Supplementary materials

*Pilot study results*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Song | Easy to sing | Singalong | Familiarity | Earworm |
|  | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Walk this Way | 3.33 | 1.86 | 2.83 | 1.83 | 2.33 | 1.51 | 4.17 | 2.14 |
| Happy | 4.67 | 1.51 | 3.83 | 2.04 | 4.50 | 1.52 | 5.50 | 1.38 |
| Help | 5.50 | 1.64 | 6.17 | 0.75 | 6.67 | 0.82 | 6.17 | 0.75 |
| Back in Black | 3.33 | 2.16 | 3.33 | 2.42 | 4.67 | 1.37 | 4.17 | 2.48 |
| Happy Together | 5.67 | 1.21 | 6.50 | 0.84 | 5.67 | 1.97 | 6.50 | 0.84 |
| Crazy Little Thing Called Love | 5.83 | 0.98 | 6.17 | 0.98 | 6.67 | 0.52 | 6.00 | 1.26 |
| YMCA | 6.33 | 0.82 | 5.83 | 1.17 | 6.17 | 0.98 | 4.83 | 1.94 |
| Don't Dream it’s Over | 4.67 | 1.03 | 4.17 | 1.94 | 4.33 | 1.63 | 4.00 | 1.41 |
| Unchained Melody | 3.67 | 2.66 | 3.67 | 2.58 | 4.00 | 2.53 | 3.00 | 2.28 |
| Paradise  | 4.83 | 1.60 | 4.00 | 2.28 | 3.67 | 2.66 | 5.17 | 2.14 |
| You're the Voice | 5.50 | 2.35 | 5.67 | 1.03 | 6.17 | 0.75 | 6.00 | 0.89 |
| Breakfast at Tiffany’s | 5.00 | 1.55 | 4.33 | 2.16 | 4.17 | 2.32 | 3.67 | 2.42 |
| Wuthering Heights | 3.00 | 2.10 | 3.33 | 2.34 | 3.67 | 2.34 | 3.00 | 2.53 |
| Roxanne  | 4.83 | 1.72 | 5.50 | 1.64 | 5.50 | 1.38 | 4.67 | 2.25 |
| Waterloo  | 5.50 | 1.64 | 5.67 | 1.51 | 5.00 | 2.45 | 4.83 | 2.14 |
| House of the Rising Sun | 4.17 | 1.72 | 4.00 | 2.10 | 3.67 | 1.75 | 3.17 | 2.14 |
| Sultans of Swing | 4.33 | 2.16 | 3.83 | 2.14 | 3.33 | 1.97 | 3.33 | 2.07 |
| Crocodile Rock | 4.83 | 1.60 | 5.83 | 1.33 | 5.00 | 2.19 | 4.67 | 1.86 |
| Trouble  | 5.33 | 1.51 | 6.33 | 1.21 | 6.17 | 1.60 | 6.17 | 1.33 |
| Chandelier  | 3.60 | 2.19 | 6.20 | 0.84 | 6.00 | 1.22 | 5.40 | 1.67 |
| I'm a Believer | 6.00 | 2.00 | 6.33 | 0.82 | 6.17 | 0.98 | 5.50 | 1.97 |
| Twist and Shout | 5.20 | 2.17 | 6.00 | 1.22 | 5.80 | 1.10 | 5.00 | 1.58 |

*Note.* All ratings were provided on a scale of 1 to 7. Higher ratings indicate easier to sing, greater desire to sing along, more familiar, and more likely to evoke an earworm.

*Linear mixed models comparing pilot participant ratings of catchy and non-catchy songs*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | ‘Catchy’ | ‘Non-catchy’ |  |  |  |
|  | *M* (SD) | *M* (SD) | *F* | *df* | *p* |
| Easy to sing  | 5.47 (1.61) |  4.00 (1.92) | 21.37 | 1, 112.25 | < .001 |
| Desire to sing along | 5.59 (1.55) | 4.03 (2.15) | 24.76 | 1, 111.40 | < .001 |
| Familiarity | 5.69 (1.68)  | 4.08 (2.00) | 25.15 | 1, 111.08 | < .001 |
| Likelihood of earworm | 5.53 (1.57) | 3.78 (2.14) | 27.40 | 1, 110.89 | < .001 |

*Note.* All ratings were provided on a scale of 1 to 7. Higher ratings indicate easier to sing, greater desire to sing along, more familiar, and more likely to evoke an earworm. Linear mixed models conducted using a random intercept for participant.

*Songs used in Experiment 1*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Song type | Song | Artist | Length | Truncated length |
| ‘Catchy’ songs | Happy  | Pharrell Williams | 4:08 | 3:54 |
| You’re the Voice  | John Farnham | 5:12 | 4:13 |
| I Knew You Were Trouble  | Taylor Swift | 3:40 | 3:08 |
|  | Help  | The Beatles | 2:21 | 2:05 |
|  | YMCA  | Village People | 4:02 | 3:19 |
|  | I’m a Believer  | The Monkees | 2:35 | 2:29 |
|  | Waterloo  | ABBA | 2:47 | 2:18 |
|  | Paradise  | Coldplay | 4:21 | 3:22 |
|  | Twist and Shout  | The Beatles | 2:36 | 2:17 |
|  | Crazy Little Thing Called Love | Queen | 2:55 | 2:14 |
| ‘Not catchy’ songs | Breakfast at Tiffany’s  | Deep Blue Something | 4:20 | 3:41 |
| Back in Black  | ACDC | 4:17 | 3:25 |
| Unchained Melody  | The Righteous Brothers | 3:38 | 3:08 |
|  | Wuthering Heights  | Kate Bush | 4:27 | 2:58 |
|  | Roxanne  | The Police | 3:13 | 2:51 |
|  | Chandelier  | Sia | 5:47 | 4:43 |
|  | Sultans of Swing  | Dire Straits | 3:52 | 3:15 |
|  | House of the Rising Sun | The Animals | 4:09 | 3:37 |
|  | Walk this Way  | Aerosmith | 3:25 | 2:22 |
|  | Don’t Dream it’s Over  | Crowded House | 4:06 | 3:14 |

*Note*. Song length displayed in minutes : seconds format.

*Songs used in Experiment 2*

|  |  |  |
| --- | --- | --- |
| **Song name, Artist** | **Length** | **Tempo (BPM)** |
| Roxanne, the Police | 3:02 | 136 |
| You're the Voice, John Farnham | 4:33 | 85.5 |
| Let it Go, Izina Menzel (Frozen) | 3:38 | 136 |
| YMCA, Village People | 3:40 | 127 |
| Brown Eyed Girl, Van Morrison | 3:00 | 149 |
| Imagine, John Lennon | 2:57 | 76 |
| Good Vibrations, the Beach Boys | 3:33 | 150 |
| Back in Black, ACDC | 4:05 | 91 |
| 500 Miles, the Proclaimers | 3:30 | 132 |
| All by myself, Eric Carmen | 4:45 | 117 |
| Rolling in the Deep, Adele | 3:45 | 105 |
| Perfect, Fairground Attraction | 3:34 | 138 |
| Breakfast at Tiffany's, Deep Blue Something | 4:08 | 110 |
| Unchained Melody, the Righteous Brothers | 3:34 | 66 |
| Smells Like Teen Spirit, Nirvana | 4:30 | 118 |
| Walk this Way, Aerosmith | 3:40 | 110 |
| Crazy Little Thing Called Love, Queen | 2:40 | 154 |
| Waterloo, ABBA | 2:40 | 148.5 |
| I Knew You Were Trouble, Taylor Swift | 3:37 | 154 |
| Thinking Out Loud, Ed Sheeran | 4:33 | 79 |
| Poker Face, Lady Gaga | 3:31 | 120 |
| I Will Always Love You, Whitney Houston | 4:30 | 67 |
| Still Haven't Found What I'm Looking For, U2 | 4:29 | 101 |
| Are You Gonna Be My Girl, Jet | 3:30 | 105 |
| Africa, Toto | 4:30 | 93 |
| Beat it, Michael Jackson | 4:12 | 139 |
| MMMBop, Hanson | 3:50 | 105 |
| Wonderwall, Oasis | 3:51 | 87 |
| Don't Worry be Happy, Bobby McFerrin | 3:50 | 138 |
| Uptown Girl, Billy Joel | 3:20 | 129 |

*Note*. Song length displayed in minutes : seconds format.