An evidence-based approach to an ancient pursuit: systematic review on converting online contact into a first date

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Abstract

Objective To determine, for people seeking a date online, what activities and behaviours have an effect on the chances of converting electronic communication into a face-to-face meeting.

Methods Literature in psychology, sociology, and computer, behavioural and neurocognitive sciences that informed effective online dating was captured through electronic searching of Psychinfo, Medline and Embase in November 2013. Study selection and meta-narrative synthesis were carried out in duplicate.

Results There were 3938 initial citations and 86 studies were synthesised. Initial interest was best captured through: a desirable screen name starting with a letter in the top half of the alphabet; an attractive still picture; and a fluent headline message. For those attracted to browse into the profile, a description of personal traits increased likeability when it: showed who the dater was and what they were looking for in a 70:30 ratio; stayed close to reality; and employed simple language with humour added. Invitations were most successful in obtaining a response from the potential date when they: were short personalised messages addressing a trait in their profile; rhymed with their screen name or headline message; and extended genuine compliments. Online communication was most effective in leading to an in-person meeting if there were: a genuine interest; a rapid turnaround; reciprocity in self-disclosure; mimicry of body movements on the webcam; avoidance of criticism; humour; uncertainty about whether there was likeability; and an early move from electronic chat to a date.

Conclusions Attraction and persuasion research provides an evidence-based approach to online dating.

Introduction

Courtship, a key relationship for most adults, has a known association with health.[1] Online dating sits alongside traditional relationship brokerage through the family, the church and the workplace.[2] Daters wink, right-swipe (on mobile dating apps with a geospatial location like Tinder), email, text and chat online before face-to-face encounters.[3] It may take months of browsing and hundreds of invitations before a single response materialises. There are differences in how men and women use the online medium,[4] but all users make decisions with limited information. Is there an optimal, evidence-based approach to online dating?

There is much to be learnt from attraction and persuasion research for improving effectiveness of online dating. This literature is scattered across psychology and sociology, as well as computer, behavioural and neurocognitive sciences. We synthesised this evidence to learn how online dating could be improved, maximising the chances of converting electronic communication into a face-to-face meeting.

Methods

We performed an extensive search in English language, using Psychinfo, PubMed and Embase in November 2013. Construction of search term combinations was not straightforward as there are no specific indexing terms to target online dating. The search terms we used captured the concept 'internet OR net OR online' combined using AND with 'dating OR love OR courtship' employing a combination of indexing terms, text words and word variants appropriate to the terminology and structure of each database. We identified further studies by examining the reference lists of the relevant articles selected from electronic databases. We augmented the search further by looking through lists of references generated using the 'cited by' function in Google Scholar for each of the relevant articles captured in earlier stages of searching. Study selection followed the principle of saturation[5] with the search stopping when no additional studies could be found to address the issue at hand.

We carried out a meta-narrative synthesis,[6] an approach suitable for topics that have been studied by different groups of researchers, for different reasons and in different ways. Using primary studies and systematic reviews in psychology, sociology and computer, behavioural and neurocognitive sciences, we sought data for synthesis into broad themes or key messages for various aspects of online dating, drawing on scoping review methodology.[7]

Results

From 3938 citations captured electronically, 54 were included in the systematic review (figure 1). A further 32 were identified from citation searches and reference lists. We wanted to focus on conversion to face-to-face meetings as the outcome measure as moving merely from online registration to computer-mediated communication lacks the experiential richness[2] without which there can be no progress in courtship. Studies did not directly address the question of how online dating contributed towards a lasting partnership. Instead, they focused on individual steps, for example, what features in a screen name or photo increase likeability in the pathway leading to a date. Taking the psychological sciences perspective,[8] we outlined the pathway in the literature (figure 2) and sought studies to summarise the evidence for effective strategies at each step (table 1). The range of design features in the literature synthesised included randomisation in 28 studies, cohort follow-up in 13 studies, cross-sectional evaluation in 37 studies,

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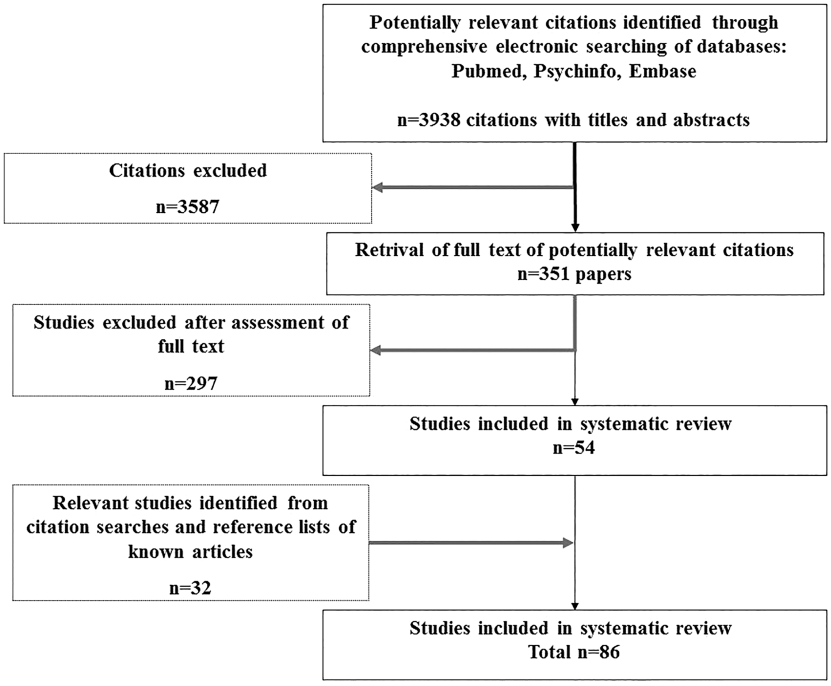

Figure 1 Flow chart of search and study selection for the systematic review to inform effective online dating.

qualitative analysis in 5 studies and systematic review in 3 studies (figure 3).

Creating a profile

Screen name: Desirable names are more often associated with attraction than undesirable names.[9] Names with negative connotations (eg, Little, Bugg) are often associated with inferiority.[10] Playful screen names (eg, Fun2bwith) are universally attractive. Men are more attracted to screen names that indicate physical attractiveness (eg, Blondie, Cutie), whereas women are more attracted to screen names that indicate intelligence (eg, Cultured).[11] Apart from the symbolic significance of names, their alphabetical order plays a role too. A variety of measures of success (eg, educational achievements and income)[12 13] are correlated with names higher up in the alphabet. Search engine listings are also sorted alphabetically: screen names starting with a

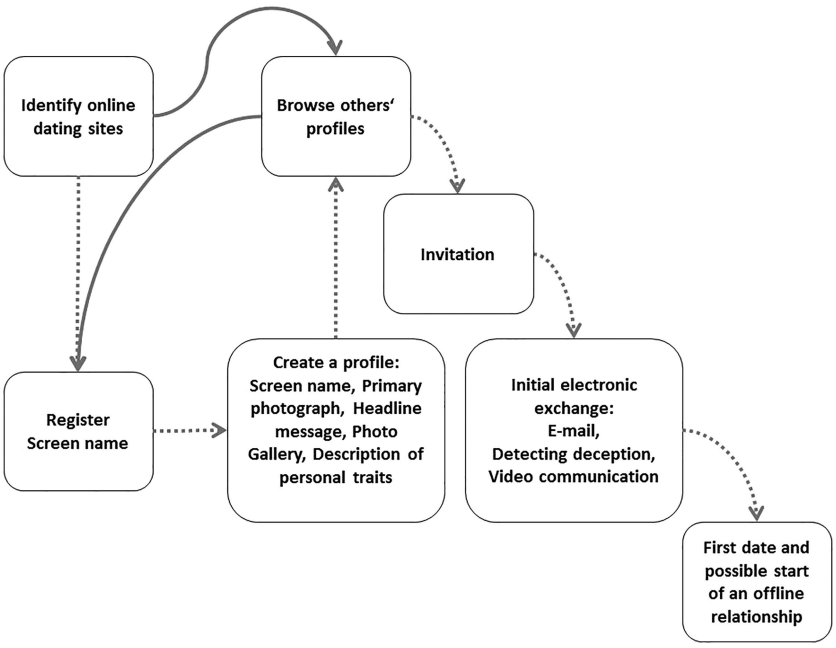

Figure 2 Online dating pathway (dotted lines show initially conceptualised pathway adapted from Finkel *et al*; solid lines show pathway improvements based on research findings).

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Table 1 Outcomes reported, numbers and design features of studies, and year range of publications included in the systematic review to inform online dating

Steps Number of studies, years of publication	Outcomes	Study design features				
		Randomisation	Cohort	Cross-sectional	Qualitative	Systematic review
1. Creating a profile						
Screen name 6, 1973–2010	Uniqueness, likeability, physical attractiveness, intelligence, desirability, success, popularity	1	1	4	–	–
Primary photograph 7, 1975–2012	Likeability, attractiveness, trustworthiness, flirtatiousness, intellectual capability, honesty, positive impressions	1	3	3	–	–
Headline message 4, 1982–2012	Intelligence rating, success, correlation with photo attractiveness	–	–	4	–	–
Photo gallery 5, 1978–2011	Interest, impression formation, assertiveness, expressiveness, attractiveness, perceived power	1	–	4	–	–
Description of personal traits 10, 2004–2012	Subjective well-being, self-esteem, romantic preference and outcome, anticipated future interaction, relationship potential and outcome	1	–	6	3	–
2. Browsing, inviting and communication						
Browse 6, 1998–2011	Response rate, likeability, satisfaction with choice, preference, self-perception and shared identity, romantic desire	5	1	–	–	
Invitation 7, 1975–2004	Lasting contact, perceived truth of statements, matching outcomes, response rate	3	1	3	–	–
Initial electronic exchange 11, 1981–2012	Lasting contact, self-disclosure, request compliance, likeability, attraction, success of relationship	2	3	4	–	2
Detecting deception 11, 1991–2012	Lying behaviour and detection, online relationship formation	2	–	4	2	–
Video communication 22, 1962–2007	Attractiveness, liking, mood, judgement, affective forecasting, relationship outcomes, perception by others	12	4	5	–	1

letter near the top of the alphabet are presented first. Those in the lower quarter of the alphabet will be lost in the bottom of the pile if you start at the top. Perceptions of similarity-to-self and liking developed as a result of name similarity heighten one's attention and make one more willing to respond.[14] Screen names are unique and cannot usually be changed once registered. There is an opportunity to exploit the name-similarity effect by browsing extensively before registration, identifying profiled names of people who you find attractive and then choosing a similar screen name.

Primary photo: In the absence of prior acquaintance, attire and physical appearance in still photos have a powerful influence on likeability.[15–17] A genuine smile, one that crinkles up your eyes, will make a good first impression.[18 19] A slight tilt of the head can also enhance attractiveness.[20] Choice of red in a woman[21] enhances men's attraction leading to significantly more contacts. Photo-similarity effect[14] may be used in the same way as that described for screen name.

Headline message: Simple language, not over-complicated wording, is likely to result in significantly higher ratings of intelligence because people are naturally drawn to words that are easy to remember and pronounce.[22 23] It makes information-processing easier, which also increases likeability. Overall attractiveness of the text is positively correlated with photo attractiveness.[24] If you can get the potential date to stop and think about your headline message, increasing the exposure time to the primary photo, this will increase their liking.[25]

Photo gallery: Group photos showing other people having a good time in your company are desirable.[26] Women find a man more attractive when they see other women smiling at him.[26] Capitalising on the centre-stage effect by selecting photos where you are in the middle creates a sense of importance.[27] This can be further enhanced in group photos where you are shown touching another person (confining this to the upper arm to be socially acceptable).[28 29] This is because a toucher is perceived to be of higher status than the one touched.[29] Dynamic video clips can be more realistic than still photos and may promote familiarity at the first face-to-face encounter.[30]

Description: Individuals are pursued or ignored based on a quick perusal of the profile.[31] The prospect of ending with a face-to-face meeting is best met through a profile closer to reality.[32] However, it cannot be all about you (bright, fun, non-smoker, into detective novels and long walks on sunny beaches). This will attract far fewer responses than a combination of who you are and what you are looking for. The combination in a 70:30 ratio (genuine, attractive, outgoing, professional female, good sense of humour, into keeping fit, socialising, music and travel, seeks like-minded, good-natured guy to share quality times) achieves the best results.[33] Be sure to present character traits but remember that likeability is more important than academic achievement. What characteristics and traits should be revealed? In the absence of familiarity, men prefer physical fitness in women gained via yoga, aerobics and gym, not via rugby and bodybuilding, while women prefer bravery, courage and a willingness to take risks rather than kindness and altruism in their partners.[34]

How do people make choices in side-by-side comparisons when browsing? They subconsciously check out

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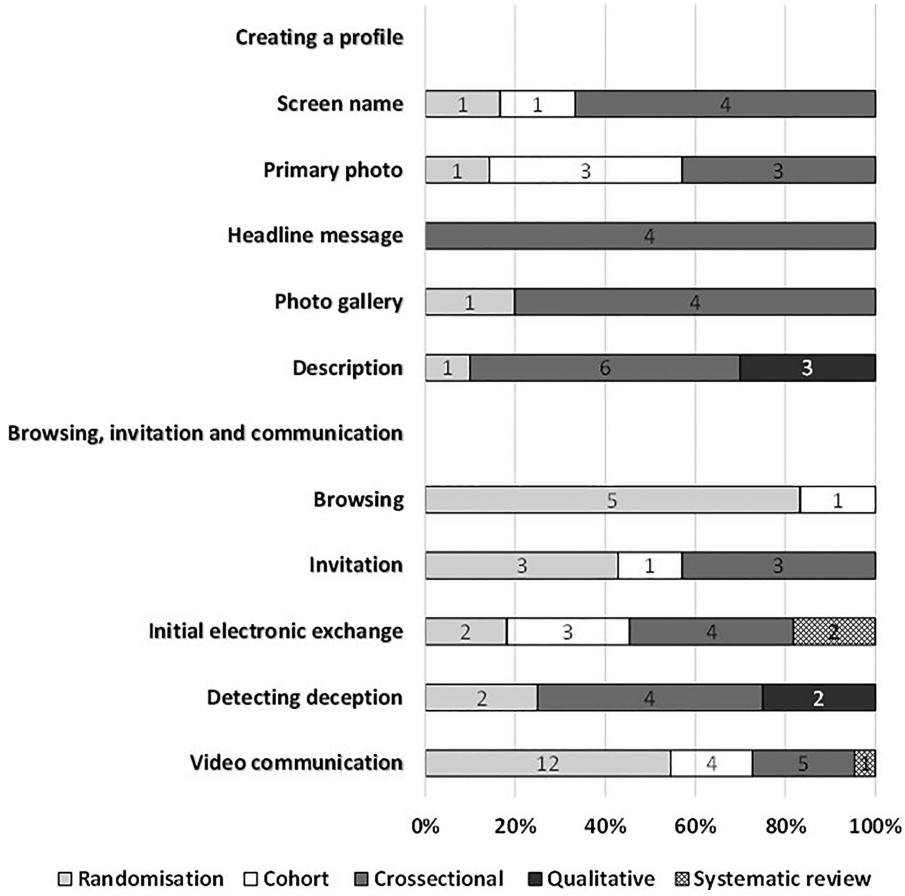

Figure 3 Design features of studies synthesised in the systematic review to inform online dating (data presented as 100% stacked bars; figures in the stacks represent the number of studies; some studies contributed information to more than one step of online dating).

what is different between those competing for their attention. For example, they may begin to look at who out of those in front of them is most similar to themselves.[14] In this situation, people tend not to take into account attributes they would really like to see in their partner.[35] A competitive profile would seek to highlight features that distinguish them from other online daters. Adding humour can give the edge (vintage, educated, looking for a woman of ex-film star quality).[36 37] People assess the cues unintentionally given off (spelling mistakes depict the light on educational attainment) in addition to those cues that are purposefully given. Unintended cues are a powerful way to show without telling,[38] for example, a profile written in a humorous, clever manner will be seen as more credible evidence of a sense of humour than the use of the words 'I am hilarious'. It is also a means of boosting self-esteem.[39 40] Dishonesty in profiling is damaging to the online dating goal. The profile should have a balance between comprehensive honesty and positive self-presentation because its validity will be put to test in future face-to-face interactions.[31]

Browsing, invitation and communication

Browsing and selection: Although browsing profiles can itself be a rewarding exercise,[41] too much choice can be paralysing.[42] One can get into a counterproductive assessment mindset.[43] People may browse using essential and desirable traits as search terms. However, side-by-side profile comparisons tend to deemphasise matching against preset selection criteria for the attributes sought in a partner.[35 44] When the profiles themselves appear genuine and there is a sense of shared identity, a positive feeling[46] will lead to a desire to extend an invitation.

Invitation: People almost always see themselves as unique.[47–49] Once a group of potential dates has been assembled, a personalised plea is required.[50] An individually tailored communication that transforms a cyber-dating digital face into a fully functioning human being is desirable.[51] One short, positive remark, directly addressing the person's character or photo, will do. We routinely reject unrealistically positive views of ourselves,[52] because this raises suspicion about the motives of the complimenter. An invitation rhyming with their name or headline message will go a long way, as rhyming poetry has an instinctive appeal.[53]

Initial electronic exchange: In response to an invitation, a range of different outcomes are possible depending on the quality of communication.[54] Compared to a face-to-face interaction, disclosure is far more likely electronically.[55] To get started, an open-ended question

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such as 'What did you like in my profile?' is brilliant as it has many possible positive answers.[56] Eager responses are not a turn-off, so do not keep the potential date waiting.[57] Spontaneous wit and humour[58 59] puts people in a good mood, even if momentarily, and the way we presently feel exerts a powerful influence on the way we imagine we will feel in the future.[60] Disclosure of personal information to each other will make you feel closer.[61] Knowing each other's trivia is a predictor of a long relationship.[62] We like others most when we are uncertain as to whether they like us a little or a lot.[63] Birth order is informative about personality as younger children tend to be more open, creative, unconventional and rebellious than the eldest child.[64]

Detecting deception: Concern about being fooled by false information online complicates the process of forming relationships.[38 65] Sometimes, people present themselves as they hope to be in the future, not as they are at the time of writing their profile.[31] People might lie about important issues, such as qualifications or employment; however, they are reluctant to lie in written communication because their words are recorded and may come back to haunt them.[66 67] Online daters who save early correspondence can check it against later communication for evidence of deception.[68] On a video chat, signs of deceit are not those typically associated with increased anxiety; instead, liars more often look as if they are thinking hard for no good reason and to converse in a strangely impersonal tone. They also show behavioural shifts, such as suddenly becoming static and cutting down on gestures.[69 70]

Video communication: We make inferences about emotions by registering body language, listening to voices and noticing facial expressions.[71] Making expressive hand gestures during conversation, nodding your head when the other person is speaking, using emotionally charged words (love, like, fond), varying the pitch of voice,[72] sitting upright (vs slouching) and smiling (taking over half a second to spread it over your face)[20] convey happiness and imply liking.[73–75] A smile cheers you up as well.[76 77] Subtly mimicking movements demonstrates that the chemistry is right.[78 79]

Introducing humour in the conversation makes people more relaxed and accepting.[59] People feel greater intimacy when they agree about dislikes more than likes.[80] Gossiping positively about others is good.[81] Whatever traits you assign to others are likely to be viewed as part of your own personality. Do not criticise, but do not always agree initially.[82] It may be better to disagree first, with a view to agreeing later on. Pretending that you are a scarce resource worth having is not universally attractive.[83] Mistakes are far more noticeable to us than to others, so if you make one, continue as if nothing had happened.[84] If you fear that you are being seen as too perfect, making a small mistake (eg, spilling a bit of coffee on the table and then wiping it clean with a serviette) may actually go down well.[85] If you do have a fault to declare, get it out in the middle of the conversation.[86]

Plan for a positive termination of every chat. We recall items at the end of an experience far better than those at the beginning or in the middle.[87] The brain stores a synopsis in which the final scene plays a crucial role.[88] We tend to judge the pleasure of an experience by its ending.[89] We treasure memories of unusual moments and closing moments.[90–92] Reveal positive things about yourself towards the end of a conversation.[93] Do not leave the shift from computer mediated to face-to-face communication too late (3 weeks is better than six). Early switch is associated with better outcomes.[94]

Discussion

Research results from a range of disciplines synthesised in this review suggest a number of strategies that can increase or decrease the likelihood of converting an online dating site contact into an in-person meeting. These include a huge variety of effective approaches in posting the right photos; writing and rewriting the personal description; browsing for and sending tailored emails; and openly engaging in electronic communication. These may be time-consuming, but there do not appear to be shortcuts in successfully converting electronic contact with innumerable potential dates into a face-to-face encounter with one.

This review has several limitations. First, the search term combination was difficult to construct owing to the lack of relevant subject headings or keywords. Our search may lack specificity, but the iterative process we employed maximised sensitivity. Second, the outcome measures reported in the literature had limitations. A face-to-face encounter and intermediate steps leading up to it are not indicators of a lasting relationship; nonetheless, the long-term follow-up needed for such studies is impractical in real life. Third, data assessment by only two reviewers might limit the validity of meta-narrative synthesis, though this is superior to assessment by a single reviewer. Fourth, there was a wide range of methodological features employed in the studies reviewed, a heterogeneity that is unavoidable when there are a variety of hypotheses addressed with an assortment of research genres. Fifth, the data collated were not amenable to meta-analysis, but this is not necessary in a meta-synthesis. Finally, the generalisability of findings from the literature covering other courtship contexts to online dating needs consideration, though given the evolutionary context described in the paragraph below provides justification for this extrapolation. Despite these features, ours is a comprehensive, robust assessment, uninfluenced by financial interests of online dating service providers, that merits consideration.

Our findings should be interpreted in the evolutionary context. Research on our ability to identify our own emotions shows that we can feel attracted to someone without knowing exactly why.[95–98] When it comes to romantic love, we are not as rational as we might think—our limbic system, a part of the brain that deals with emotions,[99] overrides or modifies conscious thinking. Developed through ages of evolution, it acts within milliseconds, determining our behaviour instinctively, and in scientific studies it is shown to do so predictably. It directs reproduction and sexuality in all humans, regardless of culture.[100] Romantic desire motivates the search for a range of potential partners and romantic attraction narrows it down to specific partners.[101 102] Courtship energy can then focus on particular

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individuals and facilitates partner choice.[99 102] It is no surprise that this powerful mental function, when negatively affected, for example, in romantic rejection, can lead to clinically deranged behaviour including obsession and depression, as well as homicide and suicide in extreme cases.[103] Online dating may exploit new technology, but the pursuit of romantic partnership is ancient.

How should online daters employ our findings in practice? Those embarking on this medium can use the evidence-based approach from the outset. Those already registered should update the profile.[104] Going public with the plan, for example, telling friends, can provide the encouragement needed to identify the additional time required for this.[105] Procrastination can be a problem, and evidence suggests that working on subgoals, even for just a few minutes, can generate the urge to see the task through to completion.[106] When bringing things up to date, daters should be mindful that they are dealing with subconscious phenomena,[107] and making a good first impression is critical. It may be possible to change the screen name to one that begins with a letter towards the beginning of the alphabet,[108] though other things including photos can be updated with features that enhance likeability.[109] Remaining close to reality in the update is important because identification of major discrepancies resulting from a conscious desire to disguise the truth will inevitably become grounds for terminating a budding relationship in the not too distant future.[110]

When ready to launch ahead with invitations, beware that winks (a single click tool to attract the attention of another online member) and generic messages (eg, I like your profile. Would you like to chat?) are impersonal. Potential dates want to feel special. Try poetry (using a rhyming dictionary on the Internet if necessary): For example, if your potential date's screen name is 'fit n fun', send a message inviting them to 'go for a run'; if they are called 'Iamsweet', say 'what a treat'; if they are 'fitandattractive', you can be 'very adaptive'. People positively embrace only those compliments that appear credible, so avoid overt flattery. There are exceptions to these rules in making first contact: where established social norms discourage people from making the first move, winking (a weak signal otherwise) can help achieve matching outcomes.[111]

In the romantic context, where decision-making is often driven by side-by-side profile comparisons,[112] the evidence-based approach will help give an advantage over the competition. Men may have a tendency to try to show themselves in as perfect a light as possible. This can be a mistake, as women may well avoid them, fearing that they are likely to prove attractive to too many others, thereby increasing the competition. Daters should avoid attempts to impress (I have a PhD) or straight appeals for sex. They should use computer-mediated communication as an opportunity to get to know each other before moving to first face-to-face meeting.

Opening an online conversation can be difficult. Closed questions (that have yes or no answers) are bad, as they do not move the conversation on. Open questions (like 'How are you today?') that need a full answer are better. With several positive open exchanges, the date is more likely to feel encouraged to move forward.[113] Chat about topics that you both find interesting—prepare for these beforehand using the knowledge gleaned from the profiles. Investigate what your potential date does not like. If she does not like beards and you have grown one since uploading your mug shot, shave if off before your first appearance on a webcam. Avoid criticism as negative comments are much more memorable and have a greater impact than positive ones.[82] Undoing the damage caused by a negative remark may take more praise than you might think to balance things out. Say positive and pleasant things about your friends and colleagues and you will be perceived as a nice person. Online dating can be used for exploitation.[65] As the electronic relationship progresses, reducing uncertainty over any concerns is an important area of computer mediated communication before the first date. Put the specific queries in writing. Be on guard for a sudden reduction in detail in the response and the avoidance of the words 'me', 'mine' and 'I'. If someone becomes evasive, press for a straight answer.[114]

The implications of this review are many. Online daters focus too much on details without realising that likeability springs from subconscious initial impressions. A suitable screen name associated with an attractive still picture and a simple, fluent headline message will immediately and spontaneously generate interest. Choose a screen name without negative connotation that reflects how you would like to be seen by others and that starts with a letter in the top half of the alphabet. Generate a perception of similarity with as many elements of the profiles of people you find attractive as possible. Show, do not tell is the rule of thumb for drafting a profile. The profile should have a combination of who you are and what you are looking for in a 70:30 ratio, staying close to reality and using simple language with humour added. If first impressions are positive, a potential date will move to quickly browse the profile (and then, if sufficient interest is generated, on to a date). If not, they will move on to someone else's profile.

Online daters should browse before registration as nobody picks friends and lovers through random sampling. For the first communication, they should not wink; instead, they should send a short personalised message addressing a trait in the profile of the potential date (try rhyming with their screen name or headline message). They should give genuine compliments, not flatter. When communication gets going and there is a genuine interest, they should start responding soon, keeping individual communication length moderate (to demonstrate generosity with time, but avoid long scholarly theses), saying things with humour (to put the recipient in a good mood), explore common dislikes, and keep the potential date guessing about whether they like them (without playing hard to get). On the webcam, they should mimic body language within reason, gossip positively about others, and end the chat positively. They should get to know the potential date and be prepared to reveal themselves as knowing each other's trivia is a predictor of a successful outcome. They should move from computer-mediated communication to a date early rather than late.

In conclusion, attraction and persuasion research has identified common pitfalls and effective techniques that can be applied to optimise screen names, headline

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messages, descriptions of personal traits and electronic communications used in online dating. An evidence-based approach to online dating outlined in this article may provide the key to understanding how to coax the best out of this dating medium.

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References

1. **Robles TF**, Kiecolt-Glaser JK. The physiology of marriage: pathways to health. *Physiol Behav* 2003;**79**:409–16.
2. **Rosenfeld MJ**, Thomas RJ. Searching for a mate: the rise of the internet as a social intermediary. *Am Sociol Rev* 2012;**77**:523–47.
3. **Couch D**, Liamputtong P. Online dating and mating: the use of the internet to meet sexual partners. *Qual Health Res* 2008;**18**:268–79.
4. **Hall JA**, Park N, Song H, *et al*. Strategic misrepresentation in online dating: the effects of gender, self-monitoring, and personality traits. *J Soc Pers Relations* 2010;**27**:117–35.
5. **Lilford RJ**, Richardson A, Stevens A, *et al*. Issues in methodological research: perspectives from researchers and commissioners. *Health Technol Assess* 2001;**5**:1–57.
6. **Wong G**, Greenhalgh T, Westhorp G, *et al*. RAMESES publication standards: meta-narrative reviews. *BMC Med* 2013;**11**:20.
7. **Levac D**, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci* 2010;**5**:69.
8. **Finkel EJ**, Eastwick PW, Karney BR, *et al*. Online dating: a critical analysis from the perspective of psychological science. *Psychol Sci Public Int* 2012;**13**:3–66.
9. **Garwood SG**, Cox L, Kaplan V, *et al*. Beauty is only 'name 'deep: the effect of first-name on ratings of physical attraction. *J Appl Soc Psychol* 1980;**10**:431–5.
10. **Harari H**, McDavid JW. Name stereotypes and teachers' expectations. *J Educ Psychol* 1973;**65**:222–5.
11. **Whitty MT**, Buchanan T. What's in a screen name? Attractiveness of different types of screen names used by online daters. *Int J Internet Sci* 2010;**5**:5–19.
12. **Einav L**, Yariv L. What's in a surname? The effects of surname initials on academic success. *J Econ Perspect* 2006;**20**:175–87.
13. **Nelson LD**, Simmons JP. Moniker maladies: when names sabotage success. *Psychol Sci* 2007;**18**:1106–12.
14. **Garner R**. What's in a name? Persuasion perhaps. *J Consum Psychol* 2005;**15**:108–16.
15. **Berry DS**, McArthur LZ. Perceiving character in faces: the impact of age-related craniofacial changes on social perception. *Psychol Bull* 1986;**100**:3–18.
16. **Conner BH**, Peters K, Nagasawa RH. Person and costume: effects on the formation of first impressions. *Home Econ Res J* 1975;**4**:32–41.
17. **Albright L**, Kenny DA, Malloy TE. Consensus in personality judgments at zero acquaintance. *J Pers Soc Psychol* 1988;**55**:387–95.
18. **Frank MG**, Ekman P, Friesen WV. Behavioral markers and recognizability of the smile of enjoyment. *J Pers Soc Psychol* 1993;**64**:83–93.
19. **Kraut RE**, Johnston RE. Social and emotional messages of smiling: an ethological approach. *J Pers Soc Psychol* 1979;**37**:1539–53.
20. **Krumhuber E**, Manstead A, Kappas A. Temporal aspects of facial displays in person and expression perception: the effects of smile dynamics, head-tilt, and gender. *J Nonverbal Behav* 2007;**31**:39–56.
21. **Pazda AD**, Elliot AJ, Greitemeyer T. Sexy red: perceived sexual receptivity mediates the red-attraction relation in men viewing woman. *J Exp Soc Psychol* 2012;**48**:787–90.
22. **Alter AL**, Oppenheimer DM. Predicting short-term stock fluctuations by using processing fluency. *Proc Natl Acad Sci USA* 2006;**103**:9369–72.
23. **Oppenheimer DM**. Consequences of erudite vernacular utilized irrespective of necessity: problems with using long words needlessly. *Appl Cogn Psychol* 2006;**20**:139–56.
24. **Brand RJ**, Bonatsos A, D'Orazio R, *et al*. What is beautiful is good, even online: correlations between photo attractiveness and text attractiveness in men's online dating profiles. *Comput Human Behav* 2012;**28**:166–70.
25. **Moreland RL**, Zajonc RB. Exposure effects in person perception: familiarity, similarity, and attraction. *J Exp Soc Psychol* 1982;**18**:395–415.
26. **Jones BC**, DeBruine LM, Little AC, *et al*. Social transmission of face preferences among humans. *Proc Biol Sci* 2007;**274**:899–903.
27. **Raghubir P**, Valenzuela A. Center-of-inattention: position biases in decision-making. *Organ Behav Human Decis Processes* 2006;**99**:66–80.
28. **Major B**, Heslin R. Perceptions of cross-sex and same-sex nonreciprocal touch: it is better to give than to receive. *J Nonverbal Behav* 1982;**6**:148–62.
29. **Summerhayes DL**, Suchner RW. Power implications of touch in male—female relationships. *Sex Roles* 1978;**4**:103–10.
30. **Mierke K**, Aretz W, Nowack A, *et al*. Impression formation in online-dating-situations: effects of media richness and physical attractiveness information. *J Bus Media Psychol* 2011;**2**:49–56.
31. **Ellison NB**, Hancock JT, Toma CL. Profile as promise: a framework for conceptualizing veracity in online dating self-presentations. *New Media Soc* 2012;**14**:45–62.
32. **McLaughlin C**, Vitak J, Crouse J. Online Identity Construction and Expectation of Future Interaction. *44th Hawaii International Conference on System Sciences (HICSS), System Sciences (HICSS), 2011 44th Hawaii International Conference on*; 2011:1–10.
33. **Wiseman R**. *Quirkology: how to discover big truths in small things*. New York: Basic Books, 2007.
34. **Bassett JF**, Moss B. Men and women prefer risk takers as romantic and nonromantic partners. *Curr Res Soc Psychol* 2004;**9**:135–44.
35. **Iyengar SS**, Lepper MR. When choice is demotivating: can one desire too much of a good thing? *J Pers Soc Psychol* 2000;**79**:995–1006.
36. **Morgan EM**, Richards TC, VanNess EM. Comparing narratives of personal and preferred partner characteristics in online dating advertisements. *Computers in Human Behavior* 2010;**26**:883–8.
37. **Jonson H**, Siverskog A. Turning vinegar into wine: humorous self-presentations among older GLBTQ online daters. *J Aging Stud* 2012;**26**:55–64.
38. **Gibbs JL**, Ellison NB, Lai CH. First comes love, then comes Google: an investigation of uncertainty reduction strategies and self-disclosure in online dating. *Commun Res* 2011;**38**:70–100.

Evid Based Med: first published as 10.1136/ebmed-2014-110101 on 12 February 2015. Downloaded from http://ebm.bmj.com/ on April 18, 2024 by guest. Protected by copyright.

39. **Gonzales AL**, Hancock JT. Mirror, mirror on my Facebook wall: effects of exposure to Facebook on self-esteem. *Cyberpsychol Behav Soc Netw* 2011;**14**:79–83.
40. **Kim J**, Lee JE. The Facebook paths to happiness: effects of the number of Facebook friends and self-presentation on subjective well-being. *Cyberpsychol Behav Soc Netw* 2011;**14**:359–64.
41. **Leotti LA**, Delgado MR. The inherent reward of choice. *Psychol Sci* 2011;**22**:1310–18.
42. **Botti S**, Hsee CK. Dazed and confused by choice: how the temporal costs of choice freedom lead to undesirable outcomes. *Organ Behav Hum Decis Processes* 2010;**112**:161–71.
43. **Freitas AL**, Gollwitzer P, Trope Y. The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *J Exp Soc Psychol* 2004;**40**:739–52.
44. **Tversky A**, Sattath S, Slovic P. Contingent weighting in judgment and choice. *Psychol Rev* 1998;**95**:371–84.
45. **Eastwick PW**, Finkel EJ, Mochon D, *et al*. Selective versus unselective romantic desire: not all reciprocity is created equal. *Psychol Sci* 2007;**18**:317–19.
46. **Goldstein NJ**, Cialdini RB. The spyglass self: a model of vicarious self-perception. *J Pers Soc Psychol* 2007;**92**:402–17.
47. **Brewer MB**. The social self: on being the same and different at the same time. *Pers Soc Psychol Bull* 1991;**17**:475–82.
48. **Kruger J**. Lake Wobegon be gone! The "below-average effect" and the egocentric nature of comparative ability judgments. *J Pers Soc Psychol* 1999;**77**:221–32.
49. **Nisbett RE**, Borgida E. Attribution and the psychology of prediction. *J Pers Soc Psychol* 1975;**32**:932–43.
50. **Latane B**, Darley JM. Group inhibition of bystander intervention in emergencies. *J Pers Soc Psychol* 1968;**10**:215–21.
51. **Garner R**. Post-it note persuasion: a sticky influence. *J Consum Psychol* 2004;**15**:230–37.
52. **Swann WBJr**, Pelham B. Who wants out when the going gets good? Psychological investment and preference for self-verifying College Roommates. *Self Identity* 2002;**1**:219–33.
53. **McGlone MS**, Tofighbakhsh J. Birds of a feather flock conjointly (?): rhyme as reason in aphorisms. *Psychol Sci* 2000;**11**:424–8.
54. **Schmitz A**. Elective affinities 2.0? A bourdieusian approach to couple formation and the methodology of e-dating. *Soc Res Sci Internet* 2012;**1**:175–202.
55. **Nguyen M**, Bin YS, Campbell A. Comparing online and offline self-disclosure: a systematic review. *Cyberpsychol Behav Soc Netw* 2012;**15**:103–11.
56. **Gilbert DT**, Jones EE. Perceiver-induced constraint: interpretations of self-generated reality. *J Pers Soc Psychol* 1986;**50**:269–80.
57. **Fiore AT**, Taylor LS, Xiaomeng Z, *et al*, eds. Who's right and who writes: people, profiles, contacts, and replies in online dating. *43rd Hawaii International Conference on System Sciences (HICSS)*; 2010.
58. **Bale C**, Morrison R, Caryl PG. Chat-up lines as male sexual displays. *Pers Individual Differ* 2006;**40**:655–64.
59. **O'Quin K**, Aronoff J. Humor as a technique of social influence. *Soc Psychol Q* 1981;**44**:349–57.
60. **Priester JR**, Dholakia UM, Fleming MA. When and why the background contrast effect emerges: thought engenders meaning by influencing the perception of applicability. *J Consum Res* 2004;**31**:491–501.
61. **Collins NL**, Miller LC. Self-Disclosure and liking: a meta-analytic review. *Psychol Bull* 1994;**116**:457–75.
62. **Gottman JM**, Coan J, Carrere S, *et al*. Predicting marital happiness and stability from newlywed interactions. *J Marriage Fam* 1998;**60**:5–22.
63. **Whitchurch ER**, Wilson TD, Gilbert DT. He loves me, he loves me not. Uncertainty can increase romantic attraction. *Psychol Sc* 2011;**22**:172–5.
64. **Jefferson T**, Herbst JH, McCrae RR. Associations between birth order and personality traits: evidence from self-reports and observer ratings. *J Res Pers* 1998;**32**:498–509.
65. **Whitty MT**, Buchanan T. The online romance scam: a serious cybercrime. *Cyberpsychol Behav Soc Netw* 2012;**15**:181–3.
66. **Chu S**, Hardaker R, Lycett JE. Too good to be `true'? The handicap of high socio-economic status in attractive males. *Pers Individual Differ* 2007;**42**:1291–300.
67. **Hancock J**, Thom-Santelli J, Ritchie T, eds. Deception and design: the impact of communication technology on lying behavior. *CHI '04: Proceedings of the SIGCHI conference on Human Factors in Computing Systems*; ACM Press, 2004.
68. **Heino RD**, Ellison NB, Gibbs JL. Relationshopping: investigating the market metaphor in online dating. *J Soc Pers Relationships* 2010;**27**:427–47.
69. **Stromwall LA**, Granhag PA, Landstrom S. Children's prepared and unprepared lies: can adults see through their strategies? *Appl Cogn Psychol* 2007;**21**:457–71.
70. **Ekman P**, O'Sullivan M. Who can catch a liar? *Am Psychol* 1991;**46**:913–20.
71. **Rach K**, Tamm E, Siga R. Predicting your own and others' thoughts and feelings: more like a stranger than a friend. *Eur J Soc Psychol* 1997;**27**:301–11.
72. **Sheldon K**, Lyubomirsky S. Achieving sustainable gains in happiness: change your actions, not your circumstances. *J Happiness Stud* 2006;**7**:55–86.
73. **Roberts T**, Arefi-Afshar Y. Not all who stand tall are proud: Gender differences in the proprioceptive effects of upright posture. *Cogn Emotion* 2007;**21**:714–27.
74. **Higgins CA**, Judge TA. The Effect of applicant influence tactics on recruiter perceptions of fit and hiring recommendations: a field study. *J Appl Psychol* 2004;**89**:622–32.
75. **Gonzaga GC**, Keltner D, Campos B, *et al*. Romantic love and sexual desire in close relationships. *Emotion* 2006;**6**:163–79.
76. **Schnall S**, Laird J. Keep smiling: enduring effects of facial expressions and postures on emotional experience and memory. *Cogn Emotion* 2003;**17**:787–97.
77. **Strack F**, Martin LL, Stepper S. Inhibiting and facilitating conditions of the human smile: a nonobtrusive test of the facial Feedback hypothesis. *J Pers Soc Psychol* 1988;**54**:768–77.
78. **van Baaren RB**, Holland RW, Steenaert B, *et al*. Mimicry for money: behavioral consequences of imitation. *J Exp Soc Psychol* 2003;**39**:393–8.
79. **Dijksterhuis AJ**, Smith PK, Baaren RB, *et al*. The unconscious consumer: effects of environment on consumer behavior. *J Consum Psychol* 2005;**15**:193–202.
80. **Bosson JK**, Hinson AB, Ederhoffer KATE, *et al*. Interpersonal chemistry through negativity: bonding by sharing negative attitudes about others. *Pers Relationships* 2006;**13**:135–50.
81. **Carlston DE**, Skowronski JJ. Linking versus thinking: evidence for the different associative and attributional bases of spontaneous trait transference and spontaneous trait inference. *J Pers Soc Psychol* 2005;**89**:884–98.
82. **Baumeister RF**, Ratslavsky E, Finkenauer C, *et al*. Bad is stronger than good. *Rev Gen Psychol* 2001;**5**:323–70.
83. **Walster EG**, Walster W, Berscheid E. The efficacy of playing hard-to-get. *J Exp Educ* 1971;**39**:73–7.
84. **Gilovich T**, Medvec VH, Savitsky K. The spotlight effect in social judgment: an egocentric bias in estimates of the salience of one's own actions and appearance. *J Pers Soc Psychol* 2000;**78**:211–22.
85. **Kiesler CA**, Goldberg GN. Multi-dimensional approach to the experimental study of interpersonal attraction: effect of a blunder on the attractiveness of a competent other. *Psychol Rep.* 1968;**22**:693–705.
86. **Jones EE**, Gordon EM. Timing of self-disclosure and its effects on personal attraction. *J Pers Soc Psychol.* 1972;**24**:358–65.
87. **Murdock BB Jr**. The serial position effect of free recall. *J Exp Psychol* 1962;**64**:482–8.

Evid Based Med: first published as 10.1136/ebmed-2014-110101 on 12 February 2015. Downloaded from http://ebm.bmj.com/ on April 18, 2024 by guest. Protected by copyright.

88. **Ariely D**, Loewenstein G. When does duration matter in judgment and decision making? *J Exp Psychol Gen* 2000;**129**:508–23.
89. **Diener E**, Wirtz D, Oishi S. End effects of rated life quality: the James dean effect. *Psychol Sci* 2001;**12**:124–8.
90. **Safer MA**, Levine LJ, Drapalski AL. Distortion in memory for emotions: the contributions of personality and post-event knowledge. *Pers Soc Psychol Bull* 2002;**28**:1495–507.
91. **White TL**. A comparison of the encoding of content and order in olfactory memory and in memory for visually presented verbal materials. *Br J Psychol* 1997;**88**:459.
92. **Gilbert DT**, Gill MJ, Wilson TD. The Future is now: temporal correction in affective forecasting. *Organ Behav Hum Decis Processes* 2002;**88**:430–44.
93. **Williams KD**, Bourgeois MJ, Croyle RT. The effects of stealing thunder in criminal and civil trials. *Law Hum Behav* 1993;**17**:597–609.
94. **Ramirez A**, Wang Z. When online meets offline: an expectancy violations theory perspective on modality switching. *J Commun* 2008;**58**:20–39.
95. **Schachter S**, Singer J. Cognitive, social, and physiological determinants of emotional state. *Psychol Rev* 1962;**69**:379–99.
96. **Dutton DG**, Aron AP. Some evidence for heightened sexual attraction under conditions of high anxiety. *J Pers Soc Psychol* 1974;**30**:510–17.
97. **Hariri AR**, Bookheimer SY, Mazziotta JC. Modulating emotional responses: effects of a neocortical network on the limbic system. *Neuroreport* 2000;**11**:43–8.
98. **Dienstbier RA**, Munter PO. Cheating as a function of the labeling of natural arousal. *J Pers Soc Psychol* 1971;**17**:208–13.
99. **Aron A**, Fisher H, Mashek DJ, *et al*. Reward, motivation, and emotion systems associated with early-stage intense romantic love. *J Neurophysiol* 2005;**94**:327–37.
100. **Albright L**, Malloy TE, Dong Q, *et al*. Cross-cultural consensus in personality judgments. *J Pers Soc Psychol* 1997;**72**:558–69.
101. **Fisher HE**, Aron A, Mashek D, *et al*. Defining the brain systems of lust, romantic attraction, and attachment. *Arch Sex Behav* 2002;**31**:413–19.
102. **Fisher HE**, Aron A, Brown LL. Romantic love: a mammalian brain system for mate choice. *Philos Trans R Soc Lond B Biol Sci* 2006;**361**:2173–86.
103. **Schultheiss OC**, Wirth MM, Waugh CE, *et al*. Exploring the motivational brain: effects of implicit power motivation on brain activation in response to facial expressions of emotion. *Soc Cogn Affect Neurosci* 2008;**3**:333–43.
104. **Barraket J**, Henry-Waring MS. Getting it on(line): sociological perspectives on e-dating. *J Sociol* 2008;**44**:149–65.
105. **Hayes SC**, Rosenfarb I, Wulfert E, *et al*. Self-reinforcement effects: an artifact of social standard setting? *J Appl Behav Anal* 1985;**18**:201–14.
106. **Fritzsche BA**, Rapp Young B, Hickson KC. Individual differences in academic procrastination tendency and writing success. *Pers Individual Differences* 2003;**35**:1549–57.
107. **Caprara GV**, Vecchione M, Barbaranelli C, *et al*. When likeness goes with liking: the case of Political preference. *Polit Psychol* 2007;**28**:609–32.
108. **Christenfeld N**, Phillips DP, Glynn LM. What's in a name: mortality and the power of symbols. *J Psychosom Res* 1999;**47**:241–54.
109. **Todorov A**, Said CP, Engell AD, *et al*. Understanding evaluation of faces on social dimensions. *Trends Cogn Sci* 2008;**12**:455–60.
110. **Whitty MT**, Carville SE. Would I lie to you? Self-serving lies and other-oriented lies told across different media. *Computers in Human Behavior* 2008;**24**:1021–31.
111. **Bapna R**, Ramaprasad J, Shmueli G, *et al*. *One-way mirrors and weak-signaling in online dating: a randomized field experiment*. University of Utah, 2012.
112. **Hsee CK**, Loewenstein GF, Blount S, *et al*. Preference reversals between joint and separate evaluations of options: a review and theoretical analysis. *Psychol Bull*. 1999;**125**:576–90.
113. **Howard DJ**. The influence of verbal responses to common greetings on compliance behavior: the foot-in-the-mouth effect. *J Appl Soc Psychol* 1990;**20**:1185–96.
114. **Vrij A**. Why professionals fail to catch liars and how they can improve. *Legal Criminol Psychol* 2004;**9**:159–81.

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