

**IMPACT & INSIGHT TOOLKIT:**  
**DATA RESEARCH REPORT**  
**HOW WHO WE ARE INFLUENCES THE**  
**CREATIVE WORKS WHICH SPEAK TO US**

Prepared by Counting What Counts

22<sup>nd</sup> September 2021

<https://impactandinsight.co.uk/>

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## Executive Summary

The aim of this report is to understand how different artforms speak to different groups of people in different ways.

We have not sought to posit any hard and fast hypotheses about *how* these complex interactions between creative work and demographic characteristics are playing out, in terms of what might be the deeper drivers underpinning what we observe in the data. But by looking at responses to the Impact & Insight Toolkit (Toolkit) surveys, grouping the responses by age group and gender, we start to see some indicative patterns and relationships which we think merit further discussion and enquiry.

Our ambition with this report, as with all the research we publish on the Toolkit data, is to provide insight on the aggregate data that National Portfolio Organisations (NPOs) can then use and reflect upon as they undertake their own evaluations using the Toolkit.

### Headline Findings

At the time of writing, the Toolkit aggregate dataset contains approximately 60,000 survey responses from members of the public. These responses came from 958 evaluations; from 231 different organisations. By the end of the Toolkit project, this data set will have grown considerably in size and we intend to track and monitor the research question focussed on in this report.

Through our analysis of the Toolkit data, we found the following statistically significant<sup>1</sup> relationships in the data:

- Older people find works in general to be less distinctive than other age groups.
- Younger people react more positively to theatre, dance and combined arts.
- Older people react more positively to music, museums and visual arts.
- Respondents identifying as female react more positively to dance, theatre, visual arts and literature.
- Respondents identifying as male react more positively to music and museums.
- Those aged 24 and below found combined arts to be particularly relevant to them.

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<sup>1</sup> For the definition, please see [‘Definitions’](#)

The positive associations between these demographics and the respective artforms mentioned above take the form of relatively stronger levels of agreement with the Relevance, Challenge and Distinctiveness dimensions.

We are interested to explore with the sector what might be the implications of these findings for informing creative goals and in the analysis of future data, resulting from evaluation of arts and cultural works.

For example, when it comes to analysing Toolkit data to evaluate cultural works, it is important to appreciate that the demographic make-up of the audience can skew results. If one is benchmarking in order to get context with which to interpret results, it likely wouldn't be appropriate to compare the Relevance results for a festival targeting young people to a festival with a broader age appeal. Ensuring that Toolkit data is appropriately analysed and interpreted is a key concern for Counting What Counts and Arts Council England.

With respect to defining creative goals, knowing, for example, that older people find works in general to be less distinctive means that producing works which older people find highly distinctive is a hard-to-achieve goal. Similarly, we have found that a music organisation producing works which their female respondents find to be more relevant or challenging than their male respondents appears to be a hard-to-achieve goal. In this way, the results described in the report can be used by cultural organisations to help inform ambitious creative goals, and enable NPOs to place their own Toolkit evaluations in a broader interpretative context by comparing their results to insights based on the aggregate Toolkit data.

Please do get in touch with us at [support@countingwhatcounts.co.uk](mailto:support@countingwhatcounts.co.uk) if you would like to discuss the results further.

## Introduction

In this report we aim to understand how different artforms speak to different groups of people in different ways.

To do this, we look at the responses to Impact & Insight Toolkit (Toolkit) surveys, grouping the responses by age group and gender.

The Toolkit surveys include a set of quality metrics called dimensions. The dimensions we will be using for this report are Relevance, Challenge and Distinctiveness. We expect to see that there will be artforms which some ages or genders find more relevant, challenging or distinctive, and others less so. This will help us understand which artforms speak to those groups differently.

In terms of the gender categories used, the analysis only considers those that identify as male or female. The Toolkit surveys do include an additional option - In another way - which intends to capture people who are not cis-gendered, and these respondents have the option to self-describe their gender. However, due to the limited amount of data we currently have available from people who chose that category, we cannot make significant inferences. Ages are binned<sup>2</sup> into 6 groups starting from the under 18s to the 75+.

Ethnicity or cultural background are also of great interest in terms of understanding how different artforms are speaking to the different demographics of the population.

Unfortunately, as with gender, there is insufficient or inconsistent data in the existing dataset to conduct a rigorous analysis centred on ethnicity or cultural background.

The report will outline the methodology used; the results of the analysis; an interpretation of the results.

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<sup>2</sup> For the definition, please see [‘Definitions’](#)

## Methodology

### Dimensions

The dimensions we are using in this analysis are Relevance, Challenge and Distinctiveness. The associated statements for these dimensions are as follows:

Relevance:	It had something to say about the world in which we live
Challenge:	It was thought-provoking
Distinctiveness:	It was different to things I've experienced before

There are two reasons why these dimensions were chosen specifically:

1. We tend to see a greater variation of response in these dimensions when compared to the other core public dimensions; this:
  - Indicates people have stronger feelings on these dimensions than others
  - Makes it possible to identify patterns when we are slicing the data across both artform and demography
2. A goal of this research is to understand how artforms speak to different groups differently, and these dimensions suit that goal more than the other core public dimensions

### Dataset

The Toolkit aggregate dataset contains approximately 60,000 survey responses from members of the public. These responses came from 958 evaluations; from 231 different organisations. See the appendix for the counts of each category.

Each organisation collected the survey responses themselves from those who experienced their works. Each survey contained at least a set of demographics questions - asking their age, gender and postcode - and a set of 6 dimensions questions, including Relevance, Challenge and Distinctiveness.

We combine the public survey responses with the metadata about the organisation that sent the surveys, which includes the artform of the organisation (see Figure 1 below).

Figure 1: snapshot of dataset

Relevance Result	npo_artform	age_group	gender	evaluation_id
0.70	Visual arts	55 to 64	Female	5547
0.85	Visual arts	55 to 64	Male	5547
1.00	Visual arts	25 to 34	Female	5547
0.75	Visual arts	35 to 44	Male	5547
0.85	Visual arts	25 to 34	Male	5547

### Method of analysis

We will analyse this dataset using a linear model with interaction terms between artform and age; artform and gender.

Using a linear model in this way allows us to control for one demographic type whilst measuring the effects of the other.

This modelling process will yield coefficients which will describe the size of the effects of each demographic group, and p-values indicating whether the effects are statistically significant.

### Interpretation of results

To aid in the interpretation of the results below, there are two key ideas to understand:

With this modelling approach the objective is not to discover the average for a specific group, but the relative differences between the groups. To do this, a group is selected for reference to compare against. This is the **Reference Group**.

The modelling results include **Interaction Terms**. These describe how a variable (like average agreement with a dimensions statement) changes when two groups interact (such as visual arts and 18 to 24 year olds).

These two ideas enable us to answer questions like ‘on average, how do respondents identifying as female react differently when encountering works from music organisations compared to theatre?’ instead of just ‘which artforms produce the strongest reactions?’

## Results

The analysis was carried out using an ordinary least squares regression analysis<sup>3</sup>. Three regression models were specified then trained on the data, one for each of the dependent variables<sup>4</sup> being targeted: Relevance, Challenge and Distinctiveness. Artform, gender and age group were the independent variables<sup>5</sup>. An HC3 approach<sup>6</sup> was used to calculate the standard error to address the unequal variance between the different artform groups.

The reference groups used were:

- Artform - theatre
- Age group - 34 to 45 year olds
- Gender - Male

The full set of results is shown in the appendix. Here we consider the statistically significant results for gender, age, and interaction effects with the different artforms.

*Table 1: differences in dimension results for gender*

	Relevance	Distinctiveness	Challenge
<b>Reference - Male</b>			
Female	0.0327	0.0249	0.0242
<b>Interactions - Artform: Gender</b>			
Museums: Female	-0.0211	-0.0152	-0.0173
Music: Female	-0.0150		-0.0167

### Gender Effects

On average, female respondents give higher levels of agreement for Relevance, Distinctiveness and Challenge when compared to male respondents (0.0327, 0.0249 and

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<sup>3</sup> For the definition, please see [‘Definitions’](#)

<sup>4</sup> For the definition, please see [‘Definitions’](#)

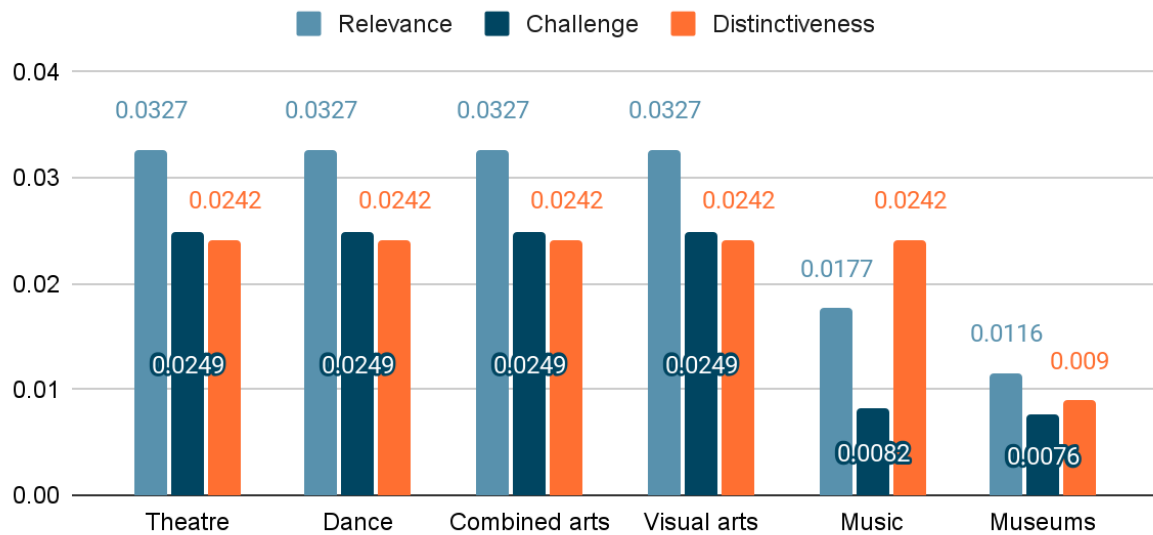
<sup>5</sup> For the definition, please see [‘Definitions’](#)

<sup>6</sup> For the definition, please see [‘Definitions’](#)



0.0242 respectively). We can look at the interactions to understand whether this is different for any particular artform.

Figure 2: difference between average male and female agreement levels across dimensions and artforms



There are negative interaction effects for works from museums and music NPOs. This means that, whilst female respondents give higher levels of agreement on average, this is reduced for works from those artforms. That being said, whilst the interactions are negative, they are still smaller than the positive difference between male and female respondents.

The lack of statistically significant interaction terms for other artforms indicates that there is no special interaction between female respondents and those artforms.

**Insight:** Female respondents consistently agree more with the Relevance, Challenge and Distinctiveness dimensions across all artforms. This effect is less so for works from music and particularly museums organisations.

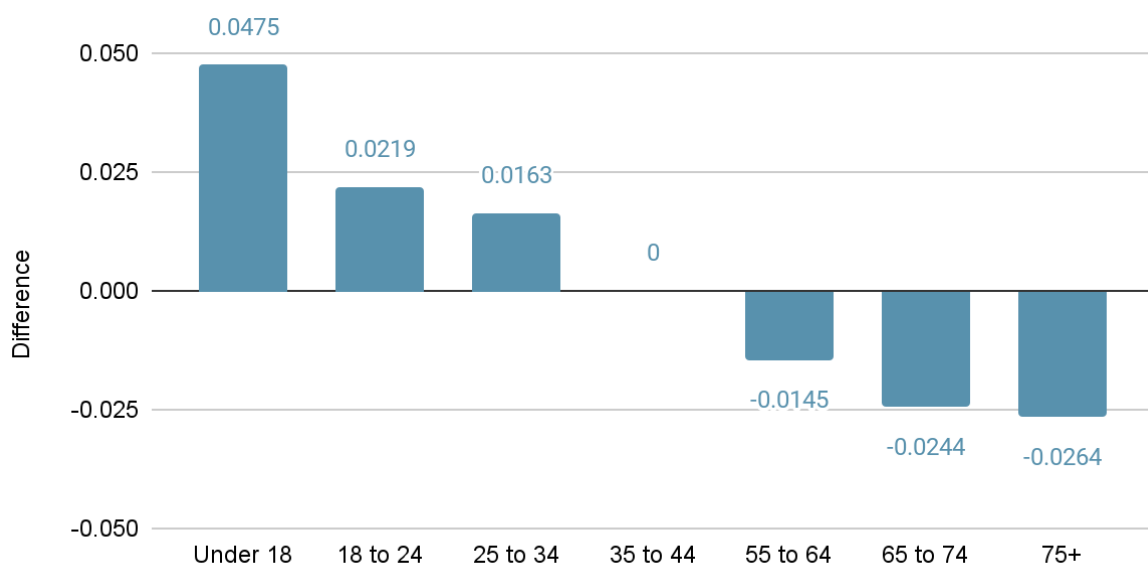
## Age Group Effects

Table 2: differences in dimension results for age

	Relevance	Distinctiveness	Challenge
<b>Reference - 35 to 44</b>			
Under 18	-0.0348	0.0475	
18 to 24	0.0216	0.0219	0.0240
25 to 34	0.0290	0.0163	0.0333
55 to 64	-0.0131	-0.0145	0.0115
65 to 74	-0.0358	-0.0244	
75+	-0.0509	-0.0264	-0.0173

The first thing that stands out is that, for Distinctiveness, there is a consistent decrease in level of agreement as age increases. This is unsurprising considering the statement for Distinctiveness ‘it was different to things I have experienced before’ - older people have more experience, and so there is likely a higher threshold for them to consider something different. The largest age effect for Distinctiveness overall is for under 18-year olds (+0.0475).

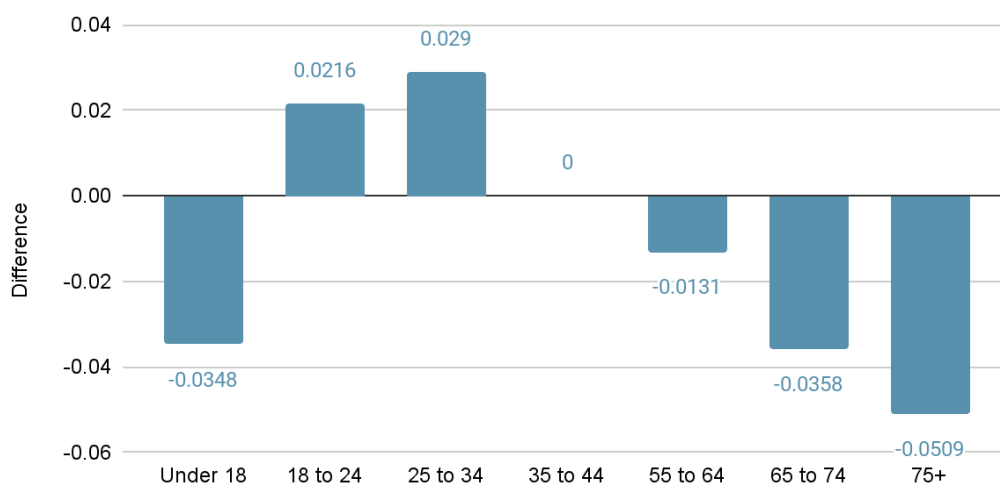
Figure 1: age group differences in Distinctiveness compared to 35 to 44-year olds



**Insight:** As age increases, people find works from all artforms less distinctive.

Considering Relevance, 18 to 24-year olds and 25 to 34-year olds agree with the statement the most when compared to other age groups (+0.0216 and +0.029 respectively). Over 75-year olds had the lowest levels of agreement when compared to other ages (-0.0509), which is also the strongest effect we see for Relevance. The overall pattern is a decrease in agreement levels as the age of the respondent moves away from the peak for 25 to 34-year olds.

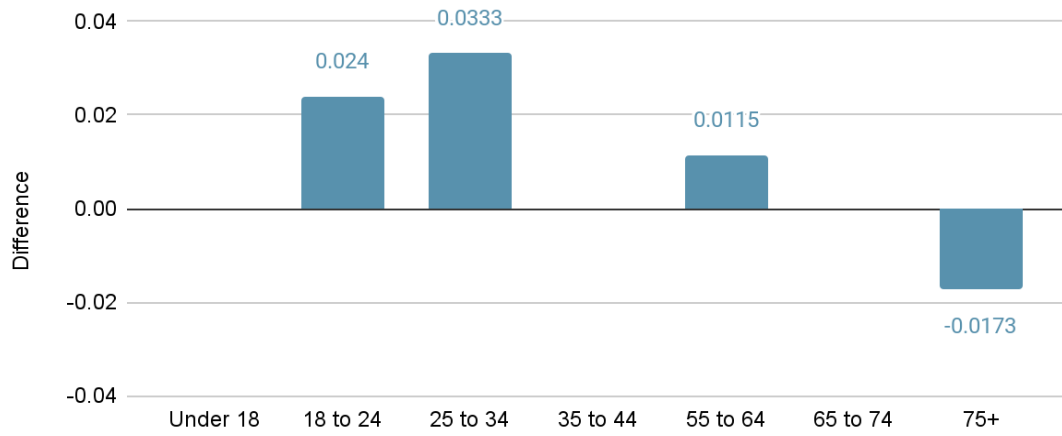
Figure 2: age group differences in Relevance compared to 35 to 44-year olds



**Insight:** Agreement with the Relevance dimension peaks for 25 to 34 year olds for all artforms, and tapers off from that age group both for younger and older people.

There aren't as clear patterns to find when looking at agreement levels for Challenge. There are statistically significant differences for 18 to 24, 25 to 34, 45 to 54 and over 75 age groups. As with the other dimensions, the over 75 age group has the lowest level of agreement. As with Relevance, we see the highest levels of agreement from the 25 to 34-year olds (see Figure 3 below).

Figure 3: age group differences in Challenge compared to 35 to 44-year olds



**Insight:**

- People of ages 18 to 34 agree the most with the Challenge dimension for all artforms compared to other age groups
- There is little to no difference between the other age groups with respect to the Challenge dimension

## Interaction Effects

Below, we consider how different artforms interact with gender and age. This means that, for example, whilst older people find works less distinctive in general, there might be specific artform/age group combinations that buck this trend through positive interactions.

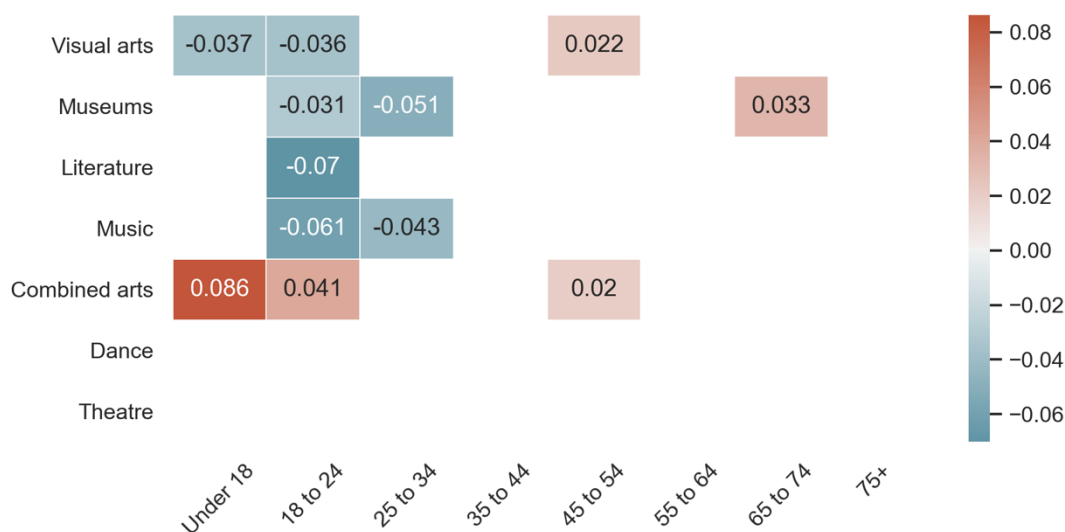
*Table 2: interaction effects between demographics and artform*

	Relevance	Distinctiveness	Challenge
<b>Interactions - Artform: Gender</b>			
Museums: Female	-0.0211	-0.0152	-0.0173
Music: Female	-0.0150		-0.0167
<b>Interactions - Artform: Age group</b>			
Museums: Under 18		-0.0545	
Combined arts: Under 18	0.0863		
Visual arts: Under 18	-0.0370		-0.0627
Combined arts: 18 to 24	0.0405		
Literature: 18 to 24	-0.0702		
Museums: 18 to 24	-0.0307	-0.0387	-0.0459
Music: 18 to 24	-0.0607		
Visual arts: 18 to 24	-0.0360		-0.0547
Museums: 25 to 34	-0.0510	-0.0222	-0.0607
Music: 25 to 34	-0.0425		
Literature: 25 to 34			-0.0611
Visual arts: 25 to 34			-0.0347
Combined arts: 45 to 54	0.0198		
Visual arts: 45 to 54	0.0223		
Music: 55 to 64		-0.0470	
Museums: 65 to 74	0.0327		0.0439
Visual arts: 65 to 74			0.0297
Combined arts: 65 to 74		-0.0220	
Music: 65 to 74		-0.0618	
Museums: 75+		-0.0419	
Music: 75+		-0.0636	

There is a lot of interaction effects between age groups and artforms to consider. We will use heatmaps to visualise the interactions and make them easier to spot.

**Heatmaps** show one group on the x-axis and the second group on the y-axis. The square where the groups match shows the interaction effect between those two groups. A colour coded key is used to show the strength and direction of the effect.

Figure 4: artform and age group interactions for Relevance



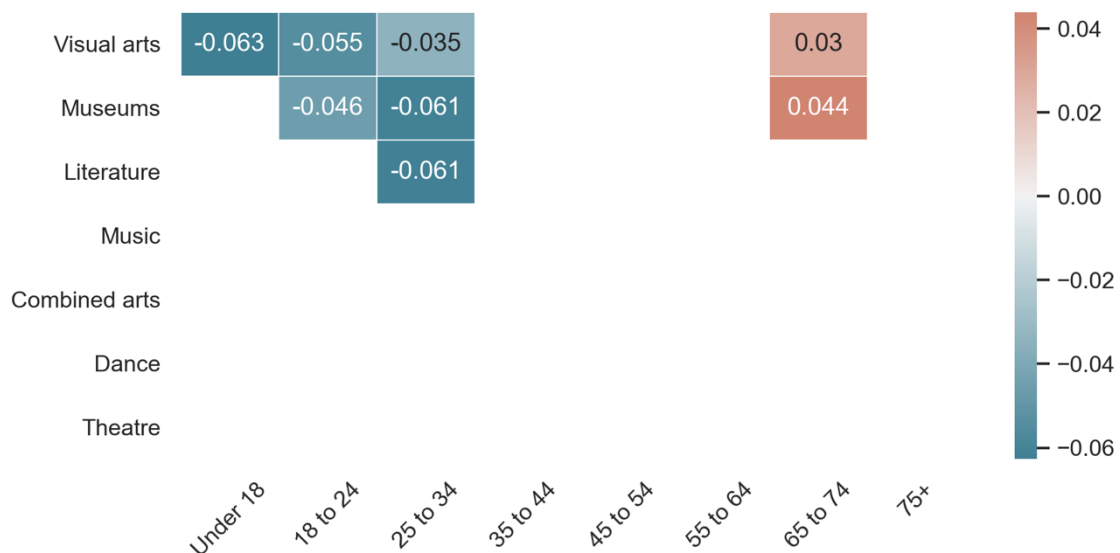
For the Relevance dimension we see the most interactions with younger people. The largest interaction of all is between under 18s and works from combined arts NPOs (+0.086). This means that whilst under 18s give lower levels of agreement for Relevance than most other age groups, when they are encountering combined arts works this is reversed and they tend to experience the highest level of Relevance. 18 to 24-year olds also have a positive interaction with combined arts, although the effect size is not as large.

18 to 24-year olds have negative interaction effects with all other artforms. Given that theatre is the reference for our analysis, this indicates that works from theatre and dance NPOs are more relevant for 18 to 24-year olds, and combined arts is the most relevant.

**Insight:**

- Under 18s find works from combined arts organisations to be significantly more relevant when compared to other artforms.
- Works from theatre, dance and combined arts organisations are experienced as being highly relevant to 18 to 24-year olds when compared to other artforms.

*Figure 5: artform and age group interactions for Challenge*



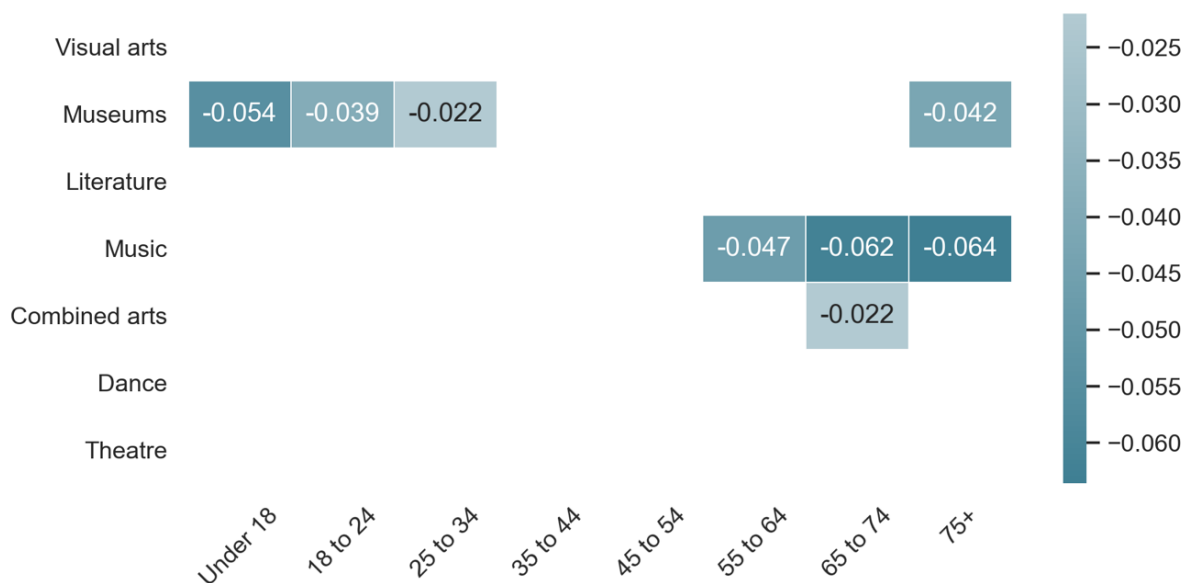
For Challenge we see the only positive interactions for 65 to 74-year olds with works from museums and visual arts organisations. The same artforms have negative interactions with the younger age groups. There are no interactions between any age group for works from theatre, dance, combined arts and music organisations.

**Insight:**

- 65 to 74-year olds tend to find works from museums and visual arts organisations more challenging than other artforms
- 0 to 34-year olds tend to find works from visual arts organisations less challenging than other artforms
- Differences in how challenging works from music, dance, theatre and combined arts organisations are experienced equally across all age groups

Finally, for Distinctiveness, all of the interaction effects are negative. For younger people, the negative interactions are with works from museums. For older people, the negative interactions are with works from museums, music and combined arts organisations.

*Figure 6: artform and age group interactions for Distinctiveness*



**Insight:**

- 0 to 34-year olds tend to find works from museums to be less distinctive compared to other artforms
- Over 55-year olds tend to find works from music organisations to be less distinctive compared to other artforms
- Differences in how distinctive works from dance, theatre, visual arts and literature organisations are experienced equally across all age groups



## Summary

When looking at age demographics, the primary pattern that can be found is a greater number of negative interactions for people aged 34 and below, across all three dimensions, for works from museums, visual arts and music organisations, and, to some extent, literature. This can be seen visually as a collection of negative interactions in the upper left of the heatmaps.

The remaining artforms which don't have these negative interactions are dance, theatre and combined arts.

Dance and theatre are typically narrative based, so those experiencing the work are presented with a story and order of events. The presentation and enactment of a story may make it easier for younger people to engage with the work, instead of works with a more abstract theme that you might find in visual arts or music. If we consider Pierre Bourdieu's idea of cultural capital, which can be summarised as "...a particular stock of cultural competencies, acquired from early socialization, education and other forms of training" (Silva, 2008, p.269), it may be that as people accumulate cultural capital over time, they gain the necessary experience or confidence to better interpret or relate to more abstract works in the visual arts or music fields.

Combined arts have strong positive interactions with those aged 24 and under for Relevance. In the Arts Council England 2018-22 narrative for the combined arts artform it states that:

Arts Council England (2018) para. 3

It is often through the accessibility of combined arts that people become involved with the arts for the first time. The Arts Council works closely with the sector to ensure that the contribution combined arts make to broadening access is matched by its commitment to excellence, through the quality of art and artists it supports.

Many of the people who would fall into the category of 'becoming involved with the arts for the first time' will be young people. The focus on "access" and "become involved" as spelled out in the narrative shows an intention for combined arts to engage with younger people.

The results we see here, i.e., strong positive interaction with younger people, may reflect that intent and potentially act as a way for them to build some initial cultural capital.

If we look at museums, we see that people aged 34 and under tend to find works from museums to be less distinctive. For younger people who are in full time education, the educational experience of a museum is more familiar to them, and as they get older with fewer people in full time education this effect wears off. In her 2018 literature review paper titled 'Hurdles to the participation of children families and young people in museums', commissioned by Kids in Museums and Arts Council England, Sally Whitaker says:

Sally Whitaker (2018) p. 10

As many children and young people are only exposed to museums and galleries through school trips, it is perhaps understandable that they may associate the museums/institution with the school institution and its authoritarian, controlling environment, thereby holding museums in a negative light and avoiding them even for informal interactions.

Over time the association with school environments may diminish, until there is no longer a negative interaction there. We see this potentially reflected in the data by the negative interactions getting less strong as age increases.

People aged 55 and over tend to find works from music organisations to be less distinctive. This effect might result from a greater sense of familiarity with that artform. People in general are exposed to music more frequently - in film, TV and radio as well as many forms of live performance. Most people will also seek out live experiences involving artists they are already familiar with or have a connection with more frequently than those they don't know. Whilst people have a strong emotional reaction to familiar works, they won't find it to be different to past experiences. This familiarity is something which accumulates over time and could be reflected as increasing negative interactions between older people and works from music NPOs.

Looking at the results across gender, we see that there are negative interaction terms between female respondents and works from museums and music organisations. (It is worth noting that female respondents offer higher levels of agreement for the dimensions

across all artforms, and these negative interactions simply reduce the size of the positive difference).

Independent of artform, the data shows that as people get older their tendency is to find works less distinctive, which is as you would expect.

## Conclusion

Our aim in this report has been to shed some light on how different artforms speak to different groups of people in different ways.

We have not sought to posit any hard and fast hypotheses about *how* these complex interactions between creative work and demographic characteristics are playing out, in terms of what might be the deeper drivers underpinning what we observe in the data.

But by looking at responses to the Impact & Insight Toolkit (Toolkit) surveys, grouping the responses by age group and gender, we can observe some indicative patterns and relationships which we think merit further discussion and enquiry.

Through our analysis of the Toolkit data, we found the following statistically significant relationships in the data:

- Younger people react more positively to theatre, dance and combined arts.
- Older people react more positively to music, museums and visual arts.
- Female respondents react more positively to dance, theatre, visual arts and literature.
- Male respondents react more positively to music and museums.
- Those aged 24 and below found combined arts to be particularly relevant to them.

The positive associations between these demographics and the respective artforms mentioned above take the form of relatively stronger levels of agreement with the Relevance, Challenge and Distinctiveness dimensions.

We are interested to explore with the sector what might be the implications of these findings for informing creative goals and in the analysis of future data resulting from evaluation of arts and cultural works.

For example, when it comes to analysing Toolkit data to evaluate cultural works, it is important to appreciate that the demographic make-up of the audience can skew results. If one is benchmarking in order to get context in which to interpret results, it likely wouldn't be appropriate to compare the Relevance results for a festival targeting young people to a festival with a broader age appeal. Ensuring that Toolkit data is appropriately analysed and interpreted is a key concern for Counting What Counts and Arts Council England.

With respect to defining creative goals, knowing, for example, that older people find works in general to be less distinctive means that producing works which older people find highly distinctive is a hard to achieve goal. Similarly, we have found that a music organisation producing works which their female respondents find to be more relevant or challenging than their male respondents appears to be a hard to achieve goal. In this way, the results described in the report can be used by cultural organisations to help inform ambitious creative goals, and enable NPOs to place their own Toolkit evaluations in a broader interpretative context by comparing their results to insights based on the aggregate Toolkit data.

Please do get in touch with us [support@countingwhatcounts.co.uk](mailto:support@countingwhatcounts.co.uk) if you would like to discuss the results further.

# Appendix

## Model results

### Relevance

	coef	std err	P> z	[0.025	0.975]
Intercept	0.7881	0.005	0.000	0.779	0.797
Combined arts	-0.0676	0.009	0.000	-0.085	-0.050
Dance	-0.0630	0.012	0.000	-0.086	-0.040
Literature	0.0623	0.026	0.016	0.012	0.113
Museums	-0.0429	0.008	0.000	-0.059	-0.027
Music	-0.0517	0.012	0.000	-0.076	-0.027
Female	0.0327	0.003	0.000	0.026	0.039
Under 18	-0.0348	0.012	0.004	-0.058	-0.011
18 to 24	0.0216	0.008	0.008	0.006	0.037
25 to 34	0.0290	0.006	0.000	0.017	0.041
55 to 64	-0.0131	0.005	0.007	-0.023	-0.004
65 to 74	-0.0358	0.005	0.000	-0.046	-0.026
75+	-0.0509	0.008	0.000	-0.066	-0.036
Museums: Female	-0.0211	0.006	0.001	-0.034	-0.009
Music: Female	-0.0150	0.007	0.038	-0.029	-0.001
Combined arts: 0 to 17	0.0863	0.021	0.000	0.046	0.126
Visual arts: 0 to 17	-0.0370	0.019	0.049	-0.074	-0.000
Combined arts: 18 to 24	0.0405	0.014	0.005	0.012	0.069
Literature: 18 to 24	-0.0702	0.034	0.037	-0.136	-0.004
Museums: 18 to 24	-0.0307	0.013	0.017	-0.056	-0.005
Music: 18 to 24	-0.0607	0.024	0.013	-0.109	-0.013
Visual arts: 18 to 24	-0.0360	0.013	0.006	-0.062	-0.010
Museums: 25 to 34	-0.0510	0.010	0.000	-0.072	-0.030
Music: 25 to 34	-0.0425	0.018	0.021	-0.078	-0.007
Combined arts: 45 to 54	0.0198	0.009	0.030	0.002	0.038
Visual arts: 45 to 54	0.0223	0.011	0.040	0.001	0.044
Not discipline specific: 55 to 64	0.0914	0.046	0.047	0.001	0.182
Museums: 65 to 74	0.0327	0.011	0.002	0.012	0.054

## Challenge

	coef	std err	P> z	[0.025	0.975]
Intercept	0.7526	0.005	0.000	0.743	0.762
Combined arts	-0.0411	0.009	0.000	-0.059	-0.024
Literature	0.0600	0.026	0.022	0.009	0.111
Museums	-0.0283	0.009	0.001	-0.045	-0.011
Female	0.0242	0.003	0.000	0.018	0.031
18 to 24	0.0240	0.009	0.007	0.007	0.041
25 to 34	0.0333	0.006	0.000	0.021	0.046
55 to 64	0.0115	0.005	0.027	0.001	0.022
75+	-0.0173	0.008	0.032	-0.033	-0.001
Museums: Female	-0.0173	0.007	0.008	-0.030	-0.005
Music: Female	-0.0167	0.007	0.016	-0.030	-0.003
Visual arts: 0 to 17	-0.0627	0.018	0.001	-0.099	-0.027
Museums: 18 to 24	-0.0459	0.014	0.001	-0.073	-0.019
Visual arts: 18 to 24	-0.0547	0.013	0.000	-0.081	-0.029
Literature: 25 to 34	-0.0611	0.028	0.028	-0.116	-0.007
Museums: 25 to 34	-0.0607	0.011	0.000	-0.082	-0.039
Visual arts: 25 to 34	-0.0347	0.011	0.002	-0.056	-0.013
Museums: 65 to 74	0.0439	0.011	0.000	0.023	0.065
Visual arts: 65 to 74	0.0297	0.011	0.006	0.009	0.051

## Distinctiveness

	coef	std err	P> z	[0.025	0.975]
Intercept	0.7835	0.005	0.000	0.775	0.792
Combined arts	0.0275	0.008	0.000	0.013	0.043
Museums	-0.0213	0.008	0.008	-0.037	-0.006
Music	0.0226	0.011	0.045	0.001	0.045
Visual arts	-0.0355	0.010	0.000	-0.054	-0.017
Female	0.0249	0.003	0.000	0.019	0.031
0 to 17	0.0475	0.010	0.000	0.027	0.068
18 to 24	0.0219	0.008	0.005	0.006	0.037
25 to 34	0.0163	0.006	0.006	0.005	0.028

55 to 64	-0.0145	0.005	0.002	-0.024	-0.005
65 to 74	-0.0244	0.005	0.000	-0.034	-0.015
75+	-0.0264	0.007	0.000	-0.041	-0.012
Museums: Female	-0.0152	0.006	0.013	-0.027	-0.003
Museums: 0 to 17	-0.0545	0.015	0.000	-0.083	-0.026
Museums: 18 to 24	-0.0387	0.013	0.002	-0.064	-0.014
Museums: 25 to 34	-0.0222	0.010	0.029	-0.042	-0.002
Music: 55 to 64	-0.0470	0.012	0.000	-0.071	-0.023
Combined arts: 65 to 74	-0.0220	0.010	0.022	-0.041	-0.003
Music: 65 to 74	-0.0618	0.012	0.000	-0.085	-0.038
Museums: 75+	-0.0419	0.020	0.040	-0.082	-0.002
Music: 75+	-0.0636	0.015	0.000	-0.093	-0.035

### Sample size - Age Groups

n	0 to 17	18 to 24	25 to 34	35 to 44	45 to 54	65 to 74	75+
<b>Combined arts</b>	200	446	1202	1839	2194	1814	115
<b>Dance</b>	175	216	498	699	982	1251	201
<b>Literature</b>	19	48	93	113	145	163	10
<b>Museums</b>	842	851	1541	1888	1662	1500	177
<b>Music</b>	25	140	302	453	649	1247	685
<b>Theatre</b>	369	812	1930	2774	4269	5489	1092
<b>Visual arts</b>	447	925	1292	955	977	1153	216

### Sample size - Gender

n	Female	Male
<b>Combined arts</b>	6487	2361
<b>Dance</b>	3797	1213
<b>Literature</b>	588	98
<b>Museums</b>	6395	2980



<b>Music</b>	2628	2596
<b>Theatre</b>	14370	6852
<b>Visual arts</b>	4561	2302

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## Definitions

### Dependent/independent variables

If we are trying to understand how an outcome is affected by various factors, the outcome we are interested in is the dependent variable and the factors are the independent variables. In the case of this piece of research the dependent variable is the dimension results. This is because we are trying to understand how the dimensions results *depend* on the age and gender of the person. Age and gender are our independent variables.

### Ordinary Least Squares (OLS) Regression

OLS is a method for training a linear statistical model. It is a tool for finding the line of best fit for your data. Imagine a graph with age on the x-axis and the dimensions results for Relevance on the y-axis. OLS will allow you to draw the best line of fit for that graph and tell you the slope of the line (how much the results change for a change in age).

### HC3 correction

For a linear modelling process to work correctly, the variance (spread) of data should be equal across each of the independent variables. For example, data should not be more spread out for men than it is for women. If this is not the case, then a correction needs to be

applied to ensure the modelling process gives accurate results. HC3 (heteroscedastic-correction) is a type of correction.

### **Statistically significant**

When we say 'significant' in everyday language we tend to mean 'large'. In statistics it has a different meaning. If something is statistically significant it means we have a high confidence that it is not due to random chance. For example, if there is a statistically significant difference between heights of men and women, it means the height difference seen is not a coincidence, but it doesn't tell us anything about how big of a difference there is.