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The ups and downs of online dating: Effects of positive and negative anticipatory emotions on participant volition behaviour

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Abstract

Existing literature on customer emotions devotes much attention to post-consumption emotions, which are feelings elicited towards actual external stimuli. However, little is known about the concrete impact of consumers' anticipatory emotions — the pre-factual, mentally stimulated emotions due to anticipation of possible outcomes — on consequent volition behaviours that are cognitive-driven where individuals are determined to act in a planned way. In this study, I integrate (hot and emotional) anticipatory emotions with (cold and cognitive-based) volition processes into a single research model. I chose to model seven positive anticipatory emotions (PAEs) and 10 negative anticipatory emotions (NAEs) on three dimensions of behavioural volition: territory planning, account-specific planning and effort. A sample of 93 real paying members registered on online dating websites in China was employed to test the model empirically. This context entails a high personal stake and exhibits a high level of intrinsically motivating and goal-directed behaviour that appears most suitable to elicit the anticipatory emotions for this study. Partial least squares structural equation modelling techniques validate the hypotheses and yield some interesting findings regarding the interplay among PAEs, NAEs and three types of volition.

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Online dating creates high levels of emotion

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Introduction

With the maturity and pervasiveness of e-business and the operational simplicity of task-based online self-services, online dating nowadays is increasingly becoming a popular pursuit for many consumers. The online dating or matchmaking services industry exhibits great potential with more than 1,300 sites in operation,¹ where firms such as Match.com and eHarmony.com generate income worth an estimated £600m a year in the UK. Unlike previous cyber-related research that mainly focuses on online 'search products' that are highly standardized and are less emotionally stimulating, online dating services create high levels of participants' emotional output and are also highly influenced by such emotions.

Emotion before or during consumption, not after

More importantly, research on cyber-psychology is increasingly paying attention to users' emotions in contexts such as online gaming.^{2,3} Nevertheless, a highly emotional context like online dating has received relatively little attention. This is an important issue because online dating customers' emotions emerge during or even before the dating service encounter, whereas I would traditionally treat customer emotions as post-consumption emotions at the end of the service delivery. Understanding these emotional outcomes in both positive and negative ways and how their respective motivation changes in the context of a dating site would be of great theoretical and practical importance for cyber-psychological study and e-business managers.

Website owners lack emotional understanding

In addition, understanding online dating users' emotions and motivations is also essential for predicting their future site usage behaviour. Managers are struggling to keep their customers motivated: Thomas Enraght-Moony, CEO of Match.com, complained that 'there are 93 million single people in America — only 3 million use online dating services. There are 12 million single people in Britain. That's set to rise to 16 million by 2011. Almost everyone who could use these services doesn't. Our task is to get them off the fence'.⁴ Managers only seem to assign strategic importance to site-specific functionality aspects of the dating site, but significantly lack understanding of important psychological factors in terms of users' emotional aspects.

In this study, I aim to investigate the causal link between anticipatory emotions (affective process of cyber-psychology) and volitions (cognitive process of cyber-behaviour). This study examines the relationship between the emotions elicited in users when using an e-service and their motivational volition behaviour developed with this e-service provider.

Anticipatory emotions — positive and negative

Hypotheses development

Anticipatory emotions arise when a person contemplates the possible consequences of achieving a goal or not and such appraisals of the consequences produce anticipatory emotional responses. Anticipatory emotions can be further divided into positive and negative ones in terms of valence. Positive anticipatory emotions (PAEs) and negative anticipatory emotions (NAEs) emerge when such appraisals of the consequences are either positive or negative, respectively. In this study, I borrow anticipatory emotion measures based on prior research.⁵ There are seven PAEs, namely, excited, delighted, happy, glad, satisfied, self-assured and proud. There is also a battery of ten NAEs, namely, angry, frustrated, guilty, ashamed, sad, disappointed, depressed, worried, uncomfortable and fearful. The statements of measures are modified accordingly to fit the online dating context.

Personal stake and volitions

Crucial to anticipatory emotions are the personal stakes vested in an event. In this study, I define personal stake as the extent to which aspects of people's personal well-being are riding on a situation's outcome. Online daters are typically goal-directed and have to finish a fair amount of nominal user tasks (also known as NUTs)⁶ before starting to advertise their profiles on the site and starting interactions with other registered users.

These processes typically require several effortful submissions of NUTs before proceeding to the next steps. For a registered dating user, there are about six NUTs on average (eg, personal information, self-description, lifestyle, expected perfect match, personal ad and photo uploading) to be completed before the service provider offers matching suggestions. Vested financial and social interests demonstrate an intrinsic motivated intent.

A personal stake precedes emotion

In the psychology literature, volition is used interchangeably with behavioural volition, which is defined as acts of the will, special mental events or activities by which an agent consciously and actively exercises her agency to voluntarily direct her thoughts and actions.⁷ Volitions are both directive and motivational.⁸ Typical directive volitions (ie, what to do) are planning activities and selection of appropriate behaviours, while typical motivational volitions (ie, how to do it) are committing oneself to exerting the necessary effort to attain a personal goal. Figure 1 illustrates the model of anticipatory emotions on volitions: a personal stake is the primary antecedent of emotions. For an online dating activity, an initial emotional state is anticipated (either PAE or NAE). Volitions have three dimensions.

Online dating can yield a high personal stake

People experience a high level of emotion when they engage in intrinsically motivating activities.⁹ They cognitively assess their personal stakes in achieving an external or self-defined goal. For instance, in a sales task, if salespeople see that the task has a high personal stake invested, they relate the stake of the task to their financial income and recognition from colleagues and the company. In the same vein, in an online dating searching task, the success of finding a satisfactory dating candidate is a great personal stake such as self-esteem, a self-perceived subjective welfare and possible recognition from peers and family of one's social competences (especially in a Chinese cultural context).¹⁰ However, failing to achieve this goal leads to NAEs.

I therefore formulate the following hypothesis:

- H1:** For online dating participants, personal stakes positively relate to their (a) positive anticipatory emotions and (b) negative anticipatory emotions.

Figure 1: Model of anticipatory emotions on volitions

Similarities between sales planning and online dating

Prior research postulates that during the transformation of anticipatory emotions into goal-directed behaviours, volition — a psychological construct — is an important mediator.¹¹ Volitions are activities that include both directive and motivational components. They are fundamentally different from mandatory behaviour or ‘forced choice’,¹² which is externally exerted, while volitions are endogenous, inner motivational forces.¹³ According to prior research, volitions mediate the intention-behaviour relationship and are an important factor in successful goal pursuit.¹⁴

In the context of a sales task,¹³ salespersons have a detailed, layered plan for achieving their task: a sales territory and specific strategies for targeting specific accounts.⁷ Salespersons spend a good deal of time thinking about their selling strategy, listing steps and formulating strategies for a given promotion (territory planning); they will also target specific accounts or have their priority accounts first in pushing sales (account-specific planning); lastly, salespersons also exert personal effort, usually with comparisons to other peer salespersons in assessing the time and intensity of effort put into a task. Similarly, for an online dating task where the goal is to ‘sell oneself’ and to seek an ideal dating candidate, I observe through some exploratory qualitative studies that there are also clear personal purposes, motivations and personal planning.

I therefore formulate the following two hypotheses:

H2: For online dating participants, positive anticipatory emotions positively relate to their volitions, including volitions by way of (a) territory planning, (b) account-specific planning and (c) effort.

H3: For online dating participants, negative anticipatory emotions positively relate to their volitions, including volitions by way of (a) territory planning, (b) account-specific planning and (c) effort.

Materials and methods

I first developed this measurement to fit the context using a pilot study. An online dating website was used for its excellent fit into the cyber-psychology context. First, online dating sites are different from online merchandizing sites, which typically sell standardized commodities.^{15–17} Dating sites are associated with a high level of emotional experience and subjective, affective and emotional states. Second, emotion is argued to inherently impact on relationship formation.¹⁸ This research aims to explore consumers who are in the search of partnership and who engage in interpersonal intimate connections, and how such emotions elicited can serve as a new antecedent to volitional behaviours. Therefore, there is a gap in the literature on the online credence context for psychological research.

After an initial qualitative pilot study and focus group analysis and preparation of measurement statements, the author launched electronic surveys on surveymonkey.com. The survey was written in simplified

Searching for partnership and connections

Data collection and analysis

Chinese as used in mainland China. The design of the survey follows three criteria. First, the survey should be short and easy to understand. To facilitate this, an introduction with an illustration was used and the use of Chinese language was kept as clear as possible for ease of understanding. Second, it used a real-life online dating forum for respondent recruitment. Third, to encourage a higher completion rate, a small prize draw was offered to those who were willing to leave their email address, and the personal information requested was kept to a minimum (eg, only retaining participant demographic data).

Respondents not concerned by rating scale length

The final sample was composed of 93 usable questionnaires (N (female) = 49; N (male) = 22; gender unreported = 22; total = 93) collected from registered online dating site users in China who voluntarily participated in the research. Despite the small sample size compared to many social psychology studies involving the subject's personal goals and using questionnaires for the data collection method, a sample of around 100 is common and acceptable.¹⁹ I used forced answers (ie, the survey page would not proceed until choices were made; also, a pop-up window reminded those who skipped a question) to ensure that all submitted surveys were usable and complete. Follow-up enquiries to those who left email addresses did not reveal a collective concern about the style and length of the rating scale.

Measurement model

I used SmartPLS 2.0 M3²⁰ to conduct the PLS statistical analysis. The reliability of this partial least squares (PLS) study was assessed by means of composite scale reliability (CR) and average variance extracted (AVE).^{21,22} Convergent validity was measured by inspecting the standardized loadings of the measures on their respective constructs.¹⁹ I dropped the last four items among the nine indicators for measuring personal stake that did not measure this construct well (ie, loadings under 0.5). I also removed self-assurance as a construct from PAEs measured because its loading is under the 0.5 cut-off point (see Table 1). This resulted in the measurement model meeting a high PLS quality standard (see Table 2).

Next, the discriminant validity of the measures was assessed. This follows the rule that a construct should always share more variance with its measures than with other model constructs,¹⁹ and the square root of the AVE should be larger than the inter-correlations of the constructs with the other model constructs.¹⁸ I report the descriptive statistics in Table 3.

Hypothesis testing

For H1a, which is the hypothesized positive relationship between personal stake and positive anticipatory emotions, the γ score in the revised model for Stakes $\rightarrow$ PAEs was 0.450 ($p < 0.001$), therefore confirming H1a.

In H1b, I hypothesized a positive relationship between personal stakes and NAEs. The γ score for Stakes $\rightarrow$ NAEs in the revised model was 0.265 ($p < 0.01$), therefore supporting H1b.

I then tested the interactions among PAEs on three dimensions of behavioural volitions. H2a has a non-significant β score, therefore not supporting a proposed positive impact of PAEs on territory planning volitions. In contrast, H2b has a β score of 0.254 ($p < 0.10$), and therefore there is marginal support for this relationship. The last relationship of PAEs on effort was supported by a strong β score of 0.20 ($p < 0.05$).

Table 1: Measurement scale

Personal Stakes (four-point scale) 'Not at all' to 'Have a lot at stake'	Standardized loadings	Cronbach's alpha
- Speed up the dating process - Enlarge network for dating - An opportunity to test own charm on the opposite sex - Self-achievement and actualization - A learning opportunity for future, more serious dating activities - To play around and have fun - Gain recognition from friends and colleagues - To respect and respond to parents' expectations - A way to express filial piety	0.672 0.691 0.653 0.644 0.619 Dropped Dropped Dropped Dropped	0.676
<i>Positive Anticipatory Emotions (11-point scale) 'Not at all' to 'Very much' (How intensely do you feel each of the following emotions?)</i>		
- Excited - Delighted - Happy - Glad - Satisfied - Proud - Self-assured	0.878 0.933 0.897 0.942 0.887 0.833 Dropped	0.950
<i>Negative Anticipatory Emotions (11-point scale) 'Not at all' to 'Very much' (How intensely do you feel each of the following emotions?)</i>		
- Angry - Frustrated - Guilty - Ashamed - Sad - Disappointed - Depressed - Worried - Uncomfortable - Fearful	0.853 0.763 0.830 0.896 0.877 0.824 0.887 0.854 0.821 0.835	0.955
<i>Volitions (5-point scale) 'Much less than average' to 'Much more than average'</i>		
<i>Territory Planning</i>		
- I will spend a good deal of time thinking about selling strategy for promoting myself to potential daters. - I will list the steps necessary for reaching my goal. - Each week I will make a plan for what I need to accomplish regarding my e-dating.	0.849 0.810 0.741	0.722
<i>Account-specific planning</i>		
- I will target specific dating candidates on the dating site. - I am careful to work my highest-priority dates first. - I will target particular people for a dating task.	0.860 0.824 0.817	0.785
<i>Effort</i>		
- Compared with other dating members on the site, how much time do you anticipate spending on this site? - Compared with other dating members on the site, how much intensity of effort do you anticipate putting into this site? - Compared with other dating members on the site, how much overall effort do you anticipate putting into this site?	0.928 0.956 0.969	0.947

H3 hypothesizes the positive relationship of NAEs on three dimensions of behavioural volition. The relationship of NAEs → Territory Planning received strong support with $\beta = 0.344$ ($p < 0.001$), therefore confirming H3a. Unfortunately, H3b (which hypothesizes NAEs → Account-specific planning) does not receive support with its non-significant beta score. Lastly, I observe a strong positive effect for the relationship of NAEs → Effort ($\beta = 0.342$, $p < 0.01$), which supports H3c. A summary of the hypotheses testing can be found in Table 4. A summary of the empirical model with statistical outputs is presented in Figure 2.

Table 2: PLS quality criteria

	AVE	Composite reliability	R-square	Cronbach's alpha	Communality	Redundancy
Stakes	0.431	0.791	—	0.676	0.431	—
PAEs	0.802	0.960	0.202	0.950	0.802	0.161
NAEs	0.714	0.961	0.070	0.955	0.714	0.049
Volition_ter	0.642	0.843	0.206	0.722	0.642	0.108
Volition_acc	0.695	0.873	0.158	0.785	0.695	0.060
Volition_eff	0.904	0.966	0.215	0.947	0.904	0.157

Table 3: Constructs descriptive statistics and correlation matrix

	Mean	SD	Items	1	2	3	4	5	6
1. Stakes	2.46	0.56	5	0.833					
2. PAEs	5.28	2.36	6	0.450	0.895				
3. NAEs	3.14	1.95	10	0.265	0.419	0.845			
4. Volition_TP	2.26	0.79	3	0.128	0.328	0.421	0.801		
5. Volition_ASP	3.05	0.85	3	0.046	0.345	0.324	0.683	0.834	
6. Volition_EFF	2.24	0.84	3	0.286	0.328	0.421	0.682	0.529	0.951

* $p < 0.05$; ** $p < 0.01$. Bold diagonals represent the square root of average variance extracted for multi-item scales; $N = 93$.

Table 4: Standardized structural equation parameter estimates (t -values)

Hypothesis	Relationships	Loadings (t -values)
H1a	Stakes→PAEs	0.450***
H1b	Stakes→NAEs	0.265**
H2a	PAEs→Territory Planning	0.184[NS]
H2b	PAEs→Account-Specific Planning	0.254†
H2c	PAEs→Effort	0.20*
H3a	NAEs→Territory Planning	0.344***
H3b	NAEs→Account-Specific Planning	0.217[NS]
H3c	NAEs→Effort	0.342**
Fit measures	<i>Endogenous construct</i>	
R^2	Territory Planning = 0.205	
	Account-Specific Planning = 0.157	
	Effort = 0.214	
	PAEs = 0.202	
	NAEs = 0.070	

*** $p < 0.001$ (two-tailed); ** $p < 0.01$ (two-tailed); * $p < 0.05$ (two-tailed); † $p < 0.10$ (two-tailed) (based on $t(499)$, two-tailed test).

Linking emotions with volitions is valuable

Discussion

There are several significant findings from this empirical work. First, the main argument of the present study is that linking the seemingly unrelated psychological processes, that is, pre-factual, anticipatory emotions, with the three dimensions of behavioural volitions can be very valuable in understanding consumer behavioural outcomes. The addition of PAEs and NAEs into the model for explaining volitional behaviour is critical. I performed an *ad hoc* test excluding PAEs and NAEs in the model, by linking stakes directly to three volition constructs. The results show that

Figure 2: Empirical model with outputs

neither link is statistically significant. This proves the critical mediation effects of PAEs and NAEs in explaining volitions.

Relationships have been confirmed

From a technical modelling perspective, the R -squares for most of the latent endogenous variables scored 15–21 per cent. The measurement model is solid and theoretically related constructs have clear strong positive correlations. For instance, while PAEs and NAEs are both pre-factual anticipatory emotions, they have a strong non-directional positive correlation ($\rho = 0.42$). Similarly, the three dimensions of volitions, territory planning, account-specific planning and effort, all registered strong positive correlations ranging from 0.53 to 0.68 (see Figure 2). Overall, the model construction and model refinement results in 75 per cent of the hypothesized relationships being confirmed.

High-stakes setting impacts PAEs more than NAEs

This study reveals several important inter-relationships among the key constructs. Specifically, personal stake in a high-stakes setting has a larger positive impact on PAEs than NAEs. The model also integrates the emotional process entailing a pre-factual stage, that is, anticipatory emotions, with cognitive-based, behavioural volitions. The results show that PAEs do not have any effect on territory planning volition. Rather, PAEs only positively and strongly cause account-specific volition and effort volition. For NAEs, they have strong dual impacts on territory planning and effort volition, but minimal impact on account-specific volition.

Impact of emotion on behaviour

Drawing on this context of a high-personal stake setting using an online dating service, I found support for the statements:

- (1) effortful volition is a general dimension that captures both PAEs and NAEs, but only NAEs generate more effortful behaviour;
- (2) for PAEs that are positive emotions in nature, I measured the impact of six PAEs (after dropping the redundant item 'self-assured'), namely, excited, delighted, happy, glad, satisfied, proud, on their volitional consequences. The results show that PAEs are more strongly and positively related to account-specific planning — an important dimension of volition;
- (3) for NAEs that are negative pre-factual emotions that subjects experience, I measured a battery of ten NAEs, namely, angry, frustrated,

guilty, ashamed, sad, disappointed, depressed, worried, uncomfortable and fearful. I found that NAEs do not influence account-specific planning, but strongly influence territory planning.

Limitations of the study

Some of the limitations of this study should be mentioned. First, I situate the model in a high-stakes setting. This potentially means a lower-personal stake service setting may result in different outcomes when PAEs and NAEs are engaged to predict volition. The choice of a high-stakes context was to generate sufficient anticipatory emotions. The danger of using a low-personal stake context would be the insufficiency of generating anticipatory emotions, and therefore their impacts on the three volitions might be difficult to observe. Second, despite the fact that PLS copes well with a smaller sample size, a larger sample would make the conclusions more convincing.

Practical importance of recognizing emotions

Practically, managers of highly interactive and personal e-businesses should recognize the importance of customers' pre-factual emotions, which are mentally stimulated before the real service encounter and service outcomes become available. With proper advertising manipulation, managers can elicit the kind of PAEs and NAEs that have volitional consequences for specific types of volitions, such as territory planning, account-specific planning and effort. Other highly motivating and engaging services, such as online lottery websites, could use advertising to generate PAEs that drive customers to account-specific planning by way of targeting more specific games, or to make customers more careful to work on their highest-priority first. NAEs generated could result in personal planning by devoting more time to strategic and analytical planning. Thus, for instance, online banking services or social policy makers could highlight the negative impacts of ineffective personal saving tasks, and thus such elicited NAEs as worry and fear would push customers online to engage in more strategic planning behaviour. This proper management of emotions could possibly enhance consumer welfare and social welfare at large.

Disclosure Statement

No competing financial interests exist.

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