs 4.4.2 and 4.4.4). This appears to be due to a combination of design and placement.

Young people were generally more positive about the design of the beer mats than older people. In particular they rated them more attractive, interesting and relevant (Graph 4.5.2). Therefore, it is possible to conclude that young people were visually attracted to the mats and engaged due to the content. The lipstick design in particular attracted young people and women due to the bright and unusual colours (Graphs 4.5.6 and 4.5.7).

The success of the beer mats in reaching people not normally interested in science seems to be due to the pubs they were placed in. Many of the customers interviewed and pubs visited were local pubs where 'the regulars' are always looking for new topics of conversation. The beer mats fitted neatly into that category. Despite the fact that they had discussed the mats, these groups were ultimately less likely to consider them to be relevant to their lives.

The sandwich bags appear to have been less successful. Young people were less likely to have noticed them, but if they did notice them they were more likely to have read and discussed them (Graph 5.4.2). Young people also tended to find the bags more attractive and easier to understand than over 35s (Graph 5.5.2). The bags were not successful in engaging people who would not normally be interested in science as they were much less likely to have noticed or read them and none had discussed them (Graph 5.4.4).

The key to this seems to be the fact that the bags are a disposable item. Many people will simply take the item out, eat it and throw the bag away. The beer mats might be in someone's line of vision for a whole evening or over the course of several visits to the pub. In pubs people are often looking for a topic of conversation or need something to read whilst a friend is at the bar.

Once people's attention had been drawn to the bags they were generally very positive about them and overall the design and concept was rated more highly than the beer mats (Graphs 4.5.1 and 5.5.1).

7.2 ENCOURAGING THE TARGET AUDIENCE TO VISIT PHYSICS.ORG

Based on the web statistics available it is difficult to judge whether the target audience were encouraged to visit the website. Web visitors certainly increased during the campaign period, although it is impossible to say if this is due to the campaign or the home page link. There is anecdotal evidence to suggest increased traffic from the North East.

Of the people interviewed 30% of bakery customers said they would probably visit website later. 45% of pub customers said they would visit website later and 21% said they would probably text for the answer. Although it is unlikely that all of these people followed up their assertions it does demonstrate interest in the campaign and a desire to find out more.

7.3 MAKING PHYSICS INTERESTING/ACCESSIBLE/RELEVANT

Many people surveyed commented that the beer mats and bags were interesting and that it was a good idea to engage people. The content was generally considered easy to understand and the designs attractive. However, many people did not consider the content particularly relevant to them with both the mats and bags getting neutral ratings for this question. (Graphs 4.5.1 and 5.5.1)

The straw design elicited the most text messages, followed by lipstick (Graph 4.6.2). Anecdotal evidence suggests people found these easier to relate to – bar staff had experienced problems with greasy glasses and people said they could work out the straw answer from personal experience. Many people chose their favourite design based on what they were most interested in, *e.g.* choosing the pint because they liked beer, which shows engagement with the subject matter. Many pub customers wanted there to be more designs suggesting a desire to know more.

8. SUGGESTED IMPROVEMENTS

8.1. IMPROVING THE CAMPAIGN

The most common requested improvement from people surveyed was to have the answers to the questions on the bag or mat. Although the benefits of not doing this (encouraging discussion and driving traffic to the website) are key to what IoP is trying to achieve so this can probably be ignored. It might be worth adding a text number to the sandwich bags.

Many people also wanted brighter or lighter colours. The tea and lipstick designs were particularly popular due to their bright eye-catching colours. In future it might be worth considering this.

Bar staff and regular pub goers wanted more beer mat designs to help keep conversations going. Again this might be worth doing in the future.

Bakery staff were only using the bags for greasy food (pasties, bacon rolls *etc*) due to their size. To reach a broader audience it might be good to develop bags in smaller sizes for cakes and biscuits.

In terms of reaching the target audience you might reviewing how the bags and beer mats are distributed. Neither the mats nor bags were concentrated in areas where you would expect to find large numbers of young adults. Like all cities Newcastle has areas with large numbers of students and young professionals (City Centre, Heaton, Fenham, Gosforth, Jesmond), but very few of the pubs or bakeries were in these areas. The bakeries were mainly in suburban areas, largely populated with families and elderly people. The pubs were very concentrated around the South Shields area, but only a couple were the town centre where there is a main drag of pubs which

attract young people. There was a predominance of 'old mans pubs'. However, this pub distribution had the benefit of bringing the campaign to people who wouldn't normally be interested in physics so, although they were not the original target audience, they were among the most engaged.

In addition, some of the pubs and bakeries commented that they had only received one or two of the three designs so a more even distribution of the items would be desirable.

8.2. IMPROVING THE EVALUATION

The survey generally elicited useful responses. The fact that it was only one side on A4 was a good 'selling point' when asking customers to participate.

A few questions proved problematic. It was immediately clear that the question asking participants to rate aspects on a scale of 1-10 should have had the scale the other way round, *i.e.* very interesting scoring 10, rather than 1. Participants found the 'What do they tell you about physics?' question very hard to answer, especially if they had not read the bags or beer mats, as it was too vague.

A number of participants held qualifications which did not fit into the range given on the questionnaire. Therefore, in future, the range should be changed to be more general *e.g.* none, school, sixth form/college, higher education/university, post-graduate. The actual responses received were recorded as follows

Response	Qualifications included
GCSE	GCSE, CSE, O-level, Level 1/2 NVQ, Foundation/Intermediate GNVQ, Literacy/numeracy national tests
A-level	A & AS levels, Level 3 NVQ, Advanced GNVQ
Degree	Bachelors degrees, HND/HNC, Cert/Dip HE, Foundation degrees
Masters	Masters degrees, Postgraduate Certificates and Diplomas
PhD	PhD

In order to more effectively monitor visitors to the website it might be worth reviewing the way the statistics are recorded. It would have been easier to monitor increased traffic to the site if the 'Food Physics' link had been on the home page before the bags and mats were distributed. This would allow baseline data to be established.

It would also be helpful to capture more information on visitors. Improvements might include requiring people to enter their postcode or area before they can proceed to the pages or having a unique web address *e.g.* physics.org/foodphysics on the mats and bags which can be more easily monitored.

To encourage more people to take part in the online survey it would be better to have the survey button more prominently displayed or on a pop-up. The fact that many people didn't complete all of the online survey suggests it is too long and needs to be reduced to just the most crucial questions.

9. CONCLUSION

Overall the campaign seems to have been worthwhile. Both the beer mats and sandwich bags engaged audiences, but with different degrees of success. The beer mats were particularly successful and targeting young people and those not normally interested in science. The people surveyed were generally positive about the designs and found them interesting and attractive. Many said they thought the bags and mats were a good idea and a break from the norm. Provided that the costs of running the campaign are considered reasonable it would seem to be a valuable way of bringing physics into people's lives.

9. REFERENCES

1. Neighbourhood Statistics (<http://www.neighbourhood.statistics.gov.uk>)
2. National Statistics Online (http://www.statistics.gov.uk/Census2001/population_data.asp)

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APPENDIX 1 - SURVEYS

BEER MAT SURVEY (CUSTOMERS)							Pub								
Age	<input type="checkbox"/> <18	<input type="checkbox"/> 18-24	<input type="checkbox"/> 25-35	<input type="checkbox"/> 36-45	<input type="checkbox"/> 46-55	<input type="checkbox"/> 56-65	<input type="checkbox"/> 65+								
Gender	<input type="checkbox"/> Male	<input type="checkbox"/> Female	First part of your home postcode e.g. NE1												
This questionnaire is about the beer mats. Have you...?															
Noticed them							<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Read them							<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Discussed them with partner/friends/colleagues							<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Texted to check answer							<input type="checkbox"/> Yes	<input type="checkbox"/> No							
Visited the website							<input type="checkbox"/> Yes	<input type="checkbox"/> No							
If you haven't already texted, do you think you will?							<input type="checkbox"/> Yes	<input type="checkbox"/> No							
If not, why not?															
If you haven't already visited the website, do you think you will?							<input type="checkbox"/> Yes	<input type="checkbox"/> No							
If not, why not?															
If you have read the beer mats please rate them on a scale of 1 to 10 (circle your answer)															
interesting	1	2	3	4	5	6	7	8	9	10	boring				
easy to understand	1	2	3	4	5	6	7	8	9	10	confusing				
relevant to me	1	2	3	4	5	6	7	8	9	10	not relevant to me				
attractive design	1	2	3	4	5	6	7	8	9	10	horrible design				
Which is your favourite design?															
				<input type="checkbox"/> straw				<input type="checkbox"/> lipstick				<input type="checkbox"/> beer			
Why?															
How could they be improved?															
What do the mats tell you about physics?															
Do you have any other comments about the beer mats?															
What is your highest qualification in...?															
any subject	<input type="checkbox"/> None	<input type="checkbox"/> GCSE	<input type="checkbox"/> A-level	<input type="checkbox"/> Degree	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD									
a science subject	<input type="checkbox"/> None	<input type="checkbox"/> GCS E	<input type="checkbox"/> A-level	<input type="checkbox"/> Degree	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD									
How often do you do the following?															
Read about science in newspapers, magazines or books				<input type="checkbox"/> Never			<input type="checkbox"/> Rarely			<input type="checkbox"/> Occasionally		<input type="checkbox"/> Often			
Watch science programmes on TV				<input type="checkbox"/> Never			<input type="checkbox"/> Rarely			<input type="checkbox"/> Occasionally		<input type="checkbox"/> Often			
Visit science centres or museums				<input type="checkbox"/> Never			<input type="checkbox"/> Rarely			<input type="checkbox"/> Occasionally		<input type="checkbox"/> Often			
Thank you for participating in this survey. The results will be used by the Institute of Physics who designed the beer mats. To find out more about them visit www.physics.org															

SANDWICH BAG SURVEY (CUSTOMERS)						Bakery					
Age	<input type="checkbox"/> <18	<input type="checkbox"/> 18-24	<input type="checkbox"/> 25-35	<input type="checkbox"/> 36-45	<input type="checkbox"/> 46-55	<input type="checkbox"/> 56-65	<input type="checkbox"/> 65+				
Gender	<input type="checkbox"/> Male	<input type="checkbox"/> Female	First part of your home postcode e.g. NE1								
This questionnaire is about the paper bags. Have you...?											
Noticed them						<input type="checkbox"/> Yes	<input type="checkbox"/> No				
Read them						<input type="checkbox"/> Yes	<input type="checkbox"/> No				
Discussed them with partner/friends/colleagues						<input type="checkbox"/> Yes	<input type="checkbox"/> No				
Visited the website						<input type="checkbox"/> Yes	<input type="checkbox"/> No				
If you haven't already visited the website, do you think you will?						<input type="checkbox"/> Yes	<input type="checkbox"/> No				
If not, why not?											
If you have read the paper bags please rate them on a scale of 1 to 10 (circle your answer)											
interesting	1	2	3	4	5	6	7	8	9	10	boring
easy to understand	1	2	3	4	5	6	7	8	9	10	confusing
relevant to me	1	2	3	4	5	6	7	8	9	10	not relevant to me
attractive design	1	2	3	4	5	6	7	8	9	10	horrible design
Which is your favourite design?						<input type="checkbox"/> biscuit	<input type="checkbox"/> tea	<input type="checkbox"/> folding			
Why?											
How could they be improved?											
What do the bags tell you about physics?											
Do you have any other comments about the paper bags?											
What is your highest qualification in...?											
any subject	<input type="checkbox"/> None	<input type="checkbox"/> GCSE	<input type="checkbox"/> A-level	<input type="checkbox"/> Degree	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD					
a science subject	<input type="checkbox"/> None	<input type="checkbox"/> GCS E	<input type="checkbox"/> A-level	<input type="checkbox"/> Degree	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD					
How often do you do the following?											
Read about science in newspapers, magazines or books				<input type="checkbox"/> Never	<input type="checkbox"/> Rarely	<input type="checkbox"/> Occasionally	<input type="checkbox"/> Often				
Watch science programmes on TV				<input type="checkbox"/> Never	<input type="checkbox"/> Rarely	<input type="checkbox"/> Occasionally	<input type="checkbox"/> Often				
Visit science centres or museums				<input type="checkbox"/> Never	<input type="checkbox"/> Rarely	<input type="checkbox"/> Occasionally	<input type="checkbox"/> Often				
Thank you for participating in this survey. The results will be used by the Institute of Physics who designed the beer mats. To find out more about them visit www.physics.org											

SANDWICH BAG SURVEY (STAFF)							Bakery					
Which age group do you think most of your customers belong to?												
<input type="checkbox"/> <18	<input type="checkbox"/> 18-24	<input type="checkbox"/> 25-35	<input type="checkbox"/> 36-45	<input type="checkbox"/> 46-55	<input type="checkbox"/> 56-65	<input type="checkbox"/> 65+						
What proportion of your customers do you think are aged 18-24?												
<input type="checkbox"/> 0-20%	<input type="checkbox"/> 20-40%	<input type="checkbox"/> 40-60%	<input type="checkbox"/> 60-80%	<input type="checkbox"/> 80-100%								
Have you...?												
Seen anyone reading the bags							<input type="checkbox"/> Yes	<input type="checkbox"/> No				
Discussed the bags with customers							<input type="checkbox"/> Yes	<input type="checkbox"/> No				
Seen/heard anyone discussing the bags with their friends							<input type="checkbox"/> Yes	<input type="checkbox"/> No				
Please tell us about any positive comments from customers												
Please tell us about any negative comments from customers												
Have you visited the website?							<input type="checkbox"/> Yes	<input type="checkbox"/> No				
If you haven't already visited the website, do you think you will?							<input type="checkbox"/> Yes	<input type="checkbox"/> No				
If not, why not?												
Please rate the paper bags on a scale of 1 to 10 (circle your answer)												
interesting	1	2	3	4	5	6	7	8	9	10	boring	
easy to understand	1	2	3	4	5	6	7	8	9	10	confusing	
relevant to me	1	2	3	4	5	6	7	8	9	10	not relevant to me	
attractive design	1	2	3	4	5	6	7	8	9	10	horrible design	
Which is your favourite design?												
<input type="checkbox"/> biscuit				<input type="checkbox"/> tea				<input type="checkbox"/> folding				
Why?												
How could they be improved?												
What do the bags tell you about physics?												
Do you have any other comments about the paper bags?												
Thank you for participating in this survey. The results will be used by the Institute of Physics who designed the beer mats. To find out more about them visit www.physics.org												

BEER MAT SURVEY (STAFF)										Pub		
Which age group do you think most of your customers belong to?												
<input type="checkbox"/> <18	<input type="checkbox"/> 18-24	<input type="checkbox"/> 25-35	<input type="checkbox"/> 36-45	<input type="checkbox"/> 46-55	<input type="checkbox"/> 56-65	<input type="checkbox"/> 65+						
What proportion of your customers do you think are aged 18-24?												
<input type="checkbox"/> 0-20%	<input type="checkbox"/> 20-40%	<input type="checkbox"/> 40-60%	<input type="checkbox"/> 60-80%	<input type="checkbox"/> 80-100%								
Have you...?												
Seen anyone reading the mats										<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Seen anyone texting for the answer										<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Discussed the mats with customers										<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Seen/heard anyone discussing the mats with their friends										<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Please tell us about any positive comments from customers												
Please tell us about any negative comments from customers												
Have you texted to find out the answers?										<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Have you visited the website?										<input type="checkbox"/> Yes	<input type="checkbox"/> No	
If you haven't already visited the website, do you think you will?										<input type="checkbox"/> Yes	<input type="checkbox"/> No	
If not, why not?												
Please rate the paper bags on a scale of 1 to 10 (circle your answer)												
interesting	1	2	3	4	5	6	7	8	9	10	boring	
easy to understand	1	2	3	4	5	6	7	8	9	10	confusing	
relevant to me	1	2	3	4	5	6	7	8	9	10	not relevant to me	
attractive design	1	2	3	4	5	6	7	8	9	10	horrible design	
Which is your favourite design?												
<input type="checkbox"/> straw				<input type="checkbox"/> lipstick				<input type="checkbox"/> beer				
Why?												
How could they be improved?												
What do the mats tell you about physics?												
Do you have any other comments about the mats?												
Thank you for participating in this survey. The results will be used by the Institute of Physics who designed the beer mats. To find out more about them visit www.physics.org												

APPENDIX 2 – DESIGNS

BEER MATS

HOW DOES WEARING LIPSTICK AFFECT YOUR BEER DRINKING?



AND WHAT'S PHYSICS GOT TO DO WITH IT?

HOW DOES WEARING LIPSTICK AFFECT YOUR BEER DRINKING?

the fats in lipstick destroy the foamy head?

the perfume in lipstick makes the beer taste sweeter?

lipstick makes the glass slippery and harder to hold?

See who's right, text 'fats', 'slippy' or 'perfume' to 07786 202 662*

Find out more pint sized physics at: www.physics.org

IOP Institute of Physics

*Costs the same as texting a friend. The answer is free and is the only text we'll ever send you.

WHAT'S THE TALLEST STRAW YOU CAN DRINK OUT OF?

AND WHAT'S PHYSICS GOT TO DO WITH IT?

IS THE TALLEST STRAW YOU CAN DRINK OUT OF:

a) 10 cm
b) 10 metres
c) 100 metres

See who's right, text 'a', 'b' or 'c' to 07786 202 662*

Find out more pint sized physics at: www.physics.org

IOP Institute of Physics

*Costs the same as texting a friend. The answer is free and is the only text we'll ever send you.

WHY ARE THERE SO MANY BUBBLES IN YOUR PINT?



AND WHAT'S PHYSICS GOT TO DO WITH IT?

WHERE ARE ALL THE BUBBLES COMING FROM?

1. A rough surface etched on the bottom of the glass allows bubbles to form
2. Low pressure at the bottom of the glass allows bubbles to form
3. The force of the liquid hitting the bottom allows the bubbles to form

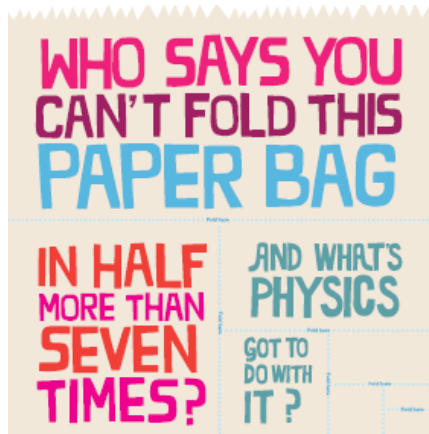
See who's right, text 'rough', 'pressure' or 'force' to 07786 202 662*

Find out more pint sized physics at: www.physics.org

IOP Institute of Physics

*Costs the same as texting a friend. The answer is free and is the only text we'll ever send you.

SANDWICH BAGS



WHO SAYS YOU CAN'T FOLD THIS PAPER BAG

IN HALF MORE THAN SEVEN TIMES?

AND WHAT'S PHYSICS GOT TO DO WITH IT?

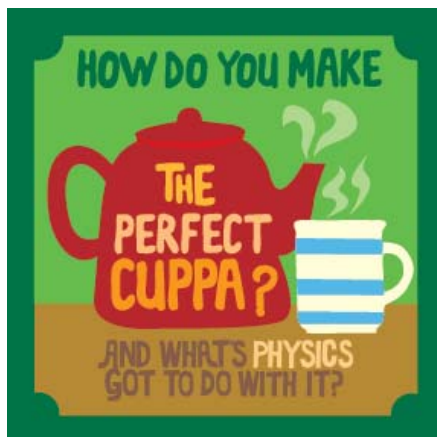


TO FOLD A PAPER BAG MORE THAN 7 TIMES WOULD YOU USE A BAG THAT IS:

0.05cm THICK, OR 1.2km WIDE?

See if you're right at: www.physics.org

IP Institute of Physics



HOW DO YOU MAKE THE PERFECT CUPPA?

AND WHAT'S PHYSICS GOT TO DO WITH IT?



WHAT'S YOUR SECRET TO MAKING THE PERFECT CUP OF TEA?

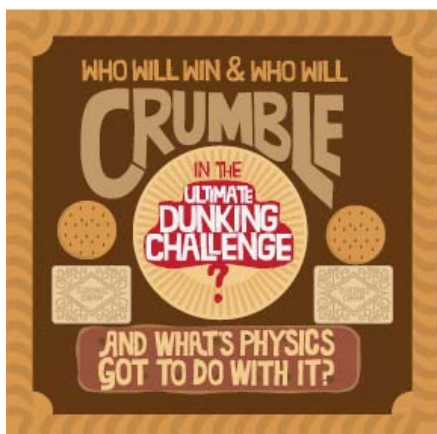
Using freshly boiled water and warming the pot?

Only ever drinking out of a china cup?

Adding the milk first?

Tell us which one makes your cuppa perfect and see who agrees with you at: www.physics.org

IP Institute of Physics



WHO WILL WIN & WHO WILL CRUMBLE

IN THE ULTIMATE DUNKING CHALLENGE?

AND WHAT'S PHYSICS GOT TO DO WITH IT?



READY, STEADY, DUNK... WHICH BISCUIT WILL SURVIVE A DUNKING?

CHOCOLATE DIGESTIVES, RICH TEA, GINGER NUTS

Back your biscuit and find out who's the real survivor at: www.physics.org

IP Institute of Physics