

海外特別研究員最終報告書

独立行政法人 日本学術振興会 理事長 殿

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氏 名

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(氏名は必ず自署すること)

海外特別研究員としての派遣期間を終了しましたので、下記のとおり報告いたします。

なお、下記及び別紙記載の内容については相違ありません。

記

1. 用務地（派遣先国名）用務地： サウサンプトン （国名： 英国 ）

2. 研究課題名（和文）※研究課題名は申請時のものと変わらないように記載すること。

計算論的アプローチによる自己の評判のダイナミックな表象に関わる神経基盤の解明

3. 派遣期間：平成 29 年 8 月 1 日 ～ 令和 1 年 7 月 31 日

4. 受入機関名及び部局名

サウサンプトン大学心理学部

5. 所期の目的の遂行状況及び成果…書式任意

書式任意 (A4 判相当 3 ページ以上、英語で記入も可)

(研究・調査実施状況及びその成果の発表・関係学会への参加状況等)

(注)「6. 研究発表」以降については様式 10-別紙 1~4 に記入の上、併せて提出すること。

I have submitted a paper of the current project with Keise Izuma to Cerebral Cortex. Following are abstract, sentences, and figures in the manuscript.

Abstract

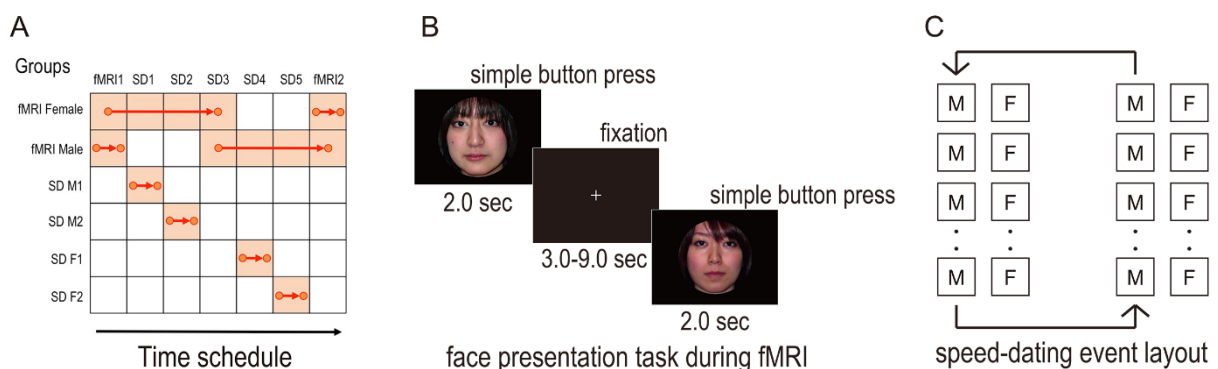
In everyday social interactions, we instantly form impressions of people and often also think about how others view us, a process called reflected appraisal. Previous neuroimaging studies demonstrated that the ventromedial prefrontal cortex (vmPFC) activity reflects how much an individual positively views each person (impression). Here, we investigated whether the degree to which individuals think others positively view them (reflected impression) is similarly tracked by the activity in the vmPFC. Forty participants underwent a functional magnetic resonance imaging (fMRI) session and subsequent speed-dating events. During the fMRI session, each participant passively viewed faces of others whom they would meet in the subsequent speed-dating events. The results revealed that both the impression and reflected impression were automatically represented in the vmPFC. However, the impression fully mediated the link between the reflected impression and vmPFC activity. These results highlight

a close link between the reflected appraisal and impression formation and provide an important insight into neural and psychological models of how the reflected impression is formed in the human brain.

Manuscript

In the present study, we specifically investigated whether the reflected impression (i.e., the extent to which an individual thinks others like her/him) is automatically represented in the vmPFC and ventral striatum when faces of others are presented. Previous research showed that these regions are involved in representing subjective pleasantness induced by positive evaluations by others (Davey et al. 2010; Ito et al. 2011; Izuma et al. 2008; Kawasaki et al. 2016; Meshi et al. 2013; Moor et al. 2010; Somerville et al. 2006). For example, two studies (Moor et al. 2010; Somerville et al. 2006) showed that the vmPFC is associated with positive feedback about the self. Notably, activity in these regions increases when subjects just believe they are liked by others (Davey et al. 2010) and they expect future social reward such as positive facial expressions (Spreckelmeyer et al. 2009). These findings suggest that a mere belief that we are liked by others or that we would get a positive reputation in the future has positive subjective value and the value is represented in the vmPFC and ventral striatum (Ruff and Fehr 2014).

In the present study, inside an fMRI scanner, participants performed a passive face-viewing task where they were presented with faces of opposite genders whom they would meet during subsequent speed-dating events.

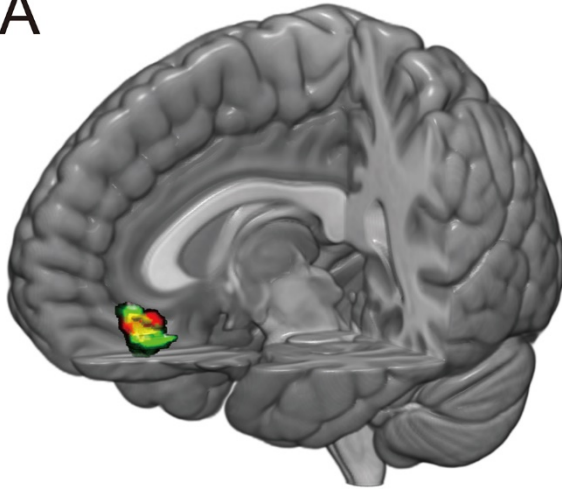


Imaging results

The results revealed that the vmPFC is commonly related to both impression and reflected impression, suggesting that mechanisms of the impression and reflected impression are partially dependent. An exploratory whole-brain analysis also revealed that several brain regions including the bilateral insula are related to impression. Another exploratory whole-brain analysis revealed that the superior frontal gyrus extending to dorsomedial prefrontal cortex and

PCC, as well as the vmPFC, are involved in the reflected impression (i.e., reflected-impression-related regions). It also revealed that left anterior insula has specific involvement in impression (i.e., impression-specific region). No regions were specifically involved in reflected impression. We did not find any reflected-impression-specific regions nor any significant ventral striatal activity.

A



B

