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<td><strong>Author(s)</strong></td>
<td>Lau, Shing Fung Athen (劉成豐)</td>
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Social Gaze on Single and Couple Targets – Exploring the top-down influences of Sex, Relationship Status, Love and Lust State.

A Report Submitted to
Department of Applied Social Sciences
in Partial fulfillment of the Requirements for the Bachelor of Social Sciences in Psychology

by

LAU Shing Fung, Athen

April, 2015
Abstract

Objectives. Previous studies shown that partnered and committed individuals selectively attended less to attractive alternatives, relative to single individuals, implying a social cognitive mechanism in relationship maintenance. Similar studies evidenced that social gaze on face and body region was determined by one’s love and lust intentions. These inspires the present study to aim at exploring the social gazes in an eye-tracking protocol, along with evidenced, top-down, individual factors. Hypothesized were the moderating effects of respectively viewer sex, relationship status, and love-and-lust state on the social gazes.

Methods. 91 participants were recruited into the experiment. They were randomly assigned to three experimental conditions – love, lust and neutral, with sexes and relationship status balanced. 30 photographs of single models and couple models, with controlled attractiveness were presented in the eye-tracking session.

Results. Mixed-design ANOVAs were conducted to test the moderation effect of viewer sex, relationship status, and conditions, along with bottom-down factor – target sexes, target attractiveness, and face and body region. Along with subgroup analyses, it is revealed that when viewing single target, female gazed at the face and body region differentially by the sex of the target, and partnered males down-regulate gazes distributed on the female targets in a couple.

Discussion. The results provided partial support to the proposed hypothesis. The sex-
specific gaze patterns were discussed with the evolutionary perspective in mate
selection and relationship maintenance. As this study was a pioneer application of
social gaze in interpersonal context in eye-tracking environment, more related studies
concerning the face and body preferences are needed.
Acknowledgements

With months of efforts, the study has come to this form as trains of thoughts and tons of data have been crystallized into words and figures in this paper, many of my teachers, friends, and classmates has been supportive to me and encouraging all along throughout the research project. I would like to take this chance giving my sincere thanks to them.

The first one I shall give thanks to is my supervisor, Dr. Dannii Yeung, whose academic advice and support has shaped me into a more mature researcher of independent mind and critical thinking. Her encouragement to me is like telling me that “you can do better”.

Moreover, I would like to thank Ms. Sonia Chan, who taught and practiced with me the use of eye-tracker. The efforts of other laboratory assistants were appreciated also for preparing the materials and administrative work.

Thanks shall also be given to the 93 participants, who generously lend me their time and volunteer to participate in my experiment. I learnt a lot from each of our encounter.

I am grateful too to learn and be informed by the many researchers in psychology who courageously test their ideas and daily observations in scientific operations. Their groundbreaking, enlightening theories and findings contributed much to the world of knowledge.

Last thanks shall be given to God and my family members, who constantly provide love and care to my being. Through them, I learn to love and be loving.
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Chapter 1: Introduction and Literature Review

“Love looks not with the eyes, but with the mind; and therefore is winged Cupid painted blind.” Shakespeare, “A Midsummer Night's Dream”.

Psychologists evidenced that love lies not only in eyes, instead it make a network of neurons charged “in love”. It implies that the individual, top-down factors may play a significantly determining role in social gazes. Lovers’ eyes may look at others differently, at least, comparing to non-lovers. An inspiring study of Miller (1997)’s examined the patterns of lovers’ eyes by presenting them with attractive opposite-sex photographs. Those with stable romantic partners engaged less time in viewing the photographs, while single individuals or causal daters engaged more. The committed individuals also gave lower attractiveness ratings to the individuals of opposite-sex. Even within seconds of attending to or looking away from the potential mates, there potentially shows differences in the gaze pattern between the committed and non-committed lovers. What creates these differences? Do merely being in a relationship affect the visual patterns? Is it possible that romantic love or sexual desire also contribute to the differences? The present study is aimed at unpacking those seconds of attention by examining the gaze patterns of the single and partnered individuals, and testing the potential effect of love and lust in the gaze.

Gaze as Visual Attention in Social Environments

To begin with, it is necessary to briefly delineate the concepts of visual attention.
In a social environment, visual attention is the window of looking into the information, and assigned the priority of processing by allocating a weight on a specific part or location of a visual scene (Henderson, 1992). Objects that were visually attended reached the minds. It constitutes the early-stage of human cognitive perceptual systems, which were believed to serve adaptive functions in survival and goal attainment (McArthur & Baron, 1983). An evolutionary social cognitive presupposition was that the visual attention mechanism operates in the nervous system, and responds to external stimuli dynamically (Neuberg & Schaller, 2015). In this study, visual attention is operationalized as patterns of eye gaze that an individual projects on the presented visual scenes. Allocation of attention was made manifest by gaze distribution, which may identify with the one’s motivation, and preference or interest (Henderson, 2003; Isaacowitz, 2006). Early fixation and long dwelling time also indicated the region which is relatively preferred in a scene (Henderson, 2003).

**Sex Differences in Social Gaze**

When viewing social targets, both males and females realized the hypothesis of “opposite-sexed beauty captures the mind” that they biased attention towards physically attractive opposite-sex targets, as compared to those of less attractive. It is interesting that females also selectively attended to relatively attractive female counterpart, while the same-sex beauty did not garnered attention among men (Maner et al., 2003). Sexuality researchers on the other way did eye-tracking studies presenting participants
with more explicitly sexual stimuli. It was found out that stimuli of erotic models did attract more fixation and longer dwelling time on the body than on the face, for both males and females (Lykins, Meana, & Kambe, 2006). Male gaze patterns revealed a particular sexual preference in females’ regions signaling fertility, like chest and midriff part (e.g., Dixson et al., 2011).

Males inherently experienced higher sexual impulse strength than females (Tidwell, & Eastwick, 2013). Gaze patterns projected on clothed alternative figures revealed males’ explicit sexual cognition, like sexual compulsivity and sexual inhibition. For females, their gaze patterns were not apparently related to their sexual preference (Hall, Hogue, & Guo, 2014). In short, the social gazes could be driven by the sexual motive and favored on different relevant scenes, respectively in male and females.

**Lover’s Gazes are Different**

After Miller (1997) documented the shorter attention time displayed by the romantically committed individuals, more studies were conducted to investigate the phenomenon in the early-stage of social vision – consistent results relating to the alternative inattention were observed. However, merely relationship status (i.e., in a relationship/ single) was not enough to make attention shift away from potential mates (Maner, Gailliot, & DeWall, 2007; Maner, Gailliot, Rouby, & Miller, 2007; Maner, Gailliot, & Miller, 2009). Attention towards same-sex or opposite-sex targets may not
differ between single or partnered individuals (Maner, Rouby, & Gonzaga, 2008). The shift may collaborate and depend on other psychological factors, which are yet to be discovered. Under the love condition manipulated by Maner, Rouby, & Gonzaga (2008), participants in a committed romantic relationship were asked to write an essay about love and their current partners. The results showed that the love manipulation reduced their visual attention to the attractive opposite-sex target. The ability to shift attention away from attractive alternatives may also be implicitly primed (Maner et al., 2009). These evidenced the existence of inherent, attentional mechanism possessed by the romantically committed. However, the inattention phenomenon can be reversed: in Nordgren and Chou’s (2011) study, through watching a 10-min erotic film, romantically committed individuals were experimentally manipulated to become sexually aroused; they spent longer time to view the attractive alternatives photographs compared with those not being sexually aroused. It appeared that the attentional mechanism can be modified through activating love and lust (sexual desire).

**Love and Lust Motives underlying the Gazes**

Love and lust, suggested by Fisher (1998) were distinctly operated with independent biochemical behavioral systems. Lust system was evolved for sexual gratification. It was a visceral need, adapted for reproduction (Nordgren & Chou, 2011). Different from lust, love systems were evolved for emotional reward with specific long-term mates, and the upbringing of offspring (Fisher, 1998). As aforementioned,
induction of love activates the inattention against attractive alternatives. The love
feelings also promoted the suppression of thoughts about the alternatives (Gonzaga,
Haselton, Smurda, Davies, & Poore, 2008).

The love system facilitates the selective allocation of resources with specific mates,
which is a behavioral sign of commitment. Illustrated by “love as a commitment
device” hypothesis, love enhances commitment by motivating approach behaviors with
an intimate partner; and by using verbal or nonverbal displays as communication (c.f.
Gonzaga, Keltner, Londahl, & Smith, 2001). The pair-bonding hormone, oxytocin, is a
strong chemical correlates with love feelings. It acts as learning signals that help
imprinting the partner’s details, emotional associations, and relationship-related habits
(Liu & Wang, 2003; Savulescu & Sandberg, 2008).

Recently, an eye-tracking study shown difference in gaze patterns between
participants who were respectively primed with the intentions of love and lust – the face
region become more visually preferred with more and longer gazes when making
decision about love than when making decision about lust; on the contrary, the intention
of lust drove the gazes more on body region than the intention of love (Bolmont,
Cacioppo, & Cacioppo, 2014). The differential patterns of eye gaze projected on
human figures indicated distinct attentional mechanisms of love relative to lust. The
findings were consistent with the previous sexuality studies (e.g. Tidwell, & Eastwick,
2013; Hall, Hogue, & Guo, 2014) depicting the role of lust motive shift the attention
towards body. However, apart from the manipulation of love and lust, the study lacks a control condition to be compared with the two experimental conditions. Were the gaze patterns primed with love and lust intentions differ from the normal? Moreover, the control will provide the possible bottom-up influences within the presented stimuli on the gaze measures.

**Explaining the Reduced Attention to Attractive Alternatives –self-regulatory approach**

Recently, the negative evaluation towards attractive alternatives can be explained by a hypotheses—the self-regulatory approach (e.g. Ritter, Karremans, & van Schie, 2010). It suggests that devaluation of attractive alternatives involves secondary, inhibitory processes, through which the automatic approach tendencies towards the attractive others were suppressed. In Tidwell and Eastwick (2013)’s terms, the approach tendencies were impulses which are primitive hedonic responses that was activated by an environmental stimuli to elicit patterns of behaviors. The secondary processes from a controlled system are intentional, goal-driven that demands internal sources. When self-regulatory resources were depleted, e.g. with time constraints, partnered and single individuals did not differ in evaluating the attractiveness of opposite-sex targets (Ritter, Karremans, & van Schie, 2010). Nevertheless, the induced love feelings (Maner, Rouby, & Gonzaga, 2008) that activated the inattention effect was not yet well included in the above hypotheses. The next question is - how
do love or lust states account for the momentary attentional behaviors in face of opposite-sex targets?

It is assumed that the reduced attention dwelled on opposite-sex targets was a successful performance of regulating one’s attention, for not succumbing to the tempting alternatives, serving the purpose of relationship maintenance. Love feelings act as the internal, regulatory resources for controlling the primitive responses of attending to an attractive alternative. The motive of turning gaze on the attractive alternatives was, by its evolutionary nature, sexual. Being sexual aroused is hypothesized to add the impulse strength of the first, automatic response of attention.

Here is a proposed explanation for the inattention effect observed among the romantically committed individuals that love and lust works oppositely - one is empowering the attentional regulation; while another one fuel the impulse by overriding the inhibition. The characteristics of love and lust are explained as follows.

**The current research**

For the attentional mechanism of viewing attractive alternatives has frequently been studied by computational tasks, which recorded the instant decision-making response after presenting the stimuli of attractive alternatives, e.g. dot-probe tasks and visual cueing task(e.g., Maner et al., 2008; Maner et al., 2009). Is the visual patterns revealed by computational tasks generalizable to the eye-tracking context? If the patterns remains obvious, how would they be explained in the eye-tracking protocols?
The use of the eye-tracking methodology would offer one more perspectives into social gazes, in specific to the defined visual scenes that were preferentially attended. As Hall et al. (2014) suggested, many studies defined the visual scenes with only crude measures. As a visual scene in a social environment per se gives a rich amount of information to eyes for differentially processing, despite the varying stimuli complexity; an exquisite definition of the visual areas and a higher degree of stimulus control may uncover major differences of gaze patterns of participants.

This study tested for the moderation of viewer sex, relationship status, and the feelings of love and lust on social gaze patterns. Besides, this study adopted the background of Miller (1997)’s research, being a pioneer eye-tracking study investigating the social gazes in relevance to interpersonal relations. Miller (1997) operationalized attention to alternatives in two ways - a self-report measure and a behavioral measure, which recorded the length of one’s inspecting advertisement of an attractive, opposite sex. Despite the efficacious prediction of the self-report attentiveness to alternative on relationship outcomes, it correlated with the behavioral measure weakly, $r = .27$ (Miller, 1997). It was one of the examples showing the gap of self-reported and behavioral measure in the recent psychology researches, which concerns a number of methodological limitations, like social desirability, specificity of experimental context. The eye-tracking methodology may provide one more objective measure on visual behaviors, in particular aspects of social gazes in the field of
interpersonal relations.

Based on the literature review, a number of hypotheses concerning the social gazes were suggested as follows. Relative to targets of average attractiveness, the more attractive targets attracts more gazes from opposite sex (H1). However, such effect was hypothesized to be moderated by relationship status – partnered viewers were expected to gaze less on the figures of the attractive, opposite-sex targets, compared to viewers, who are single (H2). In attempt to replicate the results of Bolmont et al. (2014), the effect of manipulated viewers’ state was also tested – when primed with love feelings, gazes will direct more on the face regions, whereas with lust feelings, gazes will direct more on the body regions (H3). Finally, the moderation of relationship status and viewer’s state was tested – it is hypothesized that when primed with love feelings, partnered individuals will fixate less on the figures of the attractive opposite-sex targets, compared to control and lust conditions (H4a); When primed with lust feelings, both single and partnered individuals will fixate more on the figures of the alternatives compared to love and control condition (H4b).
Chapter 2. Methods

Overview of the experimental design

There are 3 experimental conditions- love, lust and control in this study. The participants were randomly assigned to one of these three conditions. Apart from Condition, two other between-subject variables were examined in this study, namely Participant Sex (Viewer Sex) and Relationship Status (single or partnered). The stimuli dimensions, as well as within-subject variables include Target Attractiveness (attractive or average looking), Target Sex and two visual areas of interest, AOI - face and body. The presented stimuli in the eye-tracking sessions were of two classes – single models and heterosexual couple models. Mainly two dependent measures rendered from the eye movement recordings were examined – the proportion of fixation count and the proportion of fixation duration, relative to each AOI defined. They were respectively called percent fixation count and percent fixation duration (see Results for details).

Participants

Ninety-three individuals with normal or corrected-to normal vision were recruited to join this study. Their participation in this study was voluntary and no monetary reward was given. Two individuals were excluded from the subsequent analyses because the failure in recording their eye movements. Among the remaining 91
participants, 49.5% were male, and 50.5% female; 53.8% were single, and 46.2% were in a relationship, whose the mean length of the current relationship was 24.95 months ($SD = 18.40$). In terms of place of origin, 89 of them were Hong Kong locals, 5.5% from Mainland Chinese, 5.5% from other countries. For the locals, the mean length of the residence in Hong Kong was 20.76 ($SD = 2.36$); that for the non-locals, was 11.33 ($SD = 6.78$). Asian origin was favored in participants in order to avoid large cultural variation in the gazing at the photographs of Asian models. All of the participants attained at least the educational level of secondary school (95.6% were undergraduates; 3.3% graduate students). 90 reported heterosexuality as their sexual orientation, and 1 reported bisexuality. They were randomly assigned to 3 experimental conditions – the love, lust and neutral primes (see Table 1 for frequency table). Details of the statistics concerning the demographics and vision ability were listed in Table 2.

Table 1.
Frequency table of the participant distribution across sex, relationship status, and experimental conditions.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Relationship Status</th>
<th>Experimental conditions</th>
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<tr>
<td></td>
<td></td>
<td>Neutral</td>
</tr>
<tr>
<td>Male (n = 45)</td>
<td>Single</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Partnered</td>
<td>6</td>
</tr>
<tr>
<td>Female (n = 46)</td>
<td>Single</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Partnered</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Grand total</td>
<td>29</td>
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Table 2.
Means and Standard Deviations of participants’ Demographics and Vision ability.

<table>
<thead>
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<th>Relationship Status</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male (n = 45)</td>
<td>Female (n = 46)</td>
<td>Fb</td>
</tr>
<tr>
<td>Age range</td>
<td>19 - 25</td>
<td>18 - 24</td>
<td>-</td>
</tr>
<tr>
<td>Age, M (SD)</td>
<td>21.23 (1.31)</td>
<td>21.18 (1.54)</td>
<td>0.20</td>
</tr>
<tr>
<td>Length of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the current</td>
<td>24.29 (19.09)</td>
<td>25.62 (18.13)</td>
<td>0.08</td>
</tr>
<tr>
<td>relationship in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>months, M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of the</td>
<td>18.76 (5.29)</td>
<td>20.87 (2.14)</td>
<td>5.65*</td>
</tr>
<tr>
<td>residence in</td>
<td></td>
<td></td>
<td>19.37 (4.85)</td>
</tr>
<tr>
<td>Hong Kong, M (SD)</td>
<td></td>
<td></td>
<td>20.36 (3.07)</td>
</tr>
<tr>
<td>Snellen visual</td>
<td>24.89 (6.44)</td>
<td>26.52 (7.22)</td>
<td>1.27</td>
</tr>
<tr>
<td>acuity, M (SD)</td>
<td></td>
<td></td>
<td>25.61 (7.47)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25.83 (6.14)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.99</td>
</tr>
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</table>

Notes. Vision ability (visual acuity) was measured with Snellen chart (Snellen, 1862); 
b denotes that the F value was output from the 3-way (Sex* Relationship Status* Condition) ANOVA. 
Besides the reported differences, all the higher-level interactions did not reach significance, ps > .10. 
a denotes a significant sex differences in the length of residence in Hong Kong, F(1, 79) = 5.65, p = .02< .05; further analyses were done by correlating the length of residence and all the dependent 
measures adopted in results, it did not results in any significant relationships were found, ps>.10.

Stimuli and experimental paradigm

30 photographs, 10 of single male model, 10 of single female model, and 10 of 
couple model, constituted the stimuli in the eye-tracking session. They were searched 
from the online advertisements and websites of model companies. At the beginning, 
56 photographs were selected according the following criterion, 1) Asian, preferably
Hong Kong locals; 2) non-nude or erotic; 3) plain-clothed and clear of any distracting accessories; 4) with no exaggerated posture or emotional facial expressions; 5) body and face oriented towards the camera so that the front side was clearly shown; 6) displaying body parts from head to hip; and 7) presenting behavioral cues of a couple, e.g. holding hands, stretching arm around another’s shoulders, exclusively for photographs of couple model. Besides the photographs selected to be eye-tracking stimuli, photographs were also found to prepare for the lust condition, inducing feelings of lust, it shall follow the criterion suggested by Aaron and his fellows (2005) –non-nude models wearing swimming suit.

In order to control for the bottom-up influences of the photograph stimuli, a pilot test was conducted. All the photographs were tested by 17 Hong Kong locals, 8 males and 9 females, with age, $M = 21.63$, $SD = 1.86$; and with the length of staying in Hong Kong, $M = 21.18$, $SD = 2.33$. Among them, 76.5% of them were single, and 23.5% were in a relationship. The model of each photograph was rated for the facial attractiveness, body attractiveness, the level of interest, romantic feelings, sexual feelings, and positive/negative feelings aroused, with Likert scale from 1 to 7 (Appendix 1). The ratings were subject to analyses – it shown that facial and body attractiveness ratings were highly consistent, both on male models, $r = 0.857$, $p < .001$; and on female models, $r = 0.852$, $p < .001$. Compared to the photographs to be presented in the eye-tracking session, the photographs selected specifically for the lust condition were also
significantly higher in inducing sexual feelings, *p*<.05. The sum of the facial and body attractiveness ratings were then calculated, and used for selecting the photographs to be presented in the eye-tracking session. In each class of photographs (male, female and couple model), 5 of which receiving the highest attractiveness scores were defined as “attractive” group, and 5 of which receiving the lowest attractiveness scores as “average” group. Within the three classes of photographs, the attractive groups were rated with higher facial attractiveness, higher body attractiveness than the average groups (*Table 3*).

*Table 3.*

A pilot test of test stimuli

<table>
<thead>
<tr>
<th></th>
<th>Average group (<em>n</em> = 5)</th>
<th>Attractive group (<em>n</em> = 5)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>M</em></td>
<td><em>SD</em></td>
<td><em>M</em></td>
<td><em>SD</em></td>
</tr>
<tr>
<td><strong>Facial attractiveness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male model</td>
<td>2.82</td>
<td>0.3</td>
<td>4.62</td>
<td>0.2</td>
</tr>
<tr>
<td>Female model</td>
<td>2.91</td>
<td>0.28</td>
<td>4.32</td>
<td>0.26</td>
</tr>
<tr>
<td>Couple model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.31</td>
<td>0.19</td>
<td>4.67</td>
<td>0.19</td>
</tr>
<tr>
<td>Female</td>
<td>3.93</td>
<td>0.44</td>
<td>4.78</td>
<td>0.22</td>
</tr>
<tr>
<td><strong>Body attractiveness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male model</td>
<td>3.18</td>
<td>0.35</td>
<td>4.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Female model</td>
<td>3.48</td>
<td>0.36</td>
<td>4.47</td>
<td>0.16</td>
</tr>
<tr>
<td>Couple model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.68</td>
<td>0.24</td>
<td>4.4</td>
<td>0.27</td>
</tr>
<tr>
<td>Female</td>
<td>3.82</td>
<td>0.33</td>
<td>4.35</td>
<td>0.22</td>
</tr>
</tbody>
</table>

Notes. *p* < .05, **p** < .01, ***p*** <.005, ****p*** <.0001.

By controlling the attractiveness scores, the “attractive” group and the “average”
group did not differ significantly in the aroused romantic feelings, sexual feelings, interest and positive/negative feelings (Table 4), whereas the only exceptional group difference lies in the level of romantic feelings more aroused by the photographs of the couple model. These were done to control for the possible, non-experimentally emotion induced by the low-level features of the photographs. In each class (single male, single female and couple), the selected photographs of both the attractive and average models were used in the eye-tracking session, \( n = 30 \).

<table>
<thead>
<tr>
<th>Ratings</th>
<th>Male model (n = 10)</th>
<th>Female model (n = 10)</th>
<th>Couple model (^C) (n = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( F )</td>
<td>( p )</td>
<td>( F )</td>
</tr>
<tr>
<td>Romantic feelings</td>
<td>0.33</td>
<td>.582</td>
<td>3.10</td>
</tr>
<tr>
<td>Sexual feelings</td>
<td>0.05</td>
<td>.830</td>
<td>0.01</td>
</tr>
<tr>
<td>Interesting</td>
<td>0.89</td>
<td>.378</td>
<td>3.87</td>
</tr>
<tr>
<td>General feelings</td>
<td>0.11</td>
<td>.754</td>
<td>0.63</td>
</tr>
</tbody>
</table>

Notes. The attractiveness scores were included in the ANCOVA as covariate. It is generated by adding up the face attractiveness scores and body attractiveness scores; \(^C\) Both male attractiveness and female attractiveness were included as covariates into the ANCOVA model; \(*p < .05\)

The selected 30 photographs were shown in each eye-tracking session, 10 of single male models, 10 of female single models, and 10 of couple models. Of each class, half belongs to attractive group; while another half to average group. To minimize the variation of the low-level features projected by the photographs, image editing was done
by removing the background, erasing the models’ accessories, rescaling the size into the standardized height of 600 pixels, and reducing the color salience down to grayscale. The relative size of face region to body region was also similar across the photographs selected (see Appendix 2 for photograph samples).

The visual area of interest (AOI) defines a standardized part of visual scene to be investigated in all photographs. In the photographs of single models, AOIs were Face, Body and Background; similarly, the AOIs in the photographs of heterosexual couple models were basically Male Face, Male Body, Female Face, Female Body, and Background, which can be grouped into Target Sex (Male / Female) and AOI(Face / Body).

In each slide shown, one photograph was presented at the center with a white, blank background. Every photograph would be shown once only at 5,000 ms and the slide was followed by a full-white slide shown at 1,000 ms.

**Apparatus and measures**

*Eye-tracking system*

The eye tracker adopted a remote desktop one – the model of Applied Science Laboratory’s Eye-Trac 6000 series System (Bedford, MA). Simultaneously operating and presenting visual stimuli along was a 16-inch monitor with a screen resolution of 1280X1024 pixels and a refresh rate of 120Hz. GazeTracker 9.0 (EyeTellect, LLC,
Charlottesville, VA) was the software responsible for presenting visual stimuli, and recording the gaze patterns. It rendered three main dependent measures of visual attention in this study: overall duration of fixations, number of fixations, and mean number of fixations. A fixation is counted as a gazing point directed within a 1° visual angle on a particular area in a given scene for at least 100 ms (Manor, & Gordon, 2003).

**Priming tasks & manipulation checks**

As the experimental manipulation, priming tasks were designed to elicit the feelings of love and lust in imagined situations. The instructions were adopted from Förster, Özelsel, and Epstude, (2010), with a little modification. It was said to assess one’s capacity of imagining pleasant emotional events. Within five minutes, the participants were encouraged to take notes to capture their thoughts. In the neutral condition, the participants were asked to imagine walking alone. In the love condition, the participants were requested to imagine the moment with their romantic partner. In lust condition, the participants were given the photographs of a non-nude opposite-sex model, which was pilot tested, and were asked to imagine an encounter of intimate contacts.

To ensure a successful manipulation, four items were given to the participants to demonstrate the manipulation effect (*Appendix*), including 1. sexual fantasies, “How intense the sexual fantasies did the task give you?”; 2. sexual arousal, “How much
sexual How much sexual arousal did you feel in the task?”; 3.romantic thoughts, “How intense the romantic thoughts did the task give you?”; and 4.romantic feelings, “How much romantic feeling did you feel in the task?”. These items were rated in 6-point Likert scale, ranging from 1 (Not at all) to 6 (A Great Deal).

A pilot test was carried out to test the manipulation with 49 individuals participated in a voluntary basis. Among this pilot sample, their mean age is 20.65 (SD = 2.19); Sex: 47% male and 53% female; Relationship status: 67% single, 29% partnered, 2% married, and 2% unknown; Nationality: 80% Hong Kong locals, 12% Mainland Chinese, and 8% Others; 100% currently students. 10(26%) of them were assigned to neutral condition, 13(33%) to love condition, 16(41%) to lust condition for females, and 8(33%) to lust condition for males. One-way ANOVAs were done separately by participant sex. Indicated in Table 5, the results shown that the love prime successfully differentiated itself from the neutral and lust prime on inducing romantic thoughts and feelings, while the lust prime partially succeeded in differentiated itself from the neutral and love prime on inducing sexual arousal and sexual fantasies. The effect of lust prime was weak in females.
**Table 5.**  
A pilot test for assessing the three priming tasks on romantic and sexual feelings.

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Neutral</td>
<td>Lust</td>
<td>Love</td>
<td>F</td>
<td>Direction of effecta</td>
<td>Neutral</td>
<td>Lust</td>
<td>Love</td>
</tr>
<tr>
<td><strong>Manipulation checks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual fantasies</td>
<td>1.67</td>
<td>4.00</td>
<td>3.00</td>
<td>3.83*</td>
<td>Lust &gt; neutral; Lust ~love;</td>
<td>1.43</td>
<td>2.50</td>
<td>2.57</td>
</tr>
<tr>
<td></td>
<td>(1.16)</td>
<td>(1.31)</td>
<td>(1.27)</td>
<td></td>
<td>Love ~neutral</td>
<td>(0.54)</td>
<td>(1.41)</td>
<td>(1.13)</td>
</tr>
<tr>
<td>Sexual arousal</td>
<td>1.33</td>
<td>4.25</td>
<td>2.83</td>
<td>10.80***</td>
<td>Lust &gt; love; Lust &gt; neutral;</td>
<td>1.29</td>
<td>3.00</td>
<td>2.43</td>
</tr>
<tr>
<td></td>
<td>(0.58)</td>
<td>(1.04)</td>
<td>(0.98)</td>
<td></td>
<td>Love ~ neutral</td>
<td>(0.49)</td>
<td>(1.51)</td>
<td>(1.13)</td>
</tr>
<tr>
<td>Romantic thoughts</td>
<td>1.67</td>
<td>3.00</td>
<td>4.83</td>
<td>10.21***</td>
<td>Love &gt; control; Love &gt; lust;</td>
<td>1.71</td>
<td>2.25</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>(0.58)</td>
<td>(1.31)</td>
<td>(0.75)</td>
<td></td>
<td>Love ~ neutral</td>
<td>(1.11)</td>
<td>(1.39)</td>
<td>(0.82)</td>
</tr>
<tr>
<td>Romantic feelings</td>
<td>2.33</td>
<td>2.50</td>
<td>4.67</td>
<td>6.67**</td>
<td>Love &gt; neutral; Love &gt; lust;</td>
<td>2.00</td>
<td>2.25</td>
<td>5.14</td>
</tr>
<tr>
<td></td>
<td>(1.16)</td>
<td>(1.31)</td>
<td>(1.03)</td>
<td></td>
<td>Love ~ neutral</td>
<td>(1.16)</td>
<td>(1.39)</td>
<td>(0.69)</td>
</tr>
</tbody>
</table>

Notes. a indicates that the direction of effect was revealed by post-hoc Gabriel’s test in general; “>” indicates significant differences between the two concerning conditions; b indicates that Dunnett T3 tests were used instead of Gabriel’s test in some cases, where the variances were found unequal with Levene’s test; *p < .05, **p < .01, ***p < .005, ****p < .0001.
**Procedure**

Ethics approval was first obtained from the College’s Research Ethics Sub-committee. The study was carried out in a laboratory room. Each experimental session of approximately 40 minutes was given on one-to-one basis. All the instructions were communicated in Cantonese, except one participant whose mother tongue was Mandarin. The experimental protocol was presented on *Appendix*. Informed consent was collected from each participant before the eye-tracking study.

Participants were involved in two parts sequentially – the eye-tracking session and the questionnaire. They were seated on a movable office chair, with height adjusted so that the eye level is aligned horizontally at the center of the computer screen; the horizontal distance from the screen to eyes was preferably 40-50 cm.

At first, the participants took the Snellen visual acuity test. Following that was the experimental manipulation. Participants were randomly assigned to either one of the three conditions – love, lust and neutral condition. In each condition, the participants were asked to do the priming task. To provide a sense of privacy, the experimenter left the room, and returned after 5 minutes. The four items of manipulation checks were then administered. Next is the calibration procedure - nine dots matrix were shown and the eye-tracking camera was adjusted to the participant’s eye coordinates. The expected calibration was made within one degree of visual angle deviation from the observed point. In cases of large deviation, re-calibration was
sought. The experimenter also reminded the participants to keep their head and body as still as possible in the coming session.

After successes in calibration, the experimenter signaled the start of eye-tracking session and told the participants to look freely and naturally at the photographs shown on screen. The testing slides and blank slides were shown successively under designed experimental paradigm. Participants viewed the testing slides in order randomized by the software. Meanwhile, the experimenter controlled the eye-tracking panel to ensure that the participants’ eyes were observable and trackable.

Finishing all the gazing on the presented photographs, participants were asked to continue and fill in the questionnaire, which was comprised of the psychological measures and demographic items. It was followed by a debriefing on the experiment details.
Chapter 3. Results

Mood state

The mood state was reported before the condition primes by each participant. The 3-way univariate ANOVA did show that no significant differences in mood were found across Viewer sex, Relationship Status, and Conditions, \( p > .05 \). There were no significant higher-order interactions among these three between group variables, \( p > .05 \). Thus, these results suggest that the mood state of participants across the three conditions was similar before manipulation.

Manipulation check

Next was to test the manipulation effect by conducting a 3-way ANOVA (Viewer Sex* Condition* Relationship Status) on the 4 items of manipulation check - the effects of the condition primes were not all significant (Table 6). Relationship Status or interactions concerning Relationship Status were not significant, \( p > .05 \). The results also revealed no significant interaction effects of Viewer Sex* Condition in all 4 items, \( p > .05 \). It was considered that the effect of condition primes to induce love and sexual feelings were specific to the sex of participant.

A narrower look on the sex-specific manipulation effect was taken with one-way ANOVAs run separately by participant sex. As indicated in Table 6, in male participants, the lust prime differentiated from the neutral and love primes significantly,
in inducing sexual fantasies and sexual arousal, *ps < .001*; while the love prime also
differentiated from lust and neutral primes significantly, in inducing romantic feelings,
*p < .001*, and romantic thoughts, *p < .05*. Among female participants, the lust prime
differentiated from the neutral and love primes significantly, in inducing only sexual
arousal, *p < .05*, but not sexual fantasies, *p = .122*, the post-hoc test also revealed that the
lust prime was not significantly different from the love prime in the scores of sexual
arousal; whereas the love prime differentiated from the neutral and lust primes
significantly, in inducing romantic thoughts and romantic feelings, *ps < .001*.

Independent t-tests were also conducted by different conditions (Table 7). The
sex differences unfolded that female participants had more romantic thoughts than
males in neutral conditions, *t (27) = -2.56, p < .05* and in love condition, *t (27) = -2.23, 
*p < .05*; in lust condition, male participants had greater sexual fantasies, *t (27) = 3.31, 
*p < .005*, and sexual arousal, *t (27) = 4.57, p < .001*.

It is concluded that all the condition primes took effect in the expected ways, except the
lust prime fails to induce sexual fantasies among female participants. Viewer Sex*
Condition interactions shown that the sexual and romantic feelings differed between
male and female participants

---

Note: The asterisks represent significance levels.
Table 6.
Manipulation effect of the three priming task on romantic and sexual feelings.

<table>
<thead>
<tr>
<th></th>
<th>Male, M (SD)</th>
<th>Female, M (SD)</th>
<th>Direction of effect†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Neutral (n= 14)</td>
<td>Lust (n=14)</td>
<td>Love (n=17)</td>
</tr>
<tr>
<td><strong>Manipulation checks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual fantasies</td>
<td>1.21 (0.58)</td>
<td>3.57 (0.85)</td>
<td>2.12 (1.41)</td>
</tr>
<tr>
<td>Sexual arousal</td>
<td>1.21 (0.43)</td>
<td>4.00 (1.24)</td>
<td>1.88 (1.11)</td>
</tr>
<tr>
<td>Romantic thoughts</td>
<td>2.21 (1.58)</td>
<td>3.07 (1.44)</td>
<td>3.71 (1.11)</td>
</tr>
<tr>
<td>Romantic feelings</td>
<td>1.86 (1.03)</td>
<td>2.71 (1.14)</td>
<td>3.82 (1.29)</td>
</tr>
</tbody>
</table>

Notes. † indicates that the direction of effect was revealed by post-hoc Gabriel’s test in general; “>” indicates significant differences between the two concerning conditions; b indicates that Dunnett T3 tests were used instead of Gabriel’s test in some cases, where the variances were found unequal with Levene’s test; *p < .05, ****p<.0001.
Table 7.
Independent t-tests showing the sex differences in the manipulation effect of the three priming task.

<table>
<thead>
<tr>
<th>Manipulation checks</th>
<th>Neutral condition</th>
<th>Lust condition</th>
<th>Love condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$t(27)$</td>
<td>$MD^a$</td>
<td>$t(27)$</td>
</tr>
<tr>
<td>Sexual fantasies</td>
<td>-1.02</td>
<td>-0.25</td>
<td>3.31***</td>
</tr>
<tr>
<td>Sexual arousal</td>
<td>0.08</td>
<td>0.01</td>
<td>4.57****</td>
</tr>
<tr>
<td>Romantic thoughts</td>
<td>-0.86</td>
<td>-0.45</td>
<td>1.56</td>
</tr>
<tr>
<td>Romantic feelings</td>
<td>-2.56*</td>
<td>-1.08</td>
<td>1.56</td>
</tr>
</tbody>
</table>

Notes. $^a$ The mean differences ($MD$) was calculated by a subtraction of mean ratings on manipulation items, male participants – female participants; $^*p < .05$, $^{***}p < .0001$.

Eye-tracking analyses

Before the eye-tracking analyses, all the trials were checked for any fluctuations of gaze data, or great deviation due to technical problems (e.g. poor calibration procedures, excessive blinks and head movements). Two participants’ data were also excluded from the following analyses because of too much data loss or invalid fixation data. Also, included into analyses were only the trials in which the participants’ eyes were successfully tracked 50% or more within the period of photograph presentation. Based on the concerns of technical problems and failure in recording eye movements, trials not fulfilling the above criterion were considered as too much data loss, and were excluded on the basis of trial from the analyses. After the exclusion, the general measures of the eye-tracking session of the remaining participants, $N = 91$ were compared across
Viewer Sex, Condition, and Relationship Status. Overall, the percent time tracked
within the session was high, \( M = 91.75 \), \( SE = 0.65 \). The participant viewers shown no
differences in number of slides presented, total duration of fixation, percent time
tracked, and percent time fixated according to their Sex, Condition, and Relationship
Status, which were detailed in Table 8.

Table 8.
General eye-tracking measures: Descriptive statistics and ANOVA results.

<table>
<thead>
<tr>
<th></th>
<th>ANOVA results (^a)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sex</td>
<td>Condition</td>
<td>Relationship Status</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( M )  ( SE )</td>
<td>( F^b )</td>
<td>( p )</td>
<td>( F^b )</td>
<td>( p )</td>
</tr>
<tr>
<td>General eye-tracking measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of slides presented</td>
<td>29. 0.11</td>
<td>1.11</td>
<td>.295</td>
<td>0.08</td>
<td>.927</td>
</tr>
<tr>
<td>Total duration of fixation (in minutes)</td>
<td>4.82</td>
<td>0.06</td>
<td>0.01</td>
<td>.937</td>
<td>1.62</td>
</tr>
<tr>
<td>Percent time tracked (^b) (%)</td>
<td>91.75</td>
<td>0.65</td>
<td>0.13</td>
<td>.723</td>
<td>1.13</td>
</tr>
<tr>
<td>Percent time fixated (^b) (%)</td>
<td>79.97</td>
<td>1.07</td>
<td>0.01</td>
<td>.926</td>
<td>1.64</td>
</tr>
</tbody>
</table>

Notes. \(^a\) The ANOVA conducted was 3-way univariate including the three between-subject variables as factors; No interactions between the between-subject factors were significant, \( ps < .10 \);
\(^b\) the two percentage measures were means derived by averaging the proportion of time tracked/fixated across all the valid trials in each participant.

The dependent measures being used in these eye-tracking analyses were percent fixation count (PFC) and percent fixation duration (PFD), which respectively represents...
the percentages of fixations / time spent on the defined AOI relative to the total fixation number/ fixation duration within a shown slide (Murphy & Isaacowitz, 2010).

In order to systemically analyses and present the eye-tracking data, two approaches were taken. First, the two types of visual stimuli – photographs of single model and those of couple model – were separately analyzed. Second, the proposed hypotheses were tested in both visual contexts first with full mixed-model ANOVA. Complex interactions were decomposed using subgroup analyses in which one of the factors within the interaction was controlled, and the lower-order interactions were examined. PFC and PFD were deployed as dependent measures in ANOVAs. The between-subject factors being included were Viewer Sex, Experimental Condition, and Relationship Status; the within-subject factors were of three stimuli dimensions – Target sex, Target attractiveness, and Areas of Interest, AOI.

**Viewing single targets**

Provided with the sex-specific effect in the three conditions, the analyses were respectively done on data of male participants and female participants. There are three levels of AOI in the photographs of single targets – Face, Body, and Background.

To begin with, a full 6-way (Viewer Sex* Condition* Relationship Status* Target Sex* Target Attractiveness* AOI) mixed-design ANOVA was conducted, where PFC and
PFD were used as dependent measures. All the results of the expected effects and those to be investigated were listed in Table 9.

Table 9.
Results of 6-way multivariate ANOVA results upon viewing single targets

<table>
<thead>
<tr>
<th></th>
<th>df(under hypothetical, error)</th>
<th>F&lt;sup&gt;a&lt;/sup&gt;</th>
<th>p</th>
<th>η&lt;sub&gt;F&lt;/sub&gt;&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Within-subject effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AOI</td>
<td>4, 76</td>
<td>133.38****</td>
<td>.000</td>
<td>0.875</td>
</tr>
<tr>
<td>Target Sex * AOI</td>
<td>4, 76</td>
<td>6.51****</td>
<td>.000</td>
<td>0.255</td>
</tr>
<tr>
<td>Target Attractiveness * AOI</td>
<td>4, 76</td>
<td>2.28†</td>
<td>.069</td>
<td>0.107</td>
</tr>
<tr>
<td>Target Sex * Target Attractiveness * AOI</td>
<td>4, 76</td>
<td>3.73***</td>
<td>.008</td>
<td>0.164</td>
</tr>
<tr>
<td>Viewer Sex * AOI</td>
<td>4, 76</td>
<td>1.81</td>
<td>.136</td>
<td>0.087</td>
</tr>
<tr>
<td>Viewer Sex * Target Sex * AOI</td>
<td>4, 76</td>
<td>2.85*</td>
<td>.029</td>
<td>0.131</td>
</tr>
<tr>
<td>Relationship Status * AOI</td>
<td>4, 76</td>
<td>0.62</td>
<td>.648</td>
<td>0.032</td>
</tr>
<tr>
<td>Condition * AOI</td>
<td>8, 152</td>
<td>1.39</td>
<td>.205</td>
<td>0.068</td>
</tr>
<tr>
<td>Viewer Sex * Target Attractiveness * AOI</td>
<td>4, 76</td>
<td>0.49</td>
<td>.740</td>
<td>0.025</td>
</tr>
<tr>
<td>Target Sex * AOI</td>
<td>4, 76</td>
<td>1.39</td>
<td>.205</td>
<td>0.068</td>
</tr>
<tr>
<td>Viewer Sex * Relationship Status * AOI</td>
<td>8, 152</td>
<td>0.35</td>
<td>.946</td>
<td>0.018</td>
</tr>
</tbody>
</table>

Notes. * Wilks' Lambda F value from the multivariate test was adopted; † p < .10, *p < .05, **p < .01, ***p < .005, ****p < .0001.

In general, there was a significant effect of AOI (Table 9). Post-hoc LSD tests shown the effect direction in PFC was Body (M = 47.17.70, SE = 1.68) > Face (M = 38.70, SE = 1.61) > Background (M = 13.58, SE = 0.91), ps < .01; the visual preference was not consistent in PFD, of which the direction was Face (M = 47.24, SE = 1.79) > Body (M = 39.77, SE = 1.66) > Background (M = 12.56, SE = 0.93), ps < .05. Viewers gazed at
the target’s body in a greater number of times than face; but the gazes stayed longer at face than body.

**Hypothesis I**

Hypothesis I concerning “opposite-sex beauty captures the mind” effect expected an interaction of Viewer Sex* Target Attractiveness* Target Sex * AOI, where Face and Body were more preferred in attractive opposite sex. Such interaction was not rendered significant. Hypothesis I was rejected. However, The AOI effect was qualified in a higher level interactions of Target Attractiveness * AOI and Target Sex * Target Attractiveness * AOI, $p < .07$ (*Table 9*). The three-way interaction at the level of Target Sex using 5-way ANOVAs respectively conducted within male and female targets. The lower-level, significant interactions were found within male targets in PFD, $F(1, 79) = 4.701$, $p < .05$, $\eta^2_p = 0.056$; and within female targets in PFC, $F(1, 79) = 6.61$, $p < .05$, $\eta^2_p = 0.077$. Controlling at male targets, subgroup analyses of 4-way ANOVAs were conducted on PFD at each level of AOI – only within the body region, the main effect of Target Attractiveness remained significant, $F(1, 79) = 4.53$, $p < .05$, $\eta^2_p = 0.054$, but not within other two regions, $p_s > .10$. When Target Sex was controlled at female target, similar 4-way ANOVAs on PFC shown the main effect of Target Attractiveness within both Body region, $F(1, 79) = 8.70$, $p < .005$, $\eta^2_p = 0.099$; and Background region, $F(1, 79) = 5.40$, $p < .05$, $\eta^2_p = 0.064$. As shown in *Figure 1a*, attractive male targets, the face was given longer gazes and the body gazes than average.
male targets. Besides, as shown in *Figure 1b*, among female targets of average attractiveness, the gazes were higher in count at the body region relative to background; such body-over-background visual preference was reduced for attractive female targets.

*Figure 1.*
(a) Percent Fixation Duration (PFD) between attractive and average male targets by Area of Interest (AOI); (b) Percent Fixation Count (PFC) between attractive and average female targets by Area of Interest (AOI).

Notation of significance above bars indicates significant comparisons, \( \phi p = .08, ^*p < .05, ^{** *}p < .005 \)

*Hypothesis II*
It is expected that the interaction in hypothesis I was further moderated by Relationship Status. It was also not significant as indicated in Table 9. Hypothesis II was not supported.

**Hypothesis III**

The interactions of Condition* AOI expected in hypothesis III also did not reach significance (Table 9). Hypothesis III was rejected.

**Hypothesis IV**

Inconsistent with hypothesis IV, the moderation of Relationship Status and Condition did not occur significantly in any of the reported interaction (Table 9).

**Additional analyses**

Additionally, the interaction Viewer Sex* Target Sex *AOI interaction was resulted in significance (Table 9). It was stepped up from the general main effect of AOI. Univariate ANOVAs results shown the significant interactions took place only in PFD. Therefore, the interaction was decomposed at the level Viewer Sex, the lower-order Target Sex* AOI remained significant respectively within male viewers, $F(4, 36) = 4.95, p .005, \eta^2_p = 0.355$; and within female viewers, $F(1, 37) = 5.78, p < .005, \eta^2_p = 0.384$. Univariate results shown the Target Sex* AOI interaction within
females in both PFC and PFD, ps < .05; whereas not within male viewers, ps > .10.

Subgroup analyses of 4-way ANOVAs on PFC and PFD were conducted within female viewers controlling respectively the level of Target Sex and AOI. The 2-way AOI* Target Sex interaction was examined first, the effect of AOI was dependent on Target Sex. Within male targets, the direction of AOI effect in PFC was Face~Body > Background, ps < .005; and in PFD, Face > Body > Background, ps < .001. The same ANOVA was conducted when Target Sex was controlled as Female, the direction of AOI effect became different – both in PFC and PFD, Face~Body > Background, ps < .001. The 2-way interaction was also decomposed at the level of AOI with 4-way mixed-design ANOVAs. As to the face region, the PFC and PFD of male targets were significantly higher than those of female targets, ps < .05. The reverse directions were found in the body region, PFC of the female targets was significantly higher than male targets. No significant difference between the male and female targets on PFD of body region, and both PFC and PFD of background region, ps < .05.

As indicated in Figure X, concluding from the Viewer Sex* Target Sex* AOI interaction, among female viewers, the face region of opposite-sex (male) targets was given more and longer fixations than that of same-sex (female) targets; whereas the body region of the same-sex (female) targets gained a higher number of fixation than that of opposite-sex (male) targets. Such differential gaze pattern across Target Sex was only observed among female viewers.
Figure 2.
(a) Percent Fixation Count (PFC), upper, and (b) Percent Fixation Duration (PFD), below, by Target Sex by AOI, among female viewers.

Notation of significance above bars indicates significant comparisons, *p < .05.

Viewing couple targets

Other than photographs of singles, another class of visual stimuli presented was those of couple. Similar hypotheses were tested under this visual context. The defined AOIs were different from those of single target photographs. Background was not
examined and the remaining 4 AOIs made up the 2 Target Sex (Male/ Female
counterpart)* 2 AOI(Face/Body) combinations.

The factorial analysis started with a full 6-way 2(Viewer sex)*2_Relationship
Status)*3(Condition) *2(Target attractiveness) *2(Target Sex)* 2(AOI) mixed-design
ANOVA. It resulted in a number of significant main and interaction effects (see Table
10).

Table 10.
Results of 6-way multivariate ANOVA results upon viewing couple targets

<table>
<thead>
<tr>
<th></th>
<th>df(hypothetical, error)</th>
<th>F</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within-subject effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AOI</td>
<td>2, 78</td>
<td>94.36***</td>
<td>.000</td>
<td>0.708</td>
</tr>
<tr>
<td>Target Sex</td>
<td>2, 78</td>
<td>10.34***</td>
<td>.000</td>
<td>0.21</td>
</tr>
<tr>
<td>Target Sex * AOI</td>
<td>2, 78</td>
<td>6.97***</td>
<td>.002</td>
<td>0.152</td>
</tr>
<tr>
<td>Target Attractiveness * Target Sex * AOI</td>
<td>2, 78</td>
<td>3.07†</td>
<td>.052</td>
<td>0.073</td>
</tr>
<tr>
<td>Viewer Sex* AOI</td>
<td>2, 78</td>
<td>9.01****</td>
<td>.000</td>
<td>0.188</td>
</tr>
<tr>
<td>Viewer Sex* Target Sex* AOI</td>
<td>2, 78</td>
<td>0.14</td>
<td>.869</td>
<td>0.004</td>
</tr>
<tr>
<td>Viewer Sex* Target Attractiveness* AOI</td>
<td>2, 78</td>
<td>2.97†</td>
<td>.057</td>
<td>0.071</td>
</tr>
<tr>
<td>Viewer Sex* Target Attractiveness* Target Sex</td>
<td>2, 78</td>
<td>0.69</td>
<td>.508</td>
<td>0.017</td>
</tr>
<tr>
<td>Target Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition * AOI</td>
<td>4, 156</td>
<td>1.38</td>
<td>.245</td>
<td>0.034</td>
</tr>
<tr>
<td>Relationship Status* AOI</td>
<td>2, 78</td>
<td>0.70</td>
<td>.498</td>
<td>0.018</td>
</tr>
<tr>
<td>Viewer Sex* Relationship Status* Target Sex</td>
<td>2, 78</td>
<td>0.75</td>
<td>.476</td>
<td>0.019</td>
</tr>
<tr>
<td>Viewer Sex* Relationship Status* Target Attractiveness* AOI</td>
<td>2, 78</td>
<td>4.99**</td>
<td>.009</td>
<td>0.113</td>
</tr>
</tbody>
</table>

Notes. *Wilks’ Lambda F value from the multivariate test was adopted; † p < .10, *p < .05,
**p < .01, ***p < .005, ****p < .0001.
In general, there were main effects of AOI and of Target Sex in the multivariate test (Table 10). Referring to univariate results, the effect of AOI was marginally significant in PDC, $F(1, 79) = 3.812, p = .054, \eta^2_p = 0.046$, and significant in PFD, $F(1, 79) = 4.08, p = .054, \eta^2_p = .049$. In terms of PFC, the target’s body ($M = 21.51, SE = 0.83$) was more fixations at than the face ($M = 24.92, SE = 0.99$). It is opposite in terms of PFD that the target’s face was given a longer fixation time ($M = 25.06, SE = 0.92$), than the body ($M = 21.35, SE = 1.02$). Concerning the main effect of Target Sex, significant results were not found in the univariate tests in PFC and PFD.

**Hypothesis I**

“The beauty capture the minds of the opposite sex” effect predicted a Viewer Sex* Target Sex* Target Attractiveness interaction in our ANOVA model. It did not reach significance as indicated in Table 10. A similar marginally significant interaction, Target Sex* Target Attractiveness* AOI was found (Table 10), emerged in both PFC, $F(1, 79) = 6.20, p < .05, \eta^2_p = 0.072$, and PFD, $F(1, 79) = 4.17, p < .05, \eta^2_p = 0.050$, from the univariate tests.

The three-way interaction was decomposed at the levels of Target Attractiveness, with 5-way ANOVAs. Target Sex* AOI interaction were sustained significant in both PFC, $F(1, 78) = 17.87, p <.001$, and in PFD, $F(1, 78) = 14.69, p <.001$, only within average couples, but not within attractive couples, $ps <.05$. Within the average
couples, the main effects were probed with 4-way ANOVAs including all the three
between-subject factors, and either one of the two stimuli factors, Target Sex and AOI,
while controlling the other stimuli factor. As shown in *Figure 3*, when viewing an
average couple, the male’s body was more gazed than his face, while the face and body
of the female counterpart were more evenly gazed; besides, the gaze stayed on female
face was longer than that on male face, or female body. Such differential gaze patterns
on male and female targets were not observed in attractive couples.

Moreover, the main analyses within the face region of female target in the couple
were subject to analyses; Target Attractiveness resulted in significance in both PFC and
PFD, also indicated in *Figure 3*. Both the significant findings indicated that the
attractive female face was given more and longer fixation than average female face
when viewing a couple.

*Figure 3.*
(a)Percent Fixation Count and (b,) Percent Fixation Duration of AOI by Target Sex, by
Target Attractiveness upon couple targets.
Significant comparisons across Target Attractiveness and Target Sex were noted above bars, and those across AOI were noted beside the Target Sex label, *$p < .05$, **$p < .01$, ***$p < .005$, ****$p < .0001$.

**Hypothesis II**

The second hypothesis expects that Relationship Status moderates the “beauty captures the mind” effect. Although hypothesized Relationship Status* Viewer Sex* Target Sex* Target Attractiveness, and the formerly tested Viewer Sex* Target Sex* Target Attractiveness interactions were not significant, relevant moderation only by Relationship Status was also not observed, $ps > .10$. Hypothesis II was not supported.
Although the 3-way interaction effect of Viewer Sex* Relationship Status* Target Sex was not significant in multivariate tests (*Table 10*). It resulted in the univariate tests respectively on PFC, $F(1, 79) = 6.07, p < .05, \eta^2_p = 0.071$, and PFD $F(1, 79) = 4.03, p < .05, \eta^2_p = 0.049$. It was decomposed at the level of Target Sex with 5-way ANOVAs conducted respectively within male targets and female targets. Only within female targets, but not within male targets, $p s > .10$, the lower-level interaction of Viewer Sex* Relationship Status remained significant (in both PFC, $F(1, 79) = 6.85, p < .05, \eta^2_p = 0.079$, and PFD, $F(1, 79) = 5.21, p < .05, \eta^2_p = 0.062$). A further subgroup analyses were conducted within female targets to see the main effect of Viewer Sex and Relationship Status with 4-way ANOVAs. As indicated in *Table 11* and *Figure 4*, there were two significant main effects – first is a main effect of Relationship Status among male viewers - the partnered males have smaller number of fixation and shorter fixation period on female (opposite-sex) targets compared to the single males. Such effect of Relationship Status was not observed among female participants viewing same-sex or opposite sex targets. Another main effect revealed that single males have larger number of fixation and longer fixation period on female targets than single females, whereas such sex differences dissolved among partnered males and partnered females. The findings partially supported the hypothesis II. 

*Figure 4.*
Percent Fixation Count (PFC) and Percent Fixation Duration (PFD) by Viewer Sex, by Relationship Status within female targets in the couple models.

Significant comparisons across Viewer Sex were noted above bars, and those across Relationship Status were noted beside the Target Sex label, *p < .05.

Table 11.
Results of the 5-way univariate ANOVAs and subgroup analyses within female targets.

<table>
<thead>
<tr>
<th>Relationship Status*</th>
<th>Viewer Sex</th>
<th>Relationship Status within male viewers</th>
</tr>
</thead>
<tbody>
<tr>
<td>df(efect, error)</td>
<td>1, 79</td>
<td>1, 39</td>
</tr>
<tr>
<td>F</td>
<td>6.85</td>
<td>5.74</td>
</tr>
<tr>
<td>p</td>
<td>.011</td>
<td>.021</td>
</tr>
<tr>
<td>η²</td>
<td>0.08</td>
<td>0.12</td>
</tr>
<tr>
<td>direction of effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>5.21*</td>
<td>4.83*</td>
</tr>
<tr>
<td>p</td>
<td>.025</td>
<td>.034</td>
</tr>
<tr>
<td>η²</td>
<td>0.062</td>
<td>0.110</td>
</tr>
<tr>
<td>direction of effect</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

39
### Viewer sex

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Male &gt;</th>
<th>Female &gt;</th>
<th>Male &gt;</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>within single viewers</td>
<td>1, 40</td>
<td>1.32</td>
<td>.257</td>
<td>-</td>
<td>0.75</td>
<td>.391</td>
<td>-</td>
</tr>
<tr>
<td>within single viewers</td>
<td>1, 43</td>
<td>6.00</td>
<td>.018</td>
<td>0.12</td>
<td>Male &gt;</td>
<td>4.96*</td>
<td>.031</td>
</tr>
<tr>
<td>within partnered viewers</td>
<td>1, 36</td>
<td>1.58</td>
<td>.216</td>
<td>-</td>
<td>1.01</td>
<td>.322</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes. * indicates significance level < .05
**Hypothesis III**

Condition* AOI interaction was hypothesized that face was more visually preferred when given love feelings; while given the lust feelings, body was more preferred. Such interaction did not show significance in the results of multivariate ANOVA (*Table 10*).

**Hypothesis IV**

Hypothesis IV expects the moderation of both Relationship Status and Viewer Sex on the gaze patterns. No relevant interactions were found, *ps*.10.

**Additional analyses**

Further qualified from the main effect of AOI, interaction of Viewer Sex* AOI emerged (*Table 10*). Results in univariate tests shown the interaction sustained significantly in PFC, \( F(1, 79) = 7.06, p < .05, \eta^2_p = 0.082 \), but not in PFD, *p*.10. Analyses of main effect at each level of AOI found the sex differences were significant respectively within Face region, \( F(1, 79) = 6.01, p < .05, \eta^2_p = 0.071 \), and Body region, \( F(1, 79) = 6.82, p < .05, \eta^2_p = 0.079 \). As shown in Figure 5, the interaction implies that the male viewer was found to fixate more on body than on face (*MD* = 8.04); whereas female viewer distributed her gazes evenly on face and body, (*MD* = -1.23).
Figure 5.
Percent Fixation Count (PFC) by AOI by Viewer Sex in the couple models.

Significant comparisons across AOI were noted above bars and those between sexes beside the AOI label, *$p < .05$. 
Chapter 4. Discussions

The following part was intended to spot out similar findings of the gaze patterns across the two visual contexts – single targets and couple targets.

Sex differences in gazing the single and couple targets

The findings in the additional analyses revealed the sex differences in social-attentional behaviors. When viewing single targets, female individuals gave the face of male targets more and longer gazes that of female targets. Even target attractiveness was not found to be co-moderating the gazes, it still implies the greater visual preferences of opposite-sex over same-sex target in specific to face. It evidenced the mating motives inherent in the social gaze suggested by the evolutionary theories of mate selection. Social gaze as the early stage of social perception should serve the similar purpose of selectively attuning the features in the social environment which may strengthen one’s adaptation (McArthur, & Baron, 1983). Following the lines, the social gazes serving the evolutionary purpose shall prefer the opposite-sex targets in the social context. An enlightenment brought by the recent finding was that the mate-oriented attunement of social gazes was only specific to the face region, whereas the body region of the same-sex targets was more visually preferred than that of the opposite-sex targets. It shown female’ attention on the face and body region differing between the target sexes. The possible explanation was that the female’s social gazes functions as a visual examination. Females visually assesses the opposite-sex target by
examining faces; and assesses the same-sex targets by examining body. In the evolutionary view, Buss (1989) suggested that female fertility cues were of high priority for male selecting mates, reveal in the gazes (Dixson et al., 2011). Informed by the mating intentions of males, single females should be adaptively aware to the same-sex counterpart who conveys high fertility cues and threat in competing for males. The visual examination on the body of same-sex counterpart may be the behavior in intra-sex competition on mates in the early stage of social cognitive processing.

When viewing couple target, sex difference emerged on the gaze differentially on the face and body region. The face region was preferred by male viewers than by female viewers, whereas the body region was preferred by female viewers than by male viewers. Such sex differences in face-body visual preferences were rarely found in the recent literature. It may infer the different evolutionary importance respectively to male and females, for example, bodies may present a greater fertility cues and physical fitness than faces; and faces could convey more cues about one’s emotionality than body.

**Opposite-Sex Beauty Captures the Mind**

Similarly, in both single and couple context, the gazes directed to attractive targets were moderated by viewer sex. It questions the salience of the biological sex as a factor directing gaze to opposite-sex targets. The findings of this study suggested that the social gazes were probably specific to the sex of target being attended.
In the context of single targets, the face over body visual preference in terms of number of gaze was greater among attractive male targets than among average male targets. It agreed with the general assumptions that attractive faces captures attention. However, it failed to occur among single female targets, no difference in face-over-body preference was observed between the attractive and the average.

In the context of couple targets, consistently in terms of the number of gaze and gaze duration, the attractive female face was less visually preferred than average female face. It was finding contradictory to the well-established effects of attractive female face capturing attention (Maner, 2003). It was noted that this gaze patterns were dependent on the occurrence of couples. The possible elaboration was that within the attractive couples, the female face was not that salient as when it was viewed within average couples. In the scene of couple context, the viewer may be less oriented by the mating goal, which was suggested to be the behavioral motive in theories of evolutionary functionalism (Maner, 2003). There might be other goals directing the gazes on couple targets, while less endorsing the attractive female face.

**Did partnered individuals looks in a different way?**

The gaze results in the context of single target did not support that relationship status relate to the gaze distribution on attractive and average targets. However, when viewing couple targets, the partnered males were found to have fewer and more brief gaze on the female (opposite-sex) targets. That difference between the single and
partnered in gaze distribution in a couple target were not found among female viewers, and could be specific to male viewers. If this visual interest was put in the evolutionary models of mate selection, it was considered as acts of relationship maintenance. Alternatives may pose a threat on the relationship so that the partnered and committed individuals would automatically down-regulate the threat being less attentive to it, at the early stage of cognitive processing (Maner, Rouby, & Gonzaga, 2008). Interestingly, such effect of relationship status was not observed among female viewers in our findings. It was consistent to the findings in Maner, Rouby, & Gonzaga (2008) that partnered males were more primed to attend less on attractive alternatives than partnered females. Is it possible that such social attentional regulation was more developed or evolved among males, or less among females? It may imply the sex-specific strategies in relationship maintenance, and the less reliance on attentional regulation serving the purpose of relationship maintenance among female viewers. Previous studies shown that women could be more attentive to attractive males, but the recognition and memory about the attractive alternatives did not remain prominent thereafter (O’Toole et al., 1998). Also, the physical attractiveness of males did play a uniquely determining role in mate selection for females, while the personality of males was also a great concerns for female selecting mate (Buss, 1989).

Affective states of love and lust
The results generated no significant effects on the social gazes by the experimental manipulations in both scenes of single target and couple targets. It failed to replicate the eye-tracking findings in Bolmont, Cacioppo, & Cacioppo (2014) where the gaze on face relative the body was a function of love and lust intention. One reason for the negative results was that the ways of experimental manipulation were different from that of Bolmont, Cacioppo, & Cacioppo (2014). As shown in the manipulation checks, the induced love and lust states were affective more than motivational. Moreover, it also leads a question on the differential effect role of love and lust in the social gaze. Emerging studies supported that love and lust governs independent social-behavioral systems (e.g. Fisher, 1998; Cacioppo et al., 2013); however, the two systems were also considered to be overlapping regarding the neural cortical regions activated – involving in goal-directed actions and body image (Cacioppo et al., 2013). Even though a number of within-stimuli influences were controlled in this study, the perception of body image may still be potentially working along with love and lust systems. Under the suggested neurocognitive model of love and lust, unknown was still the interplay the neural processing and the social gaze.

The whole picture visualizing social gazes in this the eye-tracking application was that the top-down and relationship-related factors investigated in this study - relationship status and love and lust state were less determining than the bottom-down, stimuli-feature factors. Target attractiveness, target sex dominate the early stage of
social gaze on single and couple targets.

**Limitations and Directions of Future Studies**

The limitations of this eye-tracking study mainly concerns the methodological issues. Firstly, the manipulation of love and lust states did not significantly affect the social gazes on single and couple targets. Given the presence of induced love and lust feelings shown by the results of manipulation checks, there were no found differences between the neutral conditions, and the other two conditions. Possibly, the effect may not be strong enough to influence the measured gaze patterns. It also raise a theoretical concerns – how generalizable the effect of love and lust feelings are to the social attention behaviors? Further studies may drill on the finer mechanism of love and lust in relation to social vision underlying the neuro-cognitive models.

Secondly, the findings may be confined to the experimental settings of eye-tracking context. The stimuli was presented in a fixed period of time, i.e. 5,000ms. The revealed gaze patterns may only show the very beginning stage of the social gaze on acquaintances. The ongoing visual behaviors after the first 5,000ms and the dynamic social attentional processes with known people were also interesting to be investigated, like, how change in relationship reflects in the visual behaviors among friends, couples, etc.? At when, the top-down factors, like relationship status, or other relationship-related variables will or not become prominent in determining the social gazes.

Besides, even the selected stimuli, photographs are more daily encountered, than the
stimuli adopted in the computerized click-response trials, e.g. dot-probe task, the gaze patterns may be dependent only on the given visual scenes, and a large gap was left from generalizing the findings about social gazes in this study to more daily visual behaviors. As this study was a pioneer study on the top-down, relationship-related factors on the gaze patterns defined with the face and body of social targets, replication and a larger sample size are necessary to reinforce the findings. Social desirability is also potentially confounding that gaze patterns being recorded and examined with static eye-tracker and static stimuli. It suggests that the mobile eye-tracker may provide a more realistic, generalizable findings related to gazes in social contexts.
References


Appendix 1
Questionnaire for pilot testing the photographs

Please use the following scale to rate the above model.

1. ______ Facial / Face attractiveness  
2. ______ Bodily / Body attractiveness  
3. ______ Do you like him?  
4. ______ Do you feel interested in him?  
5. ______ Does he give you romantic feelings?  
6. ______ Does he give you sexual feelings?  
7. ______ What do you feel towards him?

Age: _____________

Sex  
☐ Male  
☐ Female  
☐ Others, please specify ________________

Relationship status  
☐ Single  
☐ In a relationship  
☐ Married  
☐ Others, please specify ________________

What is your country of origin?  
☐ Hong Kong  
☐ China, please specify which province ________________  
☐ Others, please specify ________________

How long have you lived in the country that you indicated above (in years)?

sex_ori Sexual Orientation  
☐ Heterosexual  
☐ Homosexual  
☐ Bisexual  
☐ Others, please specify ________________
Appendix 2
Stimuli Sample

(NOT FOR PUBLIC DISCLOSURE)
Appendix 3

Items of manipulation checks

1. How much sexual arousal did you feel in the task?
   (1 = Not at all; 2 = Very Little; 3 = Little; 4 = Somewhat; 5 = Very Much; 6 = A Great Deal)

2. How intense the romantic thoughts did the task give you?
   (1 = Not at all; 2 = Very Little; 3 = Little; 4 = Somewhat; 5 = Very Much; 6 = A Great Deal)

3. How much romantic feeling did you feel in the task?
   (1 = Not at all; 2 = Very Little; 3 = Little; 4 = Somewhat; 5 = Very Much; 6 = A Great Deal)

4. How intense the sexual fantasies did the task give you?
   (1 = Not at all; 2 = Very Little; 3 = Little; 4 = Somewhat; 5 = Very Much; 6 = A Great Deal)
Appendix 4

Experimental protocol in eye-tracking session

Materials
- 2.8m / 50cm measuring tool
- Snellen chart
- Online questionnaire

**Instructions for Snellen chart test**

<table>
<thead>
<tr>
<th>Experimenter’s action</th>
<th>Instructions for participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>[help the participant to sit at 2.8m far away from the chart]</td>
<td></td>
</tr>
<tr>
<td>[remind the participant to wear correction lens]</td>
<td></td>
</tr>
<tr>
<td>Testing the vision of only the right eye</td>
<td>請你用右手蓋上你的右眼</td>
</tr>
<tr>
<td>Reading the letter from top to bottom, left to right</td>
<td>然後從上到下，左至右把表上的英文字母讀出</td>
</tr>
<tr>
<td>[record the line/letter that the participant ends at last]</td>
<td></td>
</tr>
</tbody>
</table>

**Instructions in calibration procedures**

<table>
<thead>
<tr>
<th>Experimenter’s action</th>
<th>Instructions for participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locating the participant’s eyes in eye video</td>
<td>首先請你望著中間數字五的白色圓點，再用右手蓋上你的右眼</td>
</tr>
<tr>
<td>[auto head detection → manual]</td>
<td></td>
</tr>
<tr>
<td>Briefing the participant for the calibration</td>
<td>現在螢幕上顯示了「一到九」九個點，我會順一到九說出數字。請你按我說的那個數字望數字中間的那個白色圓點。</td>
</tr>
<tr>
<td>[auto threshold → manual] [Adjusting brightness, CR &amp; pupil thresholds] choose “auto” during the calibration and uncheck it after calibration (no automatic adjustment in the trial run because the eye coordinates were saved for calibration but not to be changed in trial run)</td>
<td></td>
</tr>
<tr>
<td>[Decide if switching on/off light]</td>
<td></td>
</tr>
<tr>
<td>客題</td>
<td>中文</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Reminding about the head movements</td>
<td>當你望的時候，要注意頭盡量不要動，只要靠移動眼球來望。因為實驗中途改變頭的方向可能會令到實驗數據流失。若果你想給反應或回答問題的話，直接說出聲，不用轉過頭來都可以。</td>
</tr>
<tr>
<td>[standard calibration]</td>
<td></td>
</tr>
<tr>
<td>[staring recording eye videos]</td>
<td></td>
</tr>
<tr>
<td>Calibrating the eye coordinates from 1 to 9</td>
<td>好，那我開始。1……2……3……9。</td>
</tr>
<tr>
<td>Confirming the accuracy of calibration with the crossdot in eye video</td>
<td>好。現在我會再數一到九，再請你按我說的那個數字望數字中間的那個白色圓點。</td>
</tr>
<tr>
<td>Recalibrating any points if needed (not hitting the white circle in the eye video)</td>
<td>請你望1…5…9(假設，not necessarily in sequential order)。</td>
</tr>
<tr>
<td>[successful calibration]</td>
<td></td>
</tr>
<tr>
<td>Reminding for rest</td>
<td>現在你可以先蓋上眼，休息一下。當你覺得可以再繼續的時候，可以再開眼。然後就始實驗。</td>
</tr>
<tr>
<td>[opening experiment trials in GazeTracker]</td>
<td></td>
</tr>
<tr>
<td>Testing accuracy in detecting gaze in GazeTracker</td>
<td>現在請你望中間視窗藍色的那行字。</td>
</tr>
<tr>
<td>Signaling the participant to start experiment</td>
<td>好，你將會看到一張張圖片。你只要當作平常看東西望就可以了。我們沒有要求你看指定的東西，你可以隨意移動眼球來望。(reminder)再提醒多一遍，當你看的時候，盡量不要移動頭。</td>
</tr>
<tr>
<td>[guard for the process of eye data recording]</td>
<td></td>
</tr>
<tr>
<td>[end eye-tracking session]</td>
<td></td>
</tr>
<tr>
<td>[stop the recording of eye video]</td>
<td></td>
</tr>
<tr>
<td>[transit to questionnaire part]</td>
<td></td>
</tr>
</tbody>
</table>