Unsolicited Restoration and Emotion Responses of Twitter Users to Urban Green and Blue Space

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Introduction

The aim was to further understand engagement with urban green and blue spaces (UGBS) by exploring their restorative and emotional benefits.

- Most studies capture benefits using questionnaires; but this *may* prompt respondents to consider these outcomes and preclude researchers from determining if these were inherently perceived.

- Tweets were captured as a means of obtaining unsolicited user views and analysed in respect of four characteristics of nature identified in attention restoration theory (ART Kaplan, 1995) and six basic emotions (Shaver, et al, 1987).

- According to ART, settings with natural elements provide recovery from cognitive fatigue (i.e. restoration) as a consequence of a sense of *being away*, *fascination* induced through inherently interesting stimuli, *extent* evoked by qualities that create 'another world', and *compatibility* with behavioural goals.

- Mood is the most widely researched subjective wellbeing outcome in UGBS research (Bowler, et al., 2010); however, emotion and mood are often mood interchangeably despite differing in several respects (Ekman, 1992; Beedie, Terry, & Lane, 2005)

Objectives:

- **To use Twitter data as unsolicited responses to urban parks and blue space.**

- **To focus on emotion instead of mood, in addition to attention restoration characteristics.**

Method

Tweets captured real time and retrospectively (9 days) with user-defined search parameters including park names, hash tags including park names, Newcastle or Gateshead quayside, or Newcastle Gateshead.

- All procedures adhered to Twitter privacy policy and BPS ethics requirements.

- Tweets and re-Tweets (N = 10,837) were collected mid-January through June.

- **Of these, 2,719 were usable (25%).**
  - Excluded for key words in reference to another location or business/property adverts.

- Newcastle-Gateshead Quayside had the lowest percentage of included Tweets (15%), other locations ranged from approximately 20 – 30%.

- A coding handbook was developed based on Resch and colleagues (2016) procedures to extract emotion data from Tweets. It included task instructions, categories/sample terms, and papers summarising ART (Herzog, Maguire & Nebel, 2003) and the basic emotion framework (Shaver et al., 1987).

- The six basic emotions were: Joy, Love, Surprise, Anger, Fear, Sadness

- The primary and secondary message was coded into restoration and/or emotion categories.
  - *As an example: Great run in Jesmond Dene. Feel happy!*
  - The primary message: compatibility (physical activity) within ART.
  - Secondary message: happy was categorised as the emotion joy.
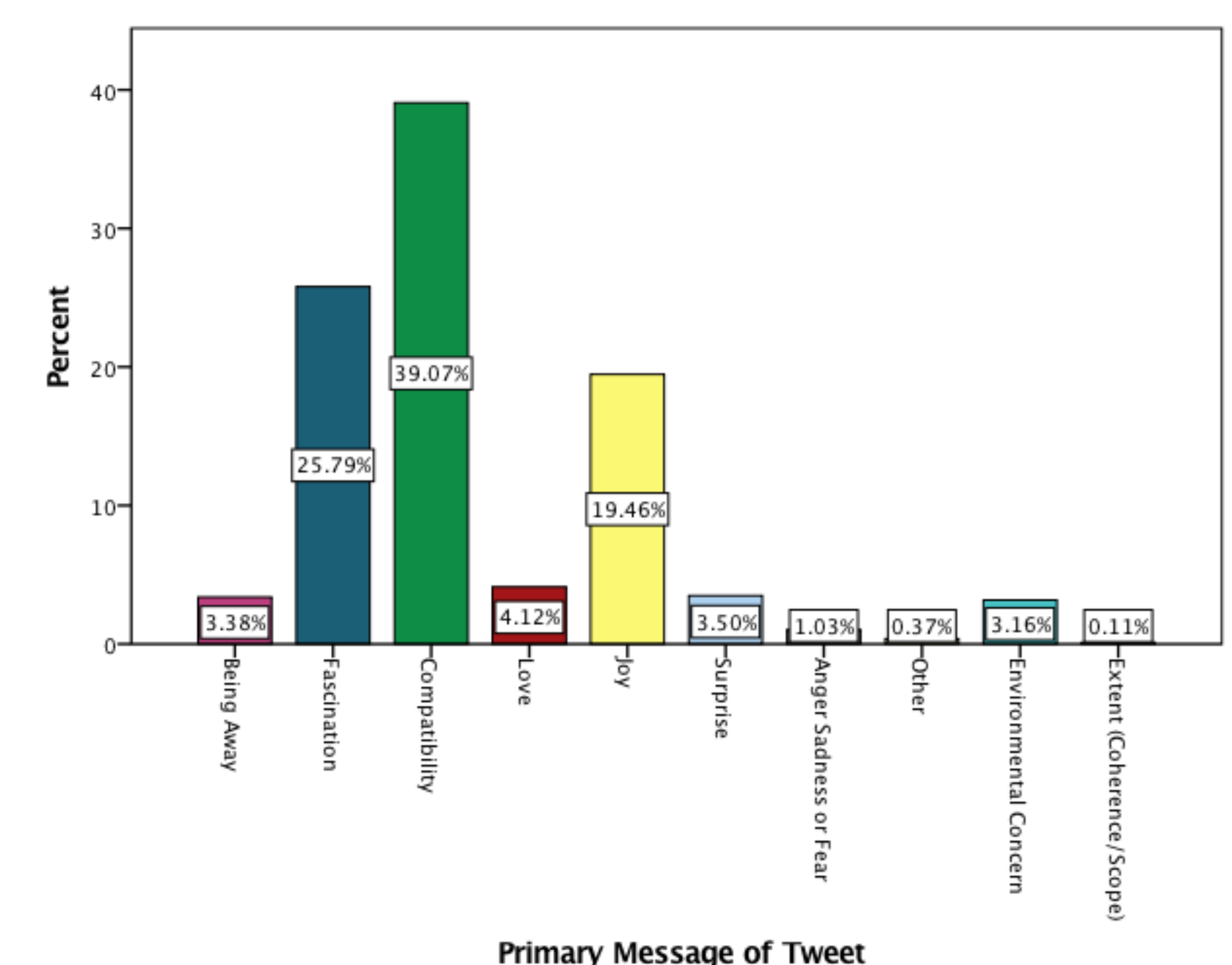
Study Locations

A) Jesmond Dene
B) Leazes Park
C) Quayside
D) Saltwell Park
E) Town Moor

Results

Fascination, compatibility, and joy were reported more than expected and being away, love, surprise, and anger/fear/sadness less than expected (x^2 = 2539.20, df = 6, p < .001).

In these Tweets, 19 of the 34 terms for joy from the framework were represented.

Restoration differed by location (x^2 = 73.44, df = 8, p < .001). Being away was reported more than expected in Leazes Park and less than expected on the quayside. Fascination was included more in reference to Jesmond Dene and the quayside but less to the other three locations.

Joy differed by location (x^2 = 178.17, df = 4, p < .001). It was expressed more than expected for Saltwell Park and Jesmond Dene and less for Leazes Park and Town Moor.
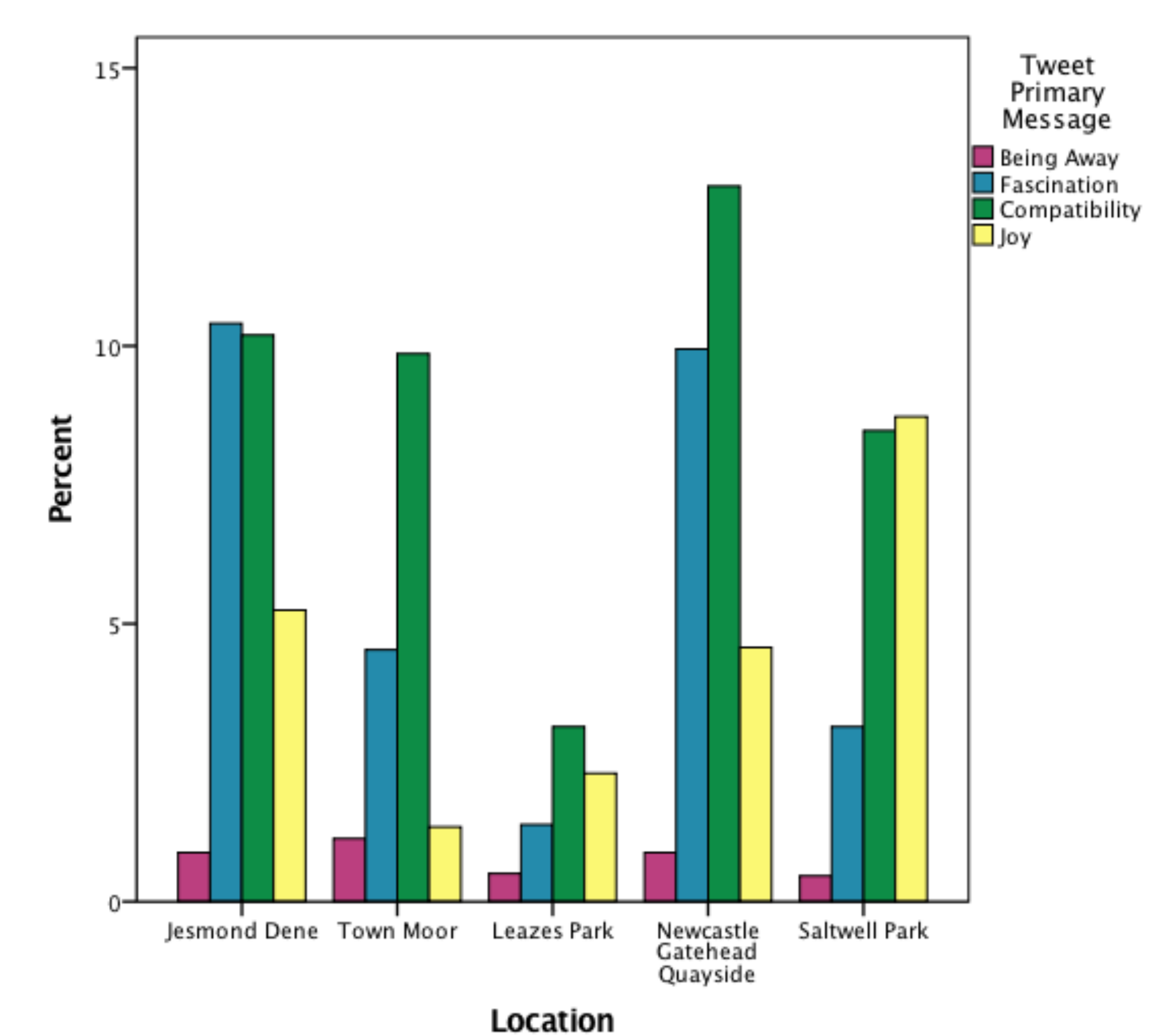
Conclusions

Objective 1: Can Twitter be used to capture unsolicited responses to urban green and blue space?
- Twitter is a convenient but analysis-intensive data source for unsolicited views of UGBS.

Objective 2: Do Tweets include emotion and characteristics consistent with attention restoration theory?
- Two restorative characteristics, compatibility and fascination, were widely reported; thus providing evidence these are inherently perceived.
- Approximately 30% of Tweets reported emotion as the primary message. Of these, the most frequent was *joy*.
- No Tweets used terminology consistent with a general positive or negative mood.
- Reports of 19 different aspects of joy, as well as surprise and love, support the assertion emotion and mood differ (Beedie, et. al, 2005).

The evidence presented here is relevant to urban design professionals, landscape architects, and public health officials who are interested in encouraging UGBS use, particularly for its restorative and emotional benefits.

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