



# CUPS PROJECT REPORT

2019



cadwch keep  
gymru'n wales  
daclus tidy

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**Jones, H. June 2019.**

Data collected by Roberts, R. (Cardiff Metropolitan University) and Jones, H. (Keep Wales Tidy).

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# Background

## The Problem

Drinking-on-the go has become increasingly popular over recent years. There are 20,000 coffee shops in the UK and 1 in 5 of us go to a coffee shop every day.<sup>1</sup> We use 7 million single-use cups every day which is equivalent to 2.5 billion a year in the UK.<sup>2</sup> This is expected to increase further with the continuing growth of the coffee shop sector.<sup>3</sup>

In 2017, a poll found that while half of the respondents thought their coffee cups were recycled all or most of the time, just 1 in 400 (less than 1%) were actually recycled, even if they're disposed of in a recycling bin.<sup>4</sup> While single-use cups are made primarily of paper, in order to make them waterproof, they are lined with plastic (polyethylene) - which, along with the drink contaminating the waste, makes them difficult to recycle.<sup>5</sup> Contamination and separation of coffee cup waste also cause difficulties.<sup>6</sup> Most therefore end up in landfill, creating around 25,000 tonnes of waste every year.<sup>7</sup>

## Public Attitudes and Behaviours

Recently, there has been a big shift in public opinion towards plastic. Research shows that Blue Planet II has been very influential, as 88% of those who saw the final episode have since changed their behaviour.<sup>8</sup> It is reported that 60% of us are now more likely to use a refillable water bottle and that 66% of 18-24 years olds are now more likely to opt for a reusable coffee cup.<sup>9</sup> However, only 1% of us currently use reusable coffee cups.<sup>10</sup>

Single-use cups present a huge waste problem and the public has concerns about the issue. In 2017, a poll<sup>11</sup> found that:

- 89% of people thought that coffee shops should stock recyclable paper cups.
- 92% of people said they thought it was important to be able to dispose of 'take away' cups within the normal recycling system.

This shows a strong public appetite for coffee cup recycling.

During June and July 2018, Keep Wales Tidy ran a public questionnaire on cups. There were over 100 respondents (although not everybody answered each question). The results found that:

- 42.2% bought drinks in non-reusable containers weekly, while 48% bought them less often.
- 57.8% normally bought their 'take away' hot drink at a national store such as Costa Coffee, Nero or Starbucks, with just 26.5% using local or independent retailers.
- 47.5% put their cups in street recycling bins and 43.6% put them in general litter bins.
- 75.3% owned a reusable cup. 44.6% used their reusable cups most of the time, while 30.1% only used them rarely. Only 8.4% said they used their reusable cups every time they bought a hot drink.
- 7.1% said that a store had refused to use a reusable cup for selling them a hot drink.
- As far as an effective incentive for them to use alternatives to single-use cups, 62.4% favoured a discount on the drink for using a reusable cup, while 26.7% favoured a charge on the drink if they had to use a single-use cup.

## Disposal

Most people are keen to dispose of their single-use cups responsibly. Every year, we bin 2.5 billion paper cups in the UK.<sup>12</sup> Coffee cups account for 2.3% of litter bin waste in Wales, (this includes litter and recycling-on-the-go bins) but it accounts for a 'considerable volume'.<sup>13</sup> This shows that there is confusion amongst the public as to the correct place to dispose of these items.

However, unfortunately, half a million coffee cups are littered in the UK every day.<sup>14</sup> Keep Wales Tidy street cleanliness surveys shows that fast food cups (which includes coffee cups) were found on 5.0% of Wales' streets in 2018-19.<sup>15</sup>

## The Solution

It is possible to separate the plastic on single-use cups from the paper, but this can only be done by specialist facilities, and there are currently just three of these in the UK.<sup>16</sup> Recycling should be made as easy as possible to maximise uptake. In 2017, Hubbub ran a paper cup recycling project called The Square Mile Challenge in London. In nine months, they collected and recycled 4 million cups.<sup>17</sup>

Recycling however is only one part of the solution. Efforts also need to be made to prevent the problem in the first place. Sales of reusable coffee cups have recently seen a significant increase<sup>18</sup> and efforts need to be made to encourage people to use these.

## The Project

With the support of the Paper Cup Recycling and Recovery Group, Keep Wales Tidy is partnering with Cardiff Metropolitan University (Cardiff Met) to undertake a trial project which aims to reduce cup waste and boost recycling on-the-go at the university's Llandaf campus.

## Context

While there are many litter bins around campus (both for general litter and recycling on the go), before the project started, no coffee cup recycling was in place, so all single-use cup waste went to landfill. Coffee is sold from 4 parts of the campus (including a Costa Coffee at the Atrium and a Starbucks at the Student Union). See map at [Appendix 1](#).

People are confused as to where to best dispose of their cups and around a third of students are international, so there are lots of cultural and language barriers.

Hot drinks on campus cost the same regardless of 'drink in' or 'take away'. There are no 'crockerly' options for hot drinks - they are either sold in single-use cups or in reusable cups, at a discount. People can buy a reusable cup at the coffee outlets (and receive a free hot drink with it) and then get a 10% discount every time they present it (or any other reusable mug) to purchase a hot drink. The university also has a variety of reusables for sale at a discounted price.

The university is working hard to promote sustainability across all its activities. Costa Coffee is signed up to the Refill Campaign (which aims to prevent plastic pollution by making it easier for people to reuse and refill their bottles with water instead of buying a new one). However, during the first half of the 2018-19 autumn term, the campus hadn't yet been set up on the app. Free cooled water vending is also available on campus and this forms part of the Cardiff Met app.



Left to right: Cardiff Met reusable mug (for hot and cold drinks), poster advertising the discount for using a reusable mug; free cool water dispenser machine.

## The Trial

As part of the trial, four cup bins have been purchased to boost cup recycling. These are cup-shaped recycling bins to overcome the cultural and language barriers, with one located inside each coffee outlet, as follows:

- One giant cup bin (at the Atrium - which is the most popular of all the coffee outlets on campus).
- Three deluxe cups recycling units (one of each at the other three outlets).

All cups discarded in these cup bins are collected, processed and transformed into new products by Simply Cups.

As well as making it easy for people to recycle, the project is encouraging people to switch to reusable cups and make use of the university's extensive water refill facilities.

We have developed bespoke bilingual materials for the trial, which were informed by messages developed for a coffee cup project by Cardiff University's School of Psychology.<sup>19</sup> These include bin wraps, posters (A3 and A4), web banners and cup stickers. They convey the following messages:



- Reuse: 'Keys, Wallet, Phone, Cup' - to encourage people to use reusable cups.
- Recycling: 'There's life in that old cup yet' - to encourage people to dispose of their single-use cups in the new cup bins.

Both messages include the bilingual refill logo to encourage people to make use of the campus' extensive water refill facilities and #TidyCupsCymru.

The trial, which ran for 3 months, was launched on Monday 14 January 2019. From that date until the end of February, Cardiff Met managed outlets increased the discount available on hot drinks to 20% for those presenting a reusable cup.

## Engaging with Campus Users

The Llandaf campus runs monthly 'Community Days', which provide a perfect opportunity to engage with campus users. During the October day, Cardiff Met and Keep Wales Tidy were present to discuss the upcoming project (including the artwork and messaging) with students and staff, and this included the free distribution of reusable cups.

The web banner was shared by e-mail to all staff and students and posters are on display throughout the campus. The university has also created two videos to communicate the message, with one demonstrating how to use the cup bins and the other summarising the project. These are shown in the library and have been shared on [social media](#).

Throughout the trial, the project lead at the university has been engaging users, encouraging them to use both the cup bins and reusable cups. Catering staff at the Cardiff Met-managed sites have also been chatting to consumers at the outlets.

In addition, students have engaged with the cups agenda through their studies, which has increased awareness of the trial among students and their peer groups. All 60 second year Business Management Studies students on the Business in Action module at the Cardiff School of Management considered cups on campus as part of their work. The trial has provided a 'real world' example of a behaviour change project for the students to engage with and some extracts of their work can be seen at [Appendix 2](#).

## Measuring Success

The campus provides a relatively 'closed' space, where the impact of the project can be easily measured.

## Results - Cardiff Metropolitan University Data

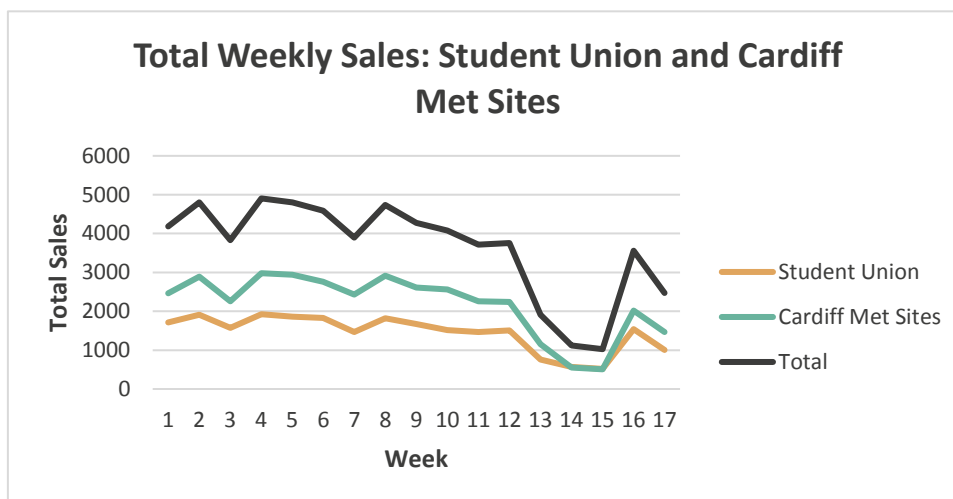
Although the project ran over a 3-month period from when the cup bins were launched on Monday 14 January 2019, the university continued to collect data for 17 weeks (until Sunday 12 May).

### Sales Data

#### a) Total Sales

Over the 17-week period, there were 61,659 sales across all outlets, averaging at 3,627 per week.

**Figure 1: Weekly Sales Figures Across all Outlets**



With the exception of weeks 3 (which was a 4-day week due to the snow) and 7 (an anomaly), total weekly sales stayed above 4,000 for the first 10 weeks of term. However, they began decreasing following week 8, dropped dramatically by week 13 (which marked the beginning of the Easter break) and continued to fall for the remaining weeks of the holiday period, reaching only a little above 1,000 by week 15. The summer term began at a lower level of just above 3,500.

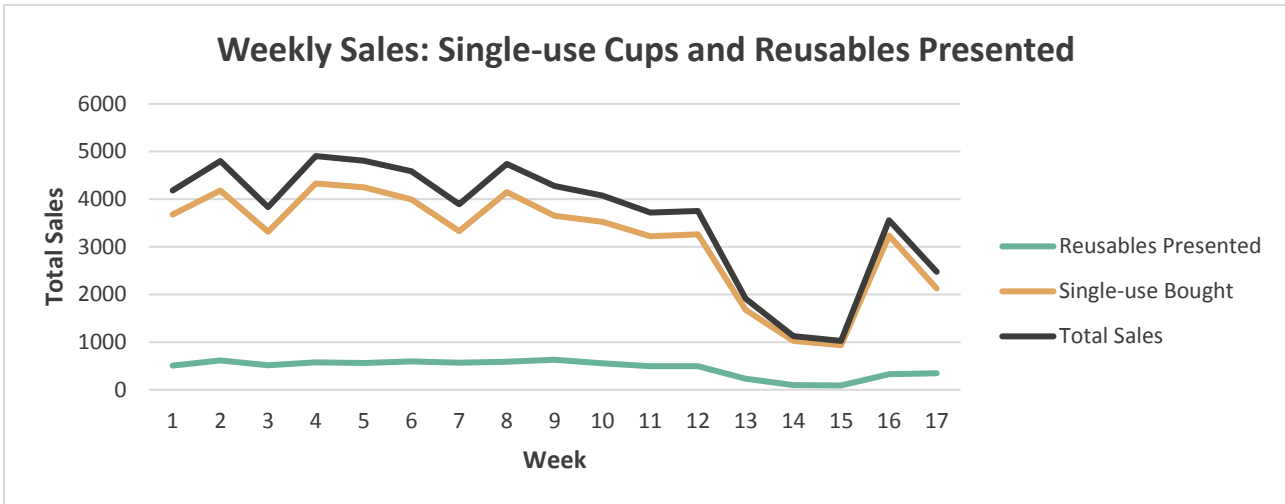
During term time, sales were significantly higher across the Cardiff Met Sites (the most popular outlet being the Atrium) than the Student Union (where most hot drinks are bought from Starbucks).

## b) Sales by Cup Type

Of the 61,659 drinks sold, 53,878 (or 87.4%) were single-use cup purchases.

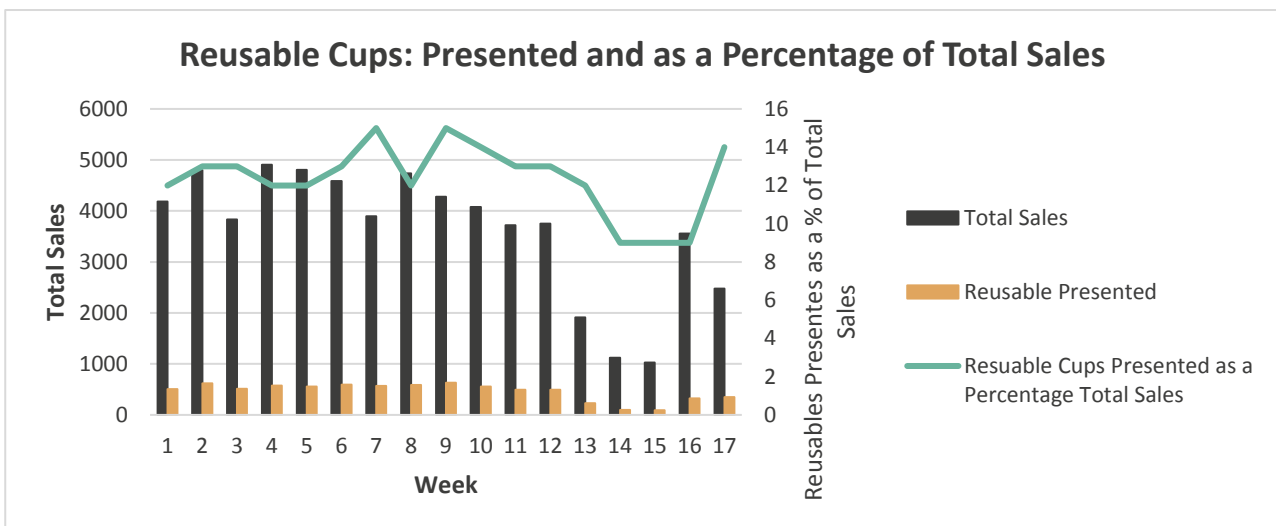
A total of 7,781 (12.6% of sales) presented reusable cups, allowing the consumers to get a discount on their drink. Interestingly, 90.5% of these were presented across the Cardiff Met Sites. This was where the project was being widely promoted by staff. The Student Union figure therefore acts as a useful control.

**Figure 2: Weekly Sales - Breakdown by Cup Type**



The average number of reusable cups presented was 458 per week, but the figure rose above 600 on two occasions (with figures of 617 during week 2 and a peak of 629, which occurred during week 9).

**Figure 3: Reusable Cups Presented as a Percentage of Total Sales**



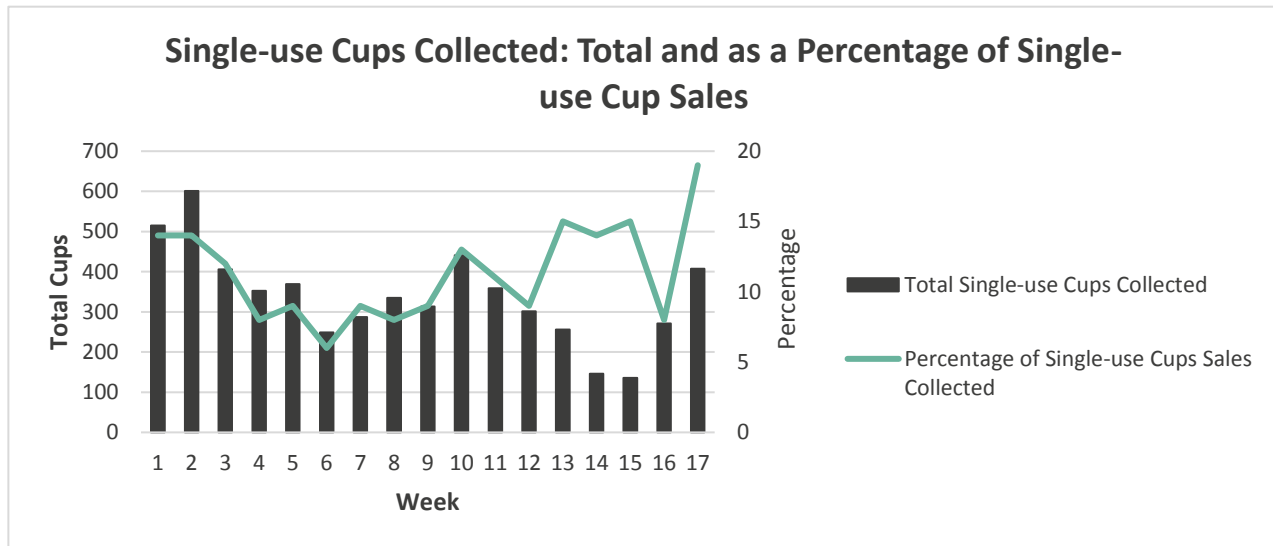
During week 1, those presenting reusable cups made up 12% of total sales, rising to peaks of 15% during weeks 7 and 9. The figure dropped to 9% during weeks 14-16 before increasing dramatically to 14% the following week. The average figure across campus over the 17 weeks was 12.4%.

Reusable cups presented made up 19% of total sales in the Cardiff Met Sites, compared with just 3.7% of sales at the Student Union.

## Single-use Cups Diverted from Landfill for Recycling

A total of 5,744 single-use cups (representing 10.7% of single-use cup sales) were disposed of in the cup bins and therefore diverted from landfill, filling 36 boxes over the 17-week period. Only total figures are available, so it isn't possible to compare the Cardiff Met Sites with the Student Union. An average of 338 cups were collected in the cup bins each week.

**Figure 4: Weekly Single-use Cups Diverted from Landfill**



The total cups collected began at 515 during week 1 before peaking at 601 the following week. Over the next few weeks there was a declining trend (reaching just 249 by week 6), before figures increased again (reaching a smaller peak of 441 during week 10). The figures then decreased week-by-week until the end of the Easter holiday, before increasing again when the students returned for the summer term, with a figure of 407 recorded for week 17.

When we consider the percentage of single-use cups being collected in the cup bins, overall a similar pattern to that described above can be seen until week 12. However, the following week the figure increased to 15% (the highest figure seen up until that point). It then dropped to 8% during week 16 (the start of the summer term) before increasing to its 19% peak by week 17. The weekly average percentage of single-use cup sales collected in the cup bins was 11.4%.

## Reusable Cup Sales

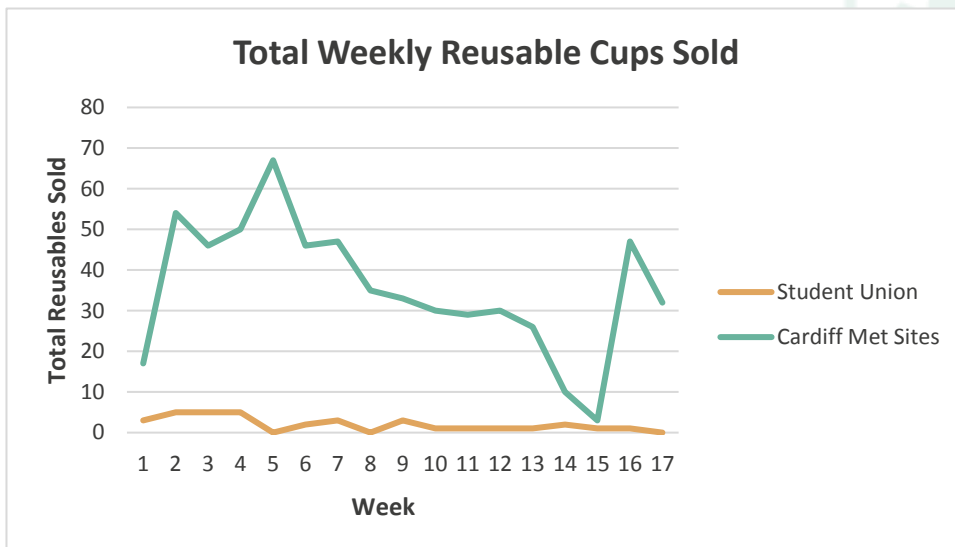
There is a variety of reusable cups on sale across the campus. A total of 636 reusable cups were sold over the 17-week period, averaging 37.4 sales per week. There is a considerable difference between the well engaged Cardiff Met-managed sites and the Students Union (where Starbucks has a £1 cup, which is a little sturdier than its single-use cup), see Table 1 below. This again means that the Student Union figures acts as a useful control.

**Table 1: Reusable Cups Sales - Student Union and Cardiff Met Sites Comparison**

	Student Union	Cardiff Met Sites
Total Sales	34	602
Percentage of Total Reusables Sold Across the Campus	5.3%	94.7%
Weekly Average Sales	2	35.4



Figure 5: Weekly Reusable Cups Sales



Reusable cup sales across Cardiff Met Sites remained high during much of the trial period. The weekly figure only dropped below 30 sales twice during term time (during weeks 1 and 11), while reaching more than 50 sales per week during weeks 2 and 5 (when a peak of 67 was seen). At the Student Union, figures peaked at 5 during weeks 2-4, while no sales occurred during three weeks of term time.

## Other Data

In 2010, the university installed 18 (HydraChill) cooled water facilities across its Llandaf and Cyncoed campuses. Since then, 2,071 857 vends - each holding 500ml of water - have been used.

Plastic use on the campus was highlighted as a concern by a pledge tree activity held during a Go Green event in February 2018. As a result, Chilly bottles were introduced in April last year and over 6,300 reusable bottles have since been sold.

## Results - Keep Wales Tidy Data

All information collected by Keep Wales Tidy both before (autumn term) and after (spring term) the project launch took place at the Atrium.



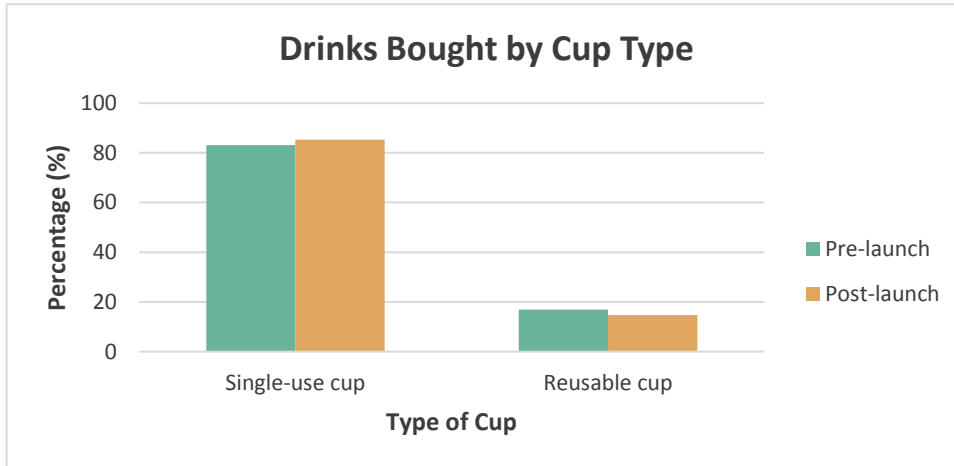
Above: the Atrium.

## Observed Behaviour

### a) Hot Drinks Bought

A total of 233 hot drinks were seen purchased during eight half hour periods on 12, 23 October 2018, 21 February and 26 March 2019.

Figure 6: Drinks Brought by Cup Type - Pre and Post-launch Comparison

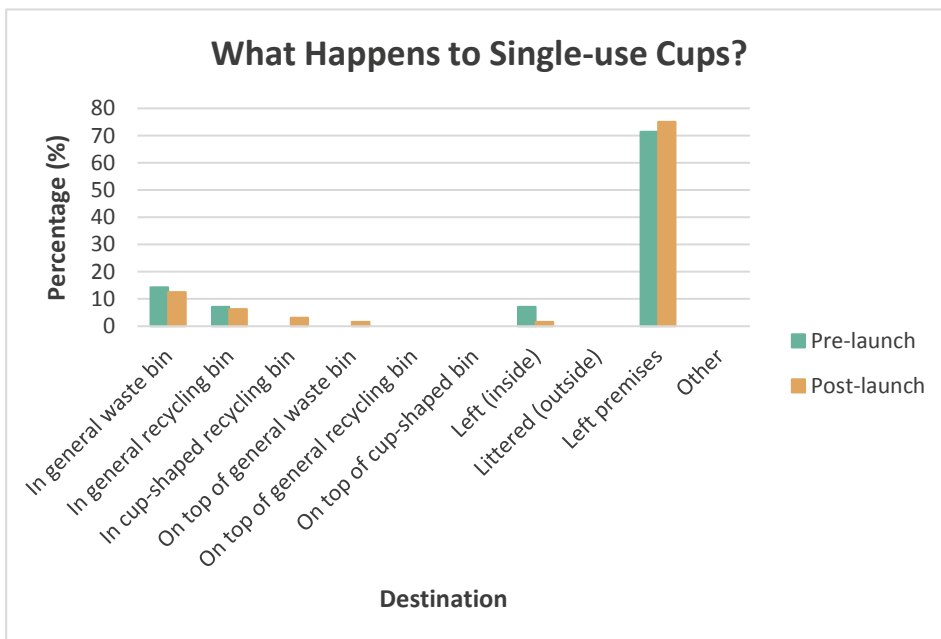


More than 80% of those observed bought their drinks in single-use cups (both before and after the launch). There is little difference in the figures, with 83% purchasing drinks in single-use cups before the launch, increasing slightly to 85.3% after the launch.

### b) Observed Behaviour - What Happens to Single-use Cups?

We saw the destination of 134 single-use cups during four hour-long periods on 12, 25 October 2018, 21 February and 26 March 2019.

Figure 7: What Happens to Single-use Cups? - Pre and Post-launch Comparison



The main finding of this observed behaviour exercise is that most single-use cups were leaving the premises i.e. were purchases to 'take away' rather than to 'drink in'. This accounted for 71.4% of cups before the launch and 75% of cups after the launch.

Of the single-use cups that stayed in the outlets, most were being deposited in the bins on the premises, with general waste bins being used most commonly (14.3% before the launch and 12.5% after the launch). Some people chose to dispose of their single-use cups in the general recycling bins (7.1% before the launch and 6.3% after the launch). Placing the single-use cups on top of the bins wasn't a common behaviour observed, with just 1.6% of cups being put on top of a general waste bin after the launch.

Our data shows that 3.1% of single-use cups were deposited in the cup bins. Interestingly, all cases occurred during the observed behaviour in March (we didn't see the cup bins being used in February).

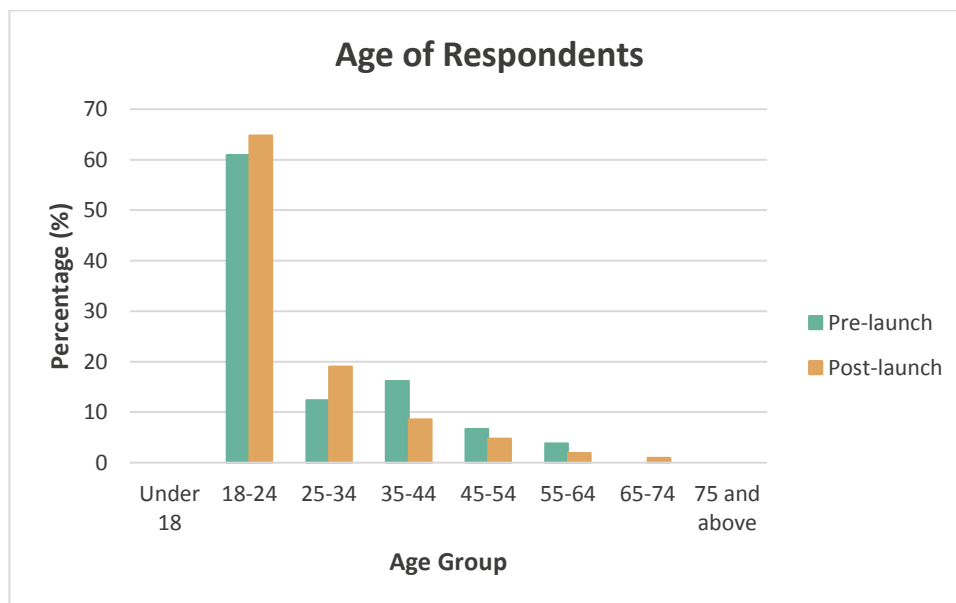
While 'drink in' customers usually left their tables clear, some left their single-use cups on the tables when they left (7.1% before the launch and 1.6% after the launch). No single-use cups were seen being littered outside.

## Questionnaires

A total of 210 questionnaires were completed, 105 before the launch (during 12, 23 and 25 October 2018) and another 105 after the launch (during 21 February and 26 March 2019). A copy of the questionnaire can be found in [Appendix 3](#).

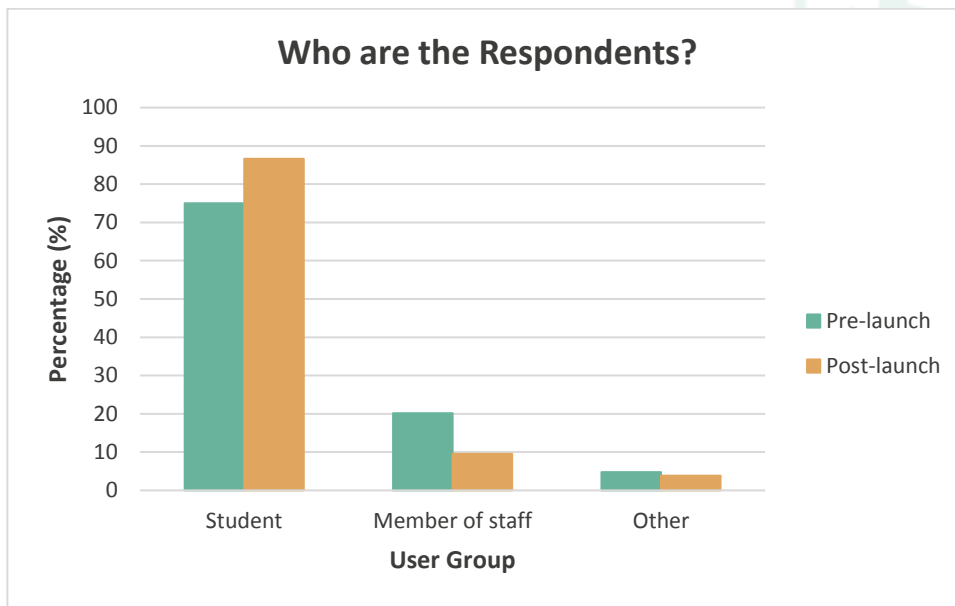
### a) About the Respondents

**Figure 8: Age of respondents - Pre and Post-launch Comparison**



As expected on a university campus, most respondents were aged 18-24, with numbers decreasing as the age group gets older. No respondents were in the youngest (under 18) or oldest (75 and above) age groups.

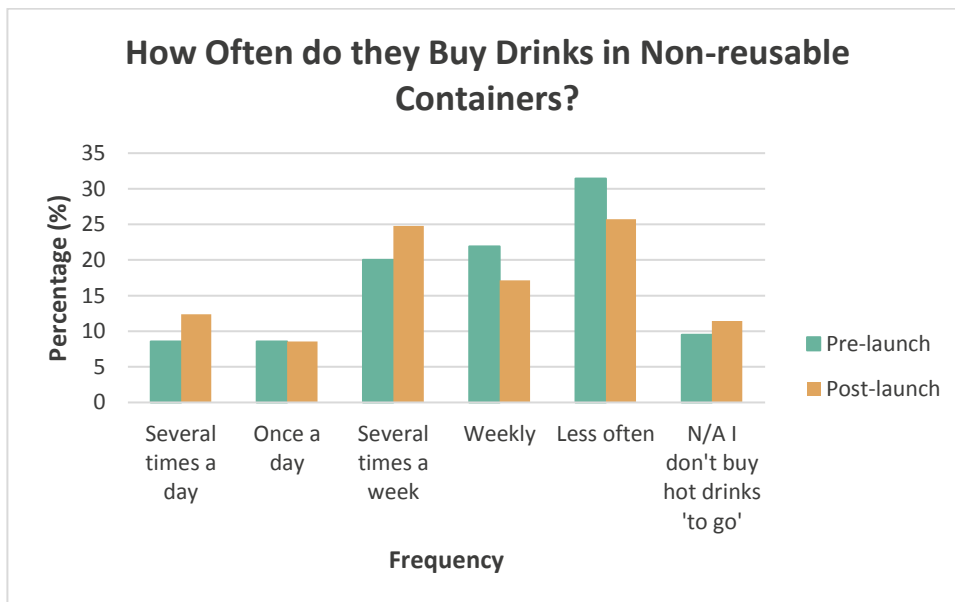
Figure 9: Who are the Respondents? - Pre and Post-launch Comparison



Most respondents were students, with lower numbers of staff. A small number of respondents identified as 'other', and these included stall holders (for the Community Day), Police, a retired member of staff, contractors and a visitor.

### b) Frequency of Buying Drinks in Single-use Cups

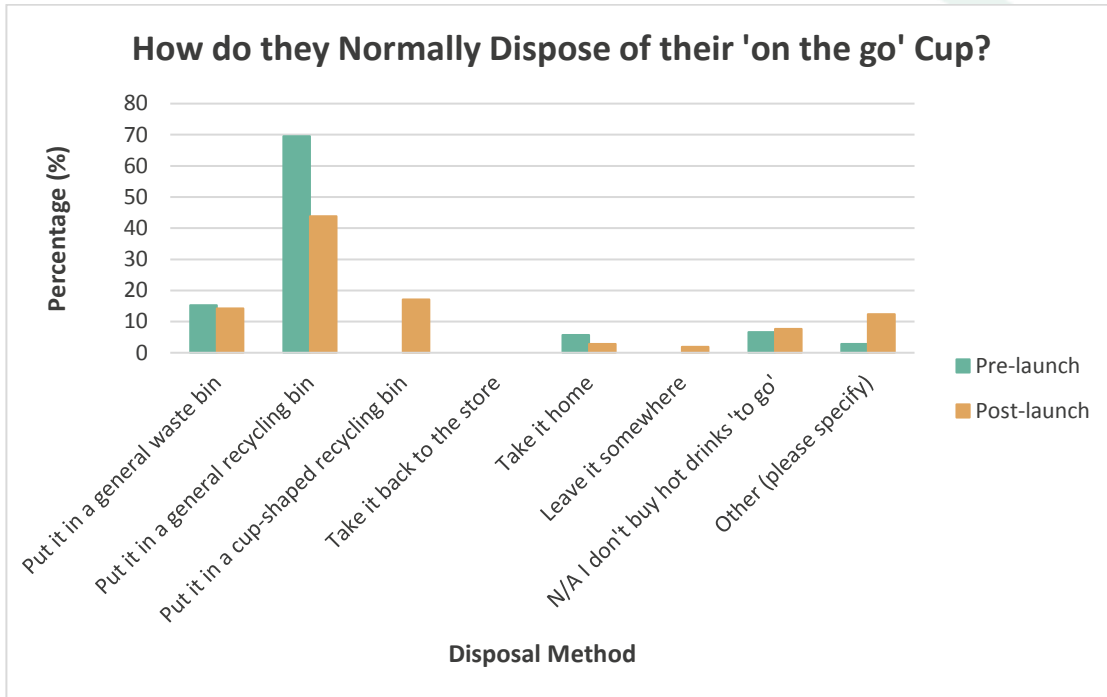
Figure 10: How Often do they Buy Drinks in Non-reusable Containers? - Pre and Post-launch Comparison



While most respondents buy drinks in single-use cups, the most common frequency is 'less often' (than weekly), noted by 31.4% of respondents before the launch and 25.7% of respondents after the launch. More than 40% of respondents buy drinks in single-use cups at least weekly, while around 20% buy them at least once a day. Approximately 10% of respondents don't buy hot drinks 'to go'.

### c) Normal Disposal Method for Single-use Cups

Figure 11: How do they Normally Dispose of their 'on the go' Cup? - Pre and Post-launch Comparison



Most respondents disposed of their cups in a bin, with a general recycling bin being the most commonly answered option (69.5% before the launch and 43.8% after the launch). However, around 15% of respondents normally disposed of their cups in a general waste bin. *Note that this is different from the findings of the observed behaviour, where people were more commonly seen disposing of their single-use cups in the general waste bins.*

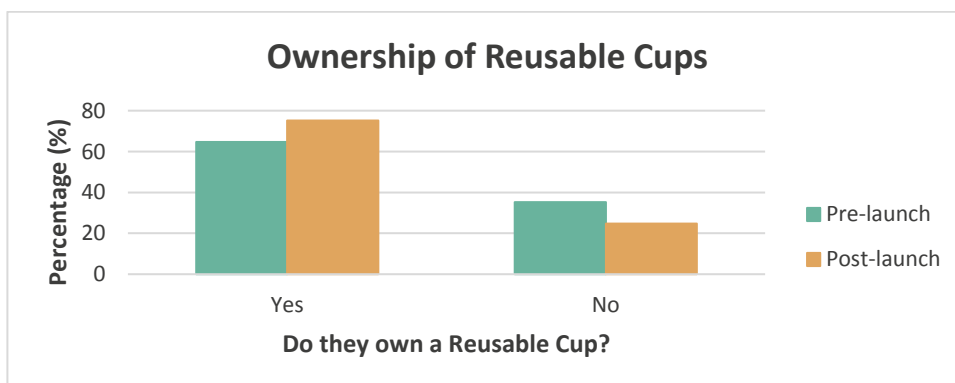
After the launch, 17.1% of respondents said they disposed of their cups in a cup bin (the figures for the questionnaires answered in February and March were very similar).

A small number of respondents (5.7% before the launch and 2.9% after the launch) said that they took their cups home, and after the launch, 1.9% admitted to leaving their cups somewhere.

All respondents who stated 'other' for this question mentioned bins, either ticking two types of bins or stating a bin-related comment such as 'any bin I would find that's suitable', 'general recycling if no cup-shaped bin' and 'the closest bin'.

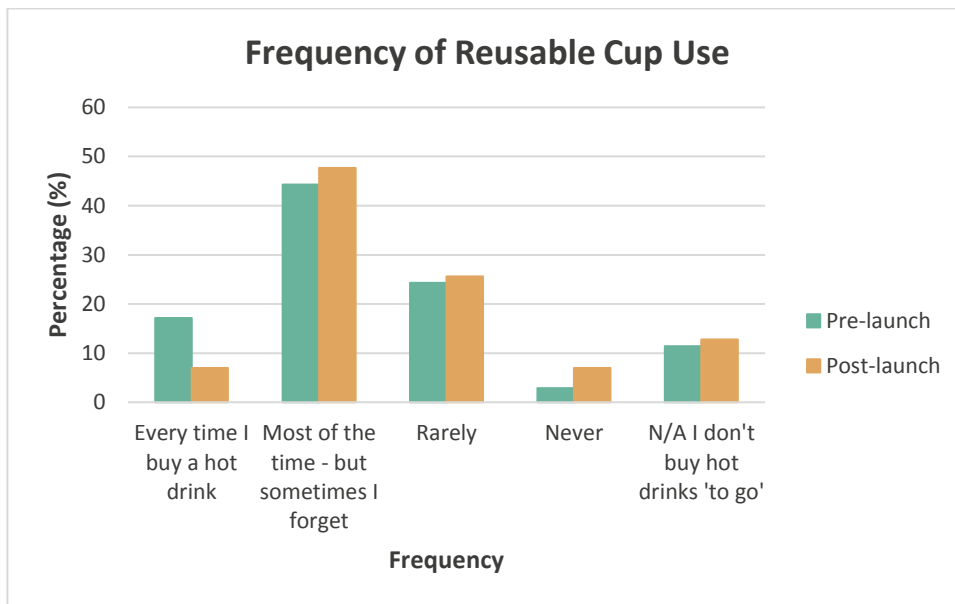
### d) Reusable Cups

Figure 12: Ownership of Reusable Cups - Pre and Post-launch Comparison



Ownership of reusable cups was high (64.8%) before the launch and increased to 75.2% after the launch. *The latter is very similar to the findings of Keep Wales Tidy's public questionnaire from the summer of 2018.*

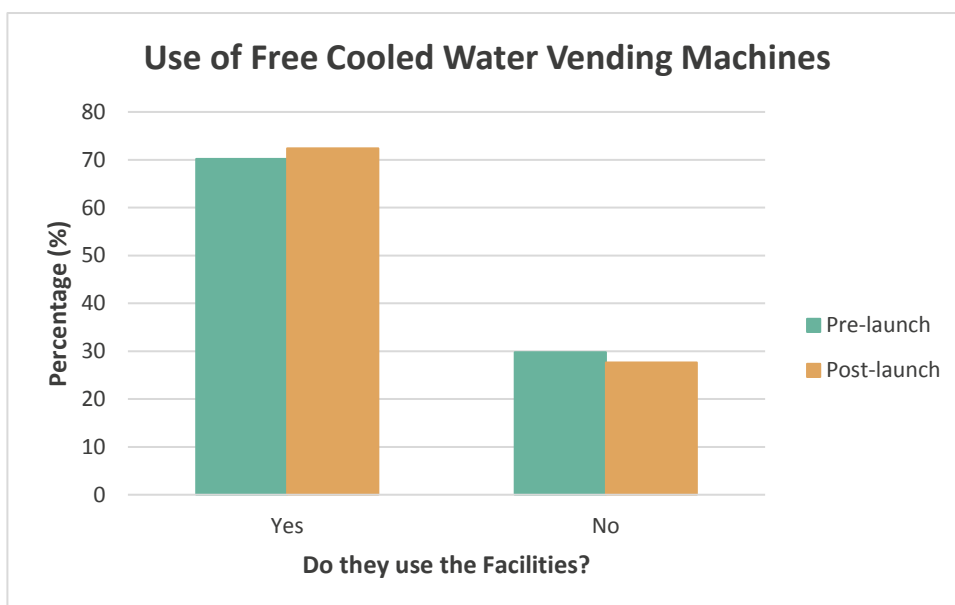
**Figure 13: Frequency of Reusable Cup Use - Pre and Post-launch Comparison**



Most respondents (44.3% before the launch, increasing to 47.7% after the launch) used their reusable cups most of the time. Respondents using their cups every time they buy hot drinks was at 17.1% before the launch but decreased to 7.0% after the launch. Around a quarter of respondents said they rarely used their reusable cups, while less than 10% never used them.

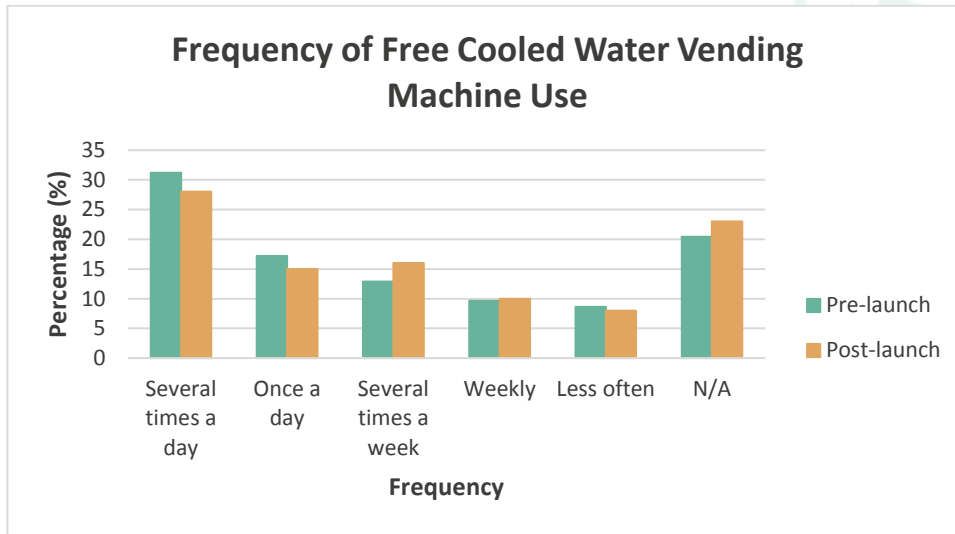
### e) Free Cooled Water Vending Machines

**Figure 14: Use of Free Cooled Water Vending Machines - Pre and Post-launch Comparison**



Most respondents used the free water facilities around the campus, with a figure of 70.2% before the launch, increasing slightly to 72.4% after the launch.

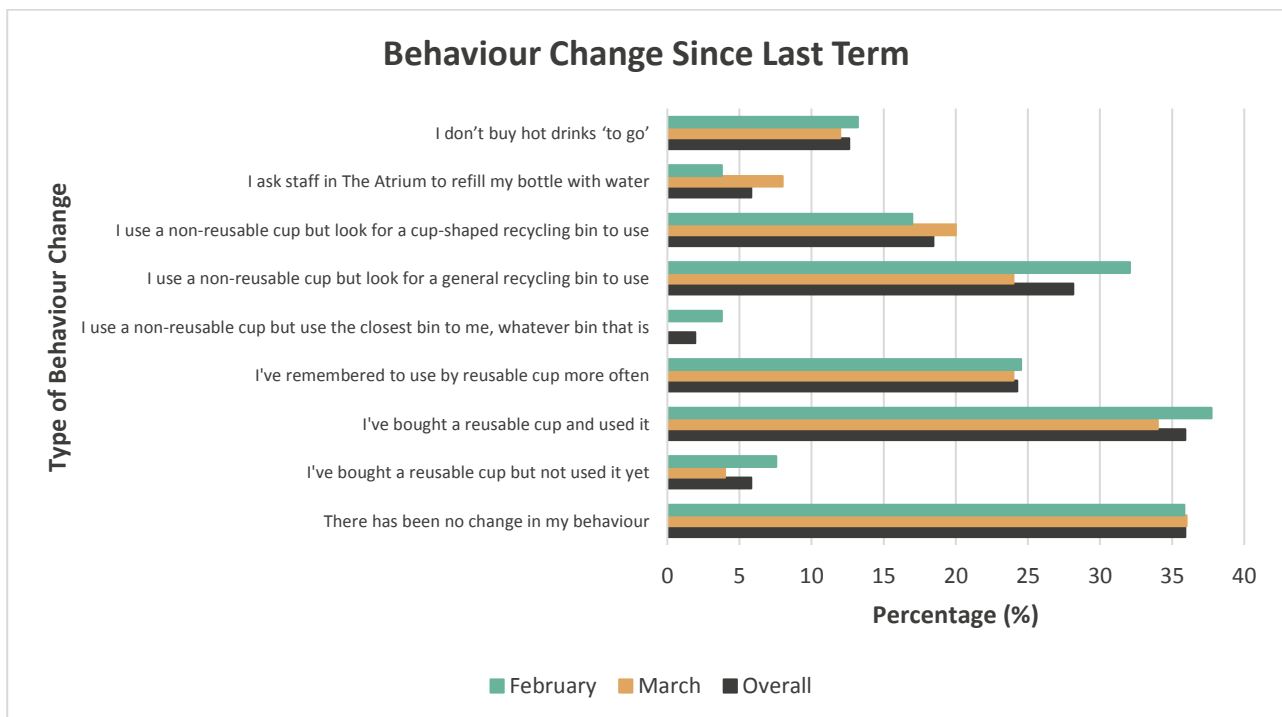
Figure 15: Frequency of Free Cooled Water Vending Machine Use - Pre and Post-launch Comparison



A high level of respondents used the free water facilities at least once a day, with most of these (31.2% before the launch and 28% after the launch) using them several times a day. Around a quarter use the facilities at least weekly, while less than 10% use them less often.

## f) Behaviour Change

Figure 16: Behaviour Change Identified between the Autumn and Spring Terms



Respondents to this question could tick as many statements as applied to them. Overall, the most common statements ticked (both at 35.9%) were 'There has been no change in my behaviour' and 'I've bought a reusable cup and used it'.

With an overall figure of 28.2%, the number of respondents saying that 'I use a non-reusable cup but look for a general recycling bin to use' was also high (but decreased from 32.1% in February to 24.0% in March), while 24.3% said that 'I've remembered to use my reusable cup more often'.

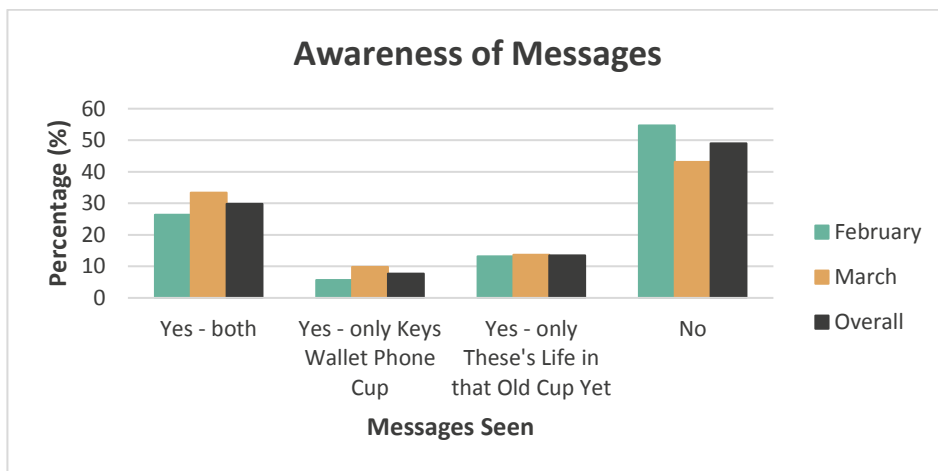
It is positive that the number of respondents who said that 'I use a non-reusable cup but look for a cup-shaped recycling bin to use' increased from 17.0% in February to 20% in March (with an overall figure of 18.4% recorded). There was also an increase over time (from 3.8% to 8%) in those who said, 'I ask staff at the Atrium to refill my bottle with water'. The overall figure ticking this statement was 5.8%, which was the same as those who said, 'I've bought a reusable cup but not used it yet'.

Those stating that 'I use a non-reusable cup but use the closest bin to me, whatever bin that is' was low and was only identified by respondents in February, when the figure was 3.8%.

Overall, 12.6% of respondents said, 'I don't buy hot drinks 'to go'.

### g) Awareness of Messages

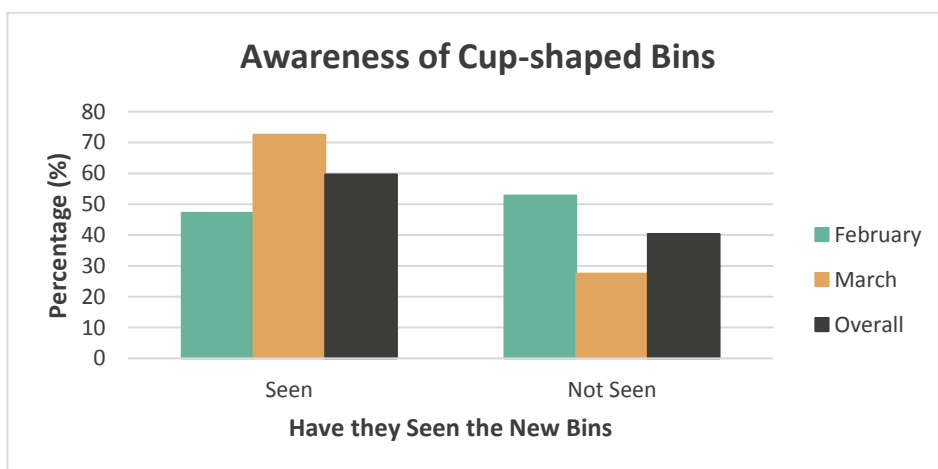
Figure 17: Awareness of Messages



Just over half of respondents (51.0%) had seen one or both of the messages. Most of these (29.8%) had seen both, while 13.5% said they'd only seen the recycling message and 7.7% said they'd only seen the reuse message. It is positive that awareness of the messages increased between February and March.

### h) Awareness of the New Cup-shaped Recycling Bins

Figure 18: Awareness of Cup-shaped Bins



It is positive that the number of respondents who had seen the new cup bins increased from 47.2% in February to 72.5% in March (an overall figure of 59.6%).



## i) Comments

A total of 27 respondents made comments on the questionnaire (19 during the autumn term and a further 8 during the spring term). Most of these provided more insight into behaviour. The comments have been categorised and there are some examples in Table 2, below.

**Table 2: Selection of Comments on the Questionnaire**

Autumn Term	Spring Term
<b>Behavioural Insights:</b>	
<ul style="list-style-type: none"> <li>- Brings own drink every day.</li> <li>- Owns a reusable cup at work.</li> <li>- Only buys drinks in non-reusable containers <i>'if I am out and nothing else available'</i>.</li> <li>- Never buys drinks in non-reusable containers - <i>'I own a reusable Starbucks mug to reduce plastic waste. I keep it in uni so I don't forget it at home'</i>.</li> </ul>	<ul style="list-style-type: none"> <li>- If I did buy hot drinks I would try to dispose in the cup-shaped bins &amp; consider buying a reusable cup.</li> </ul>
<b>Water:</b>	
<ul style="list-style-type: none"> <li>- <i>'I reuse a water bottle - but do not own a reusable hot drink cup'</i>.</li> <li>- <i>'AVAILABILITY OF HOT WATER TAPS IS RARE'</i>.</li> <li>- Owns a reusable bottle <i>'for water'</i>.</li> <li>- The reusable cup is a <i>'cold drink one'</i> which is used often.</li> <li>- Couldn't find them (the cooled water vending machines - as a reason for not using them).</li> <li>- Gets water from the office.</li> </ul>	<ul style="list-style-type: none"> <li>- Uses the tap to fill water bottle.</li> </ul>
<b>Positive Feedback/Future Suggestions:</b>	
<ul style="list-style-type: none"> <li>- Had a free Cardiff Met cup which is positive.</li> <li>- Worthy cause. Already using a lot of alternative products - drink straws etc. Sustainable alternatives to cling film etc. need to be looked in to.</li> <li>- <i>'I HAVE HEARD THAT RECYCLING PLANTS THAT CAN RECYCLE COFFEE CUPS ARE AVAILABLE BUT THERE ARE NOT MANY OF THEM IN THE COUNTRY. WOULD CARDIFF COUNCIL BE LOOKING AT PURCHASING ONE?'</i></li> </ul>	<ul style="list-style-type: none"> <li>- I do love this recycle emphasis at uni.</li> <li>- I like what you're doing with this university.</li> <li>- Keep up the good work.</li> <li>- Put more pressure of hot drink vendors to make the cups recyclable.</li> </ul>

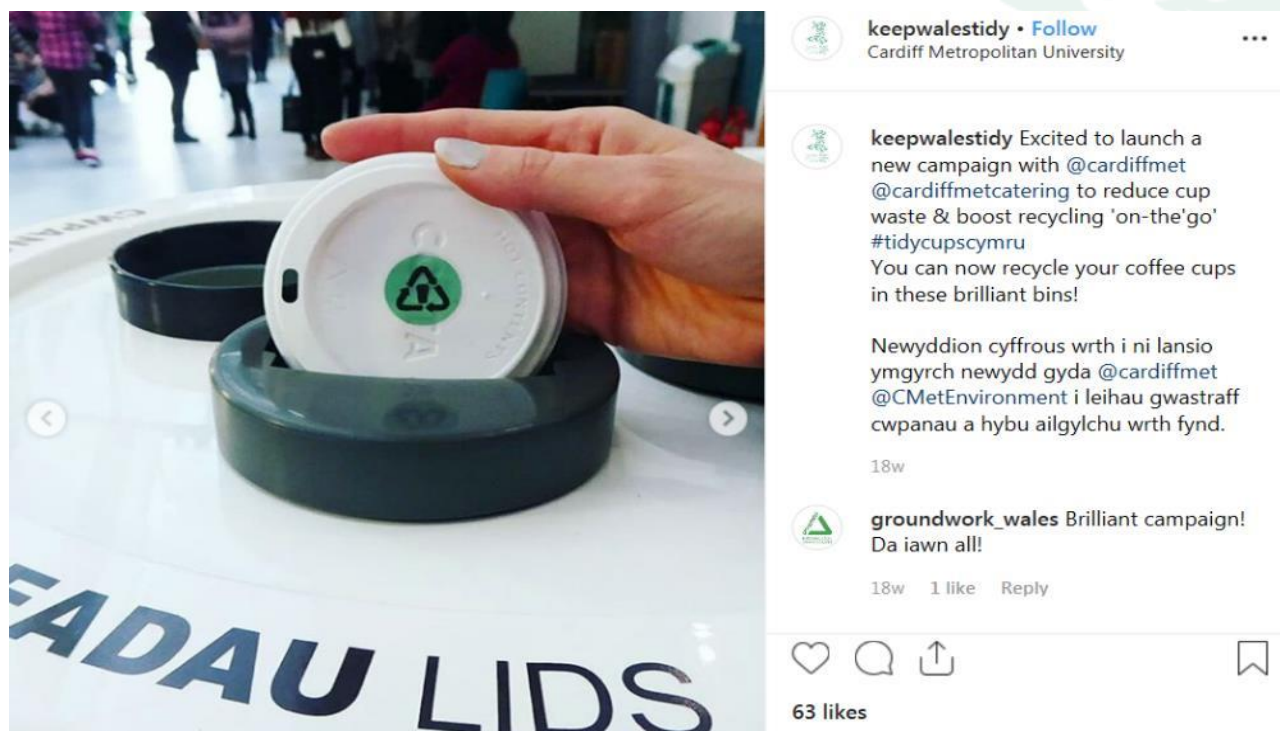
These comments reflect not only that campus users are trying to do the right thing, but that their responsible behaviour extends to cold as well as hot drinks. They also show positive attitudes towards the university's drive to promote environmental causes and sustainability.

## Communications

The news story announcing the project appeared on the [Keep Wales Tidy](#) and [Cardiff Metropolitan University](#) websites. On the Keep Wales Tidy website, the news story appeared as one of the main features on the homepage during January-March.

A bilingual press release was issued to national and regional media. It was picked up in the national news site [Wales 247](#).

A dedicated hashtag was created for the project #tidycupscymru. Keep Wales Tidy social media activity alone (from the charity's Twitter, Instagram and Facebook accounts/pages) created nearly 17,000 impressions.



Details of the project have been highlighted to key stakeholders, including Welsh Government and members of the Wales Clean Seas Partnership. The trial features in a new report on support by the Higher Education Funding Council for Wales for [student well-being and health](#) (see pages 57-58).

## Comparison with National Data

The trial has taken place on a well-managed campus which provides a relatively 'closed' space. It was therefore always likely that the results would be more successful than similar projects in more 'open' public spaces (such as a town high street) or on a large scale. The results of this trial shouldn't however be downplayed.

Other similar initiatives have taken place throughout the UK, and while they are all different and therefore not directly comparable, it is interesting to see the data side-by-side in order to evaluate this trial in a broader context.

**Table 3: How Reusable Cup Use During the Trial Compares with Leading National Coffee Outlet Figures**

Coffee Outlet and Location	Incentive (Discount Offered)	Percentage of All Hot Drinks Sold in Reusable Cups
Student Union ( <i>Control</i> ), Llandaf Campus	10%	3.7%
Cardiff Met Sites, Llandaf Campus	10%*	19%
Starbucks, Nationwide	25p	1.8%
Costa Coffee, Nationwide	25p	~1%

Source: <https://www.bbc.co.uk/news/science-environment-43739043>

\* Cardiff Met Sites increased the discount to 20% between the launch date of 14 January and the end of February 2019.

The weekly average percentage of single-use cups being recycled during the trial was 11.4%. This compares to a UK average figure of 4% in 2018.<sup>20</sup>

These figures suggest that both reusable cup use and single-cup recycling have been successful during the trial at Cardiff Met.

## Feedback from the University

Staff at Cardiff Met have worked incredibly hard on this trial to make it a success. The following feedback has been received:

- Contamination of the cup bins has been an issue. For example, consumers:
  - putting their tea bags into their cup prior to disposal (there is no dedicated place for tea bags in the cup bins).
  - placing other waste in their cups before disposing of them (trying to do what they see as the 'right thing').
  - binning their cups with their lids on (rather than separating both items) - usually when the cup still contains the hot drink.

Staff have therefore had to 'uncontaminate' the cup bins prior to collection.

- People are creatures of habit and staff feel that many consumers are aware of the cup bins but are still not using them. It is felt that staff are worse than students in this respect.
- Comments from coffee outlet staff include:
  - The top of the cup bins require cleaning.
  - There are some problems with the design of the cup bins. Keep Wales Tidy will be discussing these further with the provider.
  - In the Box (a quieter outlet) there are opportunities to discuss the project with consumers. However, at the Atrium (the busiest outlet), the opportunity to talk with customers has gone stale.
  - Outlet staff understand and support the project. They have seen an increase in the number of customers presenting reusable mugs and are excited about the Chilly bottle sales.
- The free distribution of reusable cups during 'Community Days' are useful, but this is most effective with consumers who are eager to accept them and enthusiastic about using them. It's good to also have a variety of reusable cups for sale, so that consumers have a choice of cups to choose from. Making an investment in their cup of choice is likely to lead to more use of that cup.
- Although signed up with the Refill Campaign, there have been issues with staff in Costa Coffee (at the Atrium) refusing to refill - instead sending customers upstairs to the free cooled water facilities (probably thinking that this would be preferable to the consumer). Staff have since been reminded that the outlet is a Refill station.

## Conclusions

Drinking-on-the go has become increasingly popular over recent years, but the difficulty of recycling single-use cups means that the vast majority of these cups end up in landfill. This creates a significant waste issue, which the public is getting more aware of and concerned about.

However, single-use cup recycling is possible. This university trial shows that with the right messaging, infrastructure and user engagement, consumers can be encouraged to dispose of their single-use cups into cup bins, therefore diverting this waste from landfill.

Moreover, switching to reusables negates the need for single-use cups in the first place. Although many people own reusable cups, their use is minimal. During the trial, consumers were encouraged to use reusable cups through a range of measures. This included the distribution of free reusables, the promotion of a variety of reusable cups for sale (at a discounted price) and having a discount in place for presenting reusables, along with messaging and user engagement.

The results of this trial are encouraging. With the support of the industry, we can build on these by learning from other similar projects. This will allow us to move forward in changing behaviour more widely for the benefit of the environment.

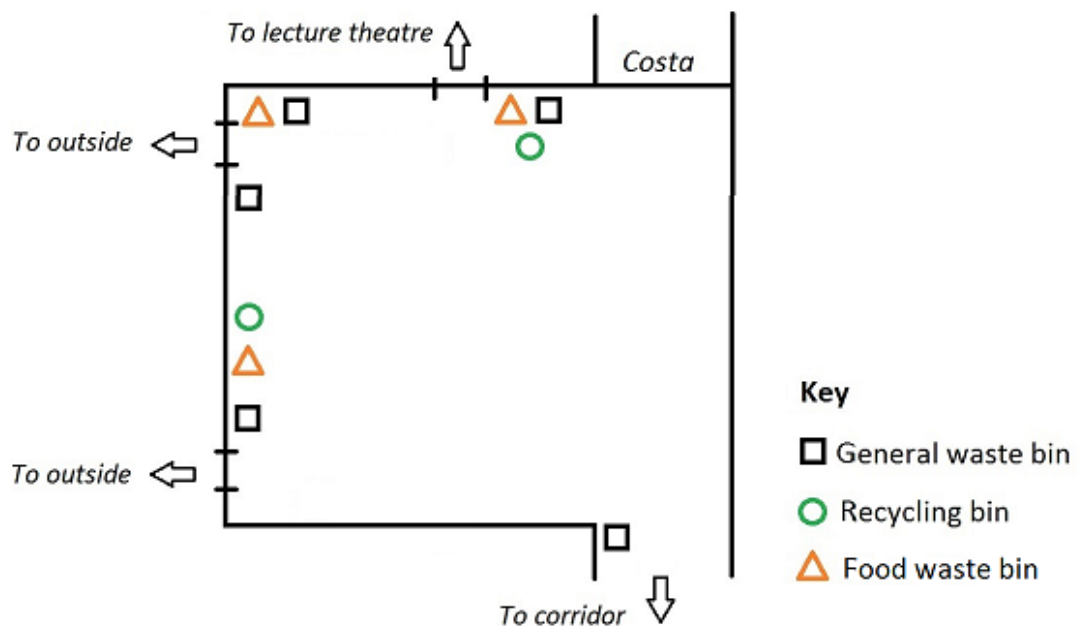
# Recommendations

Observed behaviour findings show that even two months after the launch of the cup bins, many consumers drinking their hot drinks in the Atrium outlet continue to dispose of their single-use cups in general waste or general recycling bins.

Hopefully with the passing of more time, as awareness of the cup bins continue to increase, their use will also increase. However, introducing messaging on the general waste and general recycling bins (e.g. communicating that these bins don't accept cups, or that cups will only be recycled if they're placed in the cup bins) could be used to further encourage users to dispose of their cups in the cup bins.

Each main outlet on campus has only one cup bin, but a large number of other bins. For example, there are ten bins in the Atrium (five for general waste, two for general recycling and three for food waste), located near various exits from the premises (see Figure 19, below).

**Figure 19: Bins at the Atrium (Friday 12 October 2018)**



*NOT to scale.*

The more cup bins on campus, the less effort they require and therefore the easier they are to use. Having a higher ratio of cup bins to other bins would therefore likely lead to greater cup collection figures.

While cup bins are needed in the outlets to capture the cups being consumed inside, our observed behaviour data from the busiest outlet showed that over 70% of drinks purchased in single-use cups were leaving the premises. This highlights the need to have additional cup bins, located in busy areas outside the outlets, to allow 'take away' cups to be captured and therefore significantly increase the amount of cups being recycled.

While using the cup bins - which allows the cups to be recycled - is a positive step forward, more important still is encouraging more consumers to switch to reusables. Like many other national chains,<sup>21</sup> the coffee outlets at the university currently offer discounts to consumers who present reusable cups to purchase their hot drinks. This appears to be having some impact (especially as it's being used alongside other measures, including the distribution of free reusables, reusables for sale and messaging). A study by Cardiff University to encourage the use of reusable coffee cups found that more behaviour change occurred when multiple measures were combined than when individual measures were used in isolation.<sup>22</sup> However, the study also found that *'People are far more sensitive to losses than to gains when making decisions - so if we really want to change a customer's behaviour then a charge on a disposable cup is more likely*

to be effective'.<sup>23</sup> Moreover, it is believed that '...a charge on disposable cups could reduce their use by up to 30%'.<sup>24</sup> Therefore, introducing a charge could improve results significantly.

## Disposable Packaging Inquiry

The above suggestions around messaging, recycling and reducing single-use cup waste are in line with the related recommendations put forward in the UK Parliament's recent inquiry into disposable coffee cups, summarised below.

- Messaging - to provide consistent messages which would allow consumers to make informed decisions, outlets with in-store recycling should have cups with 'recyclable in store' labels, while those without should have cups with 'not widely recycled' labels.
- Recycling - the government should set a target that all single-use cups disposed of in recycling bins should be recycled by 2023. If this is not achieved, disposable coffee cups should be banned.
- Reducing waste - the government should introduce a minimum 25p levy on disposable cups. This would be paid by the consumer on top of the price of the coffee. The revenue could be used to fund recycling infrastructure.

Source: <https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/657/657.pdf>

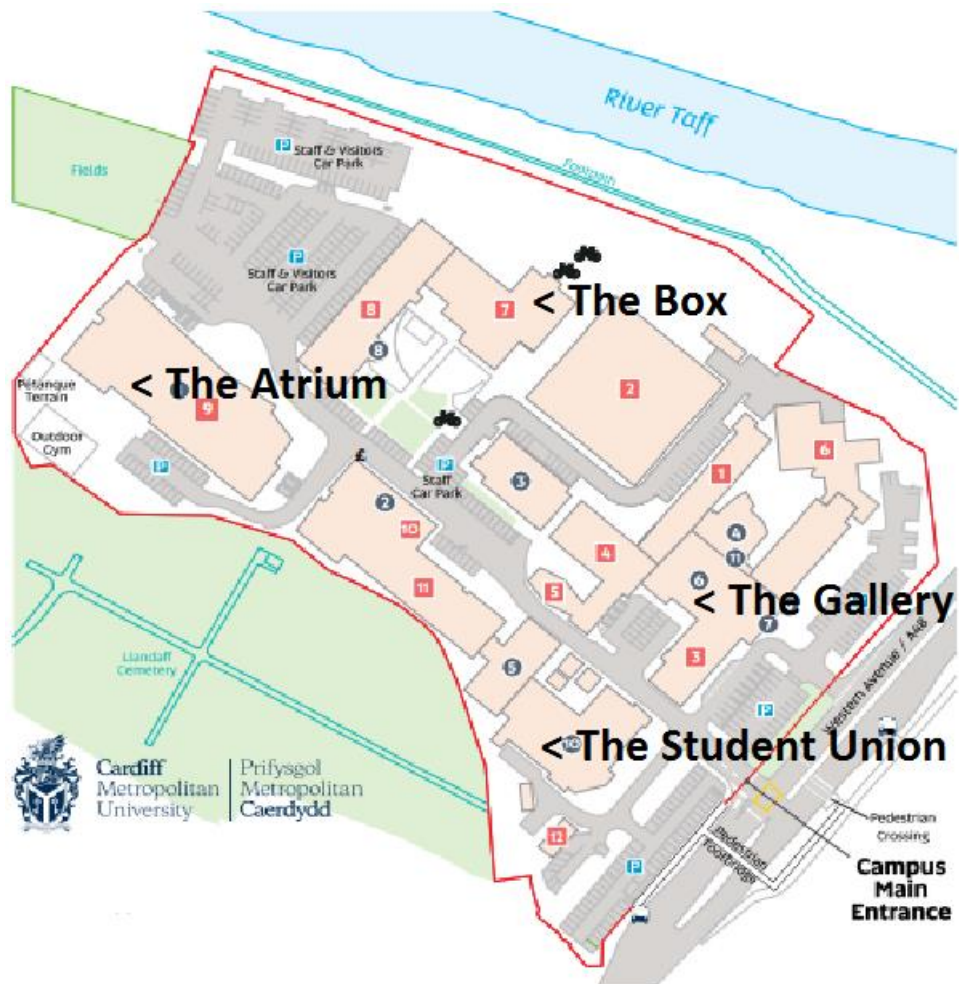
There is a stark difference between the data from the Student Union and the Cardiff Met Sites. This highlights the importance of having a dedicated project lead and engaged catering staff (who all regularly communicate with students and university staff using the outlets) and the difference this makes. This engagement therefore needs not only to be continued, but also intensified to further boost results.

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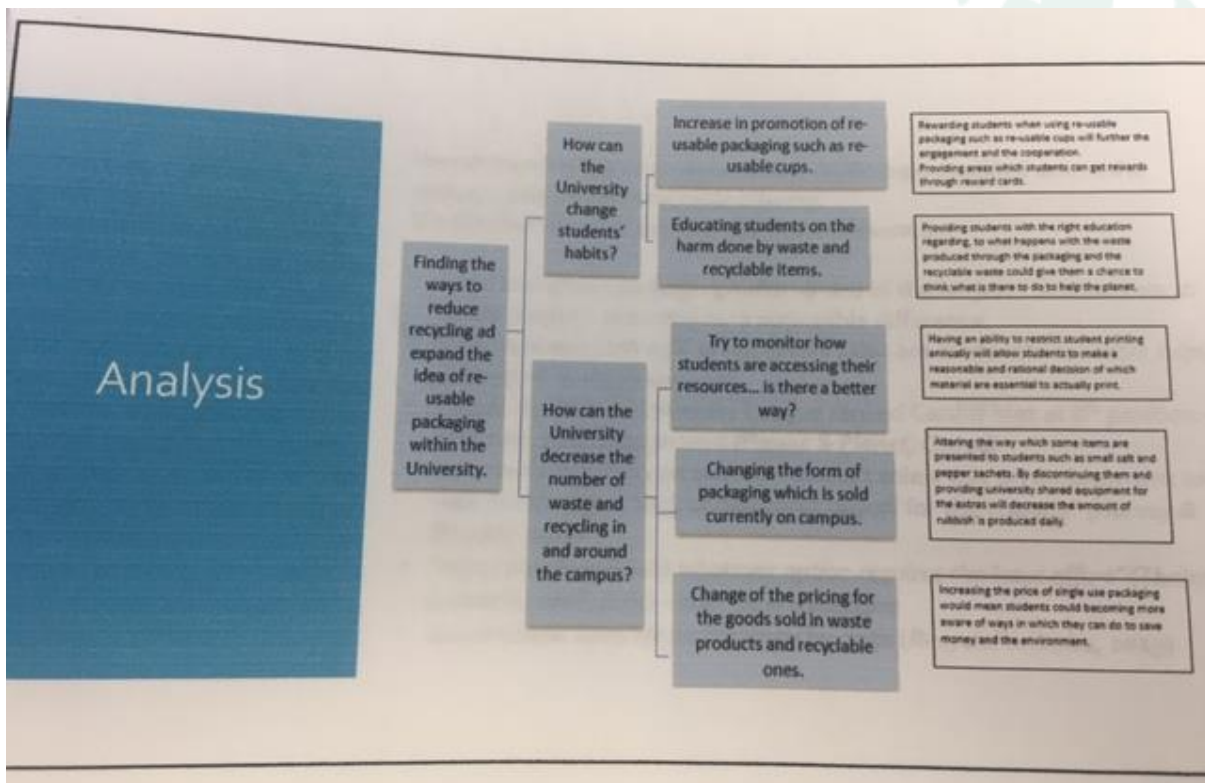
# Appendices

## Appendix 1: Map of Coffee Outlet Locations



Within the Student Union building, as well as Starbucks, hot drinks are also sold at the Zen and the Shop.

## Appendix 2: Extracts of Student Work



**Recommended Solution**

Recommended solution; reusable hot drinks cups provided across the campus, paired with a rewards scheme.

We decided that this solution was most relevant as;

- Food and drinks packaging make up one of the largest contributions to waste output – potential for a noticeable difference.
- Only between 12%-15% of hot drinks sales are made into reusable cups, compared to single use cups.
- *People and Planet* University League ranked Cardiff Met at 8<sup>th</sup> position – with only 35% engagement (*People & Planet, C2019*)
- Solution is internally promoted – doesn't solely rely on engagement to lead the change – "lack of perceived payoff for the change" (*Harvey & Broyles, 2010*)
- "many people will take whatever option requires the least effort" (*Thaler & Sunstein, 2008, p.83*) – change architecture
- Government Zero Waste Strategy by 2050 (*RecycleForWales, 2019*)



### 1.9 - Our solution

After considering various solutions and evaluating the literature and results found from previous studies, we decided that our preferred solution is a hot drinks cup levy alongside a reward/penalize system with a strong advertising campaign. The hot drinks cup levy will be priced at 25p-30p. We decided that this will be enough to change people's behaviors but not too much to be unreasonable. Following the levy, if a customer purchases a hot drink using their reusable cup, they will not pay the levy and have the option of a free piece of fruit which is cost-friendly to the university.

To construct a strong advertising campaign, we will use more persuasive and emotional posters/banners in the café areas to increase the identification of the problem around the university and to inform people of the changes being made. We will also hold competitions each term for the new design that will appear on the reusable coffee cups each term. This gives all members of the university to be a part of the scheme and helps towards making the problem along with our solution known. We will create an environmental society which will continue to make students more aware of the need for change and will involve creating new schemes and projects to encourage people to reuse more than just coffee cups in the university.

In order to educate people from day one we will offer free reusable cups to all freshers. This will not only make people aware of our scheme from the start but also puts people half way there by providing them with a reusable cup in the first place. At Freshers fair we will have a stall where we will distribute the reusable mugs as well as spreading the word on the importance of re-use and promote the society to encourage people to join.

## Appendix 3: Questionnaire

In the autumn term, before the project launch, the questionnaire consisted of only questions 1 - 8 along with room for comments.

1. What is your age?
  - Under 18
  - 18-24
  - 25-34
  - 35-44
  - 45-54
  - 55-64
  - 65-74
  - 75 and above
  
2. Are you a:
  - Student
  - Member of staff
  - Other (please specify): \_\_\_\_\_
  
3. How often do you buy drinks in non-reusable containers? E.g. coffee, tea etc.
  - Several times a day
  - Once a day
  - Several times a week
  - Weekly
  - Less often
  - N/A - I don't buy hot drinks 'to go'
  
4. When disposing of a cup 'on the go' would you normally:
  - Put it in a general waste bin
  - Put it in a general recycling bin
  - Put it in a cup-shaped recycling bin
  - Take it back to the store
  - Take it home
  - Leave it somewhere
  - Other (please specify): \_\_\_\_\_
  - N/A - I don't buy hot drinks 'to go'
  
5. Do you own a re-usable cup?
  - Yes
  - No
  
6. If yes, how often do you use it?
  - Every time I buy a hot drink
  - Most of the time - but sometimes I forget
  - Rarely
  - Never
  - N/A - I don't buy hot drinks 'to go'
  
7. Do you use the free cooled water vending machines on campus?
  - Yes
  - No
  
8. If yes, how often do you use them?
  - Several times a day
  - Once a day
  - Several times a week
  - Weekly

- Less often
- N/A

9. Think about what you did last term and what you do now.  
Please tick all statements below which apply to you.

- There has been no change in my behaviour
- I've bought a reusable cup but not used it yet
- I've bought a reusable cup and used it
- I've remembered to use my reusable cup more often
- I use a non-reusable cup but use the closest bin to me, whatever bin that is
- I use a non-reusable cup but look for a general recycling bin to use
- I use a non-reusable cup but look for a cup-shaped recycling bin to use
- I ask staff in The Atrium to refill my bottle with water
- I don't buy hot drinks 'to go'

10. Have you seen these messages?



- Yes - both
- Yes - only the first
- Yes - only the second
- No

11. Have you seen the new cup-shaped recycling bins on campus?

- Yes
- No

12. If you have any comments on the topics covered in this survey, including the messages, please let us know here:

**Thank you for your help.**



cadwch keep  
gymru'n wales  
daclus tidy

33-35 Heol yr Eglwys Gadeiriol, Caerdydd, CF11 9HB | 33-35 Cathedral Rd, Cardiff, CF11 9HB

☎ 029 2025 6767 🌐 [keepwalestidy.cymru](http://keepwalestidy.cymru) ✉ [info@keepwalestidy.cymru](mailto:info@keepwalestidy.cymru)

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