



# Designing celebrity-endorsed behavioral interventions in conservation

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## Abstract

The use of celebrity endorsement in environmental conservation interventions aiming to influence human behavior has increased in recent decades. Although good practice in designing, implementing, and evaluating behavioral interventions is outlined in recent publications, guidance on developing conservation interventions with celebrity endorsement remains limited. To fill this gap, we devised a guide for decision-making relating to celebrity-endorsed behavioral interventions based on the behavioral, project design, and celebrity endorsement literatures. The guide advises conducting research to understand the behavior system in question; defining endorser selection models and celebrities based on the research; developing an endorsement strategy with the appropriate communication channels; testing the celebrity, channels, and strategy with the target audience and making adjustments as needed; and, finally, evaluating the intervention after implementation. We applied this strategy to a case study, the aim of which was to design a celebrity-endorsed intervention to reduce consumption of wild meat in Ho Chi Minh City, Vietnam. Following our guide, we found that employing evidence-based decision-making substantially enhanced our ability to understand the complexity and potential cost associated with using celebrity endorsements in behavioral interventions.

## KEYWORDS

behavior change, campaign design, celebrity endorsement, decision-making, demand reduction, pangolin, wild meat consumption

## INTRODUCTION

Changing human behavior is crucial to halting the deterioration of the natural environment (Schultz, 2011). The need to implement behavioral interventions to combat environmental problems has long been recognized (Wright et al., 2015). Within biodiversity conservation specifically, the need to employ behavioral science techniques to design, implement, and evaluate behavior change interventions has been highlighted (Nielsen et al., 2021; Travers et al., 2021). One area of conservation in which such interventions have become prevalent in the last decade is reducing the consumption of illegally traded wildlife, particularly in East and Southeast Asia (Verissimo & Wan,

2019). However, the uptake of best practices of social marketing techniques, including conducting consumer research to understand behavioral motivations, segmenting audiences, following behavior change models, and conducting rigorous evaluation, is still limited (Greenfield & Verissimo, 2019; Olmedo et al., 2017).

One tool for promoting behavioral change is campaigns involving celebrity endorsement of a desired behavior. Within commercial marketing, this approach has increased globally in recent years. Mirroring these broader trends, the use of celebrities in the environmental conservation sector has also increased in the last 3 decades (Brockington, 2016; Doyle et al., 2017). However, questions have been raised about the effectiveness

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of celebrity endorsement campaigns in promoting consumer responses (Tanaka et al., 2015), across countries and cultures (e.g., Deng & Jeffreys, 2019).

One reason for this may be a lack of relevant underpinning research, either in general or to inform a specific campaign. Brockington (2015) pointed out that studies to predict the effectiveness of celebrity endorsement suffer from a mismatch between the sample used in the study (often US college students) and the actual targeted audience (e.g., international audiences or nonstudent audiences). He noted that, given different national celebrity cultures, such mismatches may result in biases that limit the relevance of findings. Similarly, whether celebrity-associated interventions are effective at achieving their stated objectives remains an open question. For example, a recent review of environmental campaigns showed no evidence that endorsement is effective in achieving stated objectives, including influencing human behavior (Olmedo et al., 2020). This is potentially because these campaigns generally lacked appropriate project design, theories of change, and evaluation. There is also a dearth of accessible reporting on how celebrities are being used in these campaigns (Olmedo et al., 2020). Calls have therefore been made for further research to guide celebrity selection and to determine influence mechanisms within the wider behavioral science literature (Moraes et al., 2019; Roy & Mishra, 2018). Specifically, however, the use of celebrity endorsement in conservation interventions has received limited attention (Duthie et al., 2017; Eren-Erdogmus et al., 2016; Ho et al., 2020). To fill this gap, we developed a guide for decision-making relating to conservation interventions that seek to change behavior through celebrity endorsement. The focus of the guide is the underpinning evidence-gathering steps. Celebrities are commonly used in wildlife-demand-reduction efforts in Asia (USAID, 2016; Voices for Wildlife, 2018; WildAid, 2018). We therefore applied this guide to a case study focused on a campaign to reduce demand for wild meat, with particular reference to pangolin meat (*Manidae* spp.) in Ho Chi Minh City (HCMC), Vietnam. We then considered the application of the guide to conservation interventions more broadly.

## A GUIDE TO PROMOTING BEHAVIORAL CHANGE THROUGH CELEBRITY ENDORSEMENT

Understanding the behavior that should be changed to achieve a desired outcome is critical, and social marketing literature suggests focusing on high-impact behaviors maximizes the efficacy of behavior-change efforts (Lede et al., 2019; Schultz, 2011). As a foundational step to promoting behavior change through celebrity endorsement, robust evidence is required that demonstrates the need for behavioral change among a particular target audience and demonstrates that celebrity endorsement is the most suitable means of triggering this change. This involves gaining an in-depth understanding of the system in which the behavior of interest takes place; ideally this would be obtained through audience research (Michie et al., 2011; Smith & Strand, 2009). We conducted a case study to demonstrate how this evidence can be obtained. A theory of change can then be used

to clarify how and why celebrity endorsement is expected to produce the desired change (Brittain et al., 2020). Once these preconditions have been met, decisions can be made regarding how to use celebrity endorsement in an intervention to achieve a desired behavioral change (Figure 1).

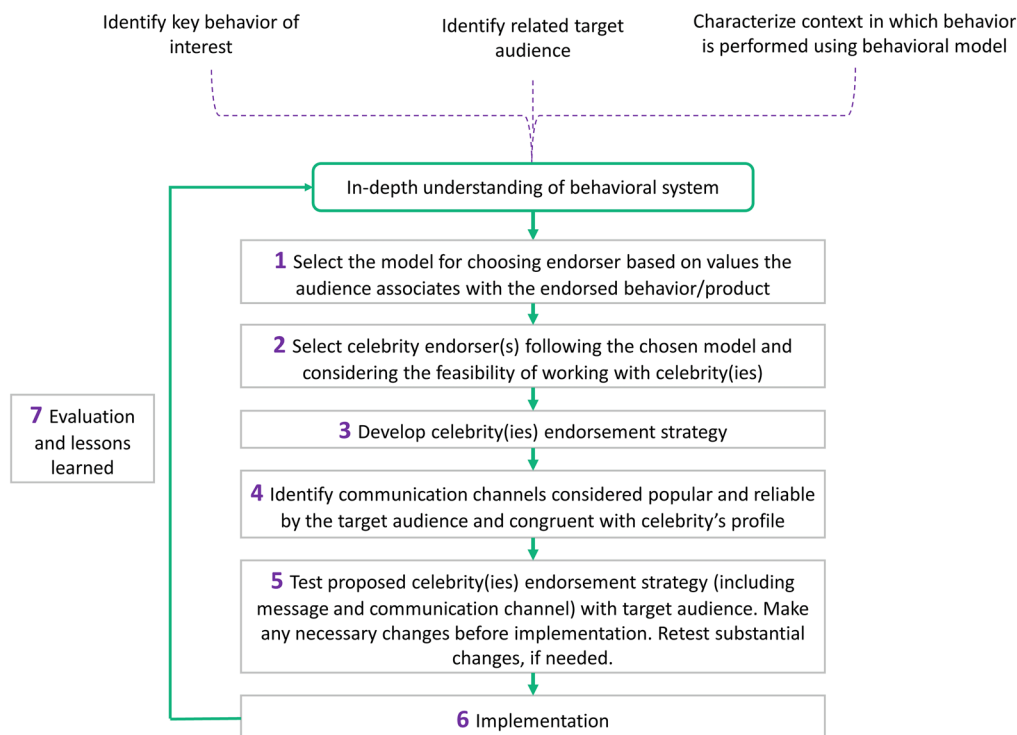
Securing the engagement of the theoretically ideal celebrity might be very difficult, costly, or simply not possible in practice. Even when it is possible, a relationship with the celebrity and their agents or managers will have to be built and managed (Brockington, 2014b). This is the role of celebrity liaison officers (Brockington, 2016). Therefore, we propose how a list of celebrities to use in a campaign could be developed, but we stop short of prescribing how best to develop and manage relationships with celebrities. Even successfully engaging a celebrity endorser does not guarantee a successful campaign, given the risks involved with using celebrities. Thus, it is important to consider carefully whether celebrity endorsement is the optimal strategy.

### Endorsement model selection (step 1)

Various models to guide endorser selection, such as the source-credibility model (Hovland & Weiss, 1951) and the meaning transfer model (McCracken, 1989) (Table 1), have been developed and applied in different fields (e.g., commercial marketing, public health [Hoffman & Tan, 2015; Wang & Scheinbaum, 2018]). Our guide does not prescribe which model to use. Instead, we believe an understanding of the product or behavior being endorsed and the target audience's relationship with that behavior should guide the choice of model. This choice includes whether it would be more effective to use an endorser with expertise related to the product itself (e.g., doctor promoting the use of a medicine), an endorser who evokes a certain image promoting a behavior (e.g., successful businessperson promoting donations for a charitable cause), a physically attractive celebrity advocating for a particular lifestyle (e.g., a famous actor endorsing the use of reusable cups to avoid single-use plastic), or other types of endorsement (Schimmelpennig & Hunt, 2020). Multiple models and theories are often compatible with each other, and each offers value when analyzing celebrity endorsement effectiveness related to a celebrity's capital and broad recognizability. Furthermore, the effectiveness of different models may vary with the means of endorsement (e.g., traditional media or online media) (Abidin et al., 2020).

### Endorser selection (step 2)

The next step is to select an endorser based on a robust understanding of the targeted behavior. Selecting the most appropriate (e.g., credible, attractive, congruent [i.e., compatible]) endorser requires in-depth research on the target audience for the behavioral intervention (Bergkvist & Zhou, 2016). This research should address the values associated with the particular behavior and the attributes evoked by different endorsers from the point of view of the target audience (Moraes et al., 2019; Verissimo et al., 2020). This knowledge is necessary to short-list



**FIGURE 1** Guide for decision-making for celebrity-endorsed behavioral interventions in environmental conservation.

celebrities who might qualify as effective endorsers for a particular intervention. It is important not to prejudge how the target audience will perceive a celebrity, and it should not be assumed that popularity (e.g., celebrity with a large number of followers on social media or who is well recognized by an audience) is equivalent to trustworthiness, being liked, or representing the ideal image of the target audience, which are attributes that affect endorser effectiveness (Brockington, 2014a). Even if a celebrity appears to have all the right attributes, it does not mean the individual is relevant to any and every product or behavior (Roy & Mishra, 2018), and these aspects may change over time.

### Endorsement strategy (step 3)

Once the type of endorser has been chosen, the next step is to choose the form of endorsement the celebrity will engage in to effectively communicate with the target audience. Ambroise and Albert (2019) discussed 5 forms of endorsement: advertising disseminated in the media to inform or persuade; brand or product placement (i.e., displaying promoted elements in spaces not necessarily dedicated to commercial communication); creation or use of celebrities' personal brands; sponsoring an event, product, or brand to benefit from the celebrities' image and commercial potential; and conducting public relations activities in which celebrities reach out to other elites (e.g., government leaders) to influence beliefs, opinions, and actions.

To identify the most appropriate strategy in a given endorsement scenario, an evidence-based understanding of how the endorsement is expected to lead to the desired change in

behavior—a theory of change—is crucial. This makes explicit how and why a change is expected to happen and how the actions being undertaken will lead to the desired change. It also clarifies the assumptions underlying the presumed causal links between actions and outcomes. A theory of change must be informed by robust insights into the system in which the target audience performs the focal behavior (Margoluis et al., 2009). Adding a celebrity endorsement to a campaign in itself is not necessarily beneficial (Brockington, 2014b).

### Communications channel (step 4)

Effective communication channels (e.g., social media, printed materials, radio) ensure the target audience will be exposed to the intervention and have a high likelihood of considering the information it contains is reliable. Thus, target audience research is required to elicit information on the use and perceptions of various communication channels, including the perceived reliability of the medium (Doughty et al., 2021; Verissimo et al., 2020). High congruence between a communication channel and a candidate celebrity endorser will convey a message more genuinely (Appendix S1).

### Testing (step 5)

The next step is to test the selected celebrity, endorsement strategy, and communication channels with the target audience. This can elicit insights into the potential outcome of the celebrity

**TABLE 1** Models and theories of celebrity endorsement effectiveness considered for celebrity selection in a case study of wild meat consumption and their applicability regarding the celebrities tested (based on celebrities listed in a survey on wild meat consumption in Ho Chi Minh City adult residents [details in Appendix S1]).

Model	Overview	Applicability to case study
Source-credibility model (Hovland & Weiss, 1951; Hovland et al., 1953)	The effectiveness of an endorser or messenger depends on the individual's perceived level of expertise (knowledge, experience, and skills) in relation to the endorsed item and trustworthiness (honesty and believability)	Classic consumers value the knowledge the celebrities tested have regarding certain food dishes. Particularly, Celebrity A, Celebrity B, Celebrity C, and Celebrity D were discussed as knowledgeable about food dishes.
Source-attractiveness model (Friedman & Friedman, 1979; McGuire, 1985)	The physical attractiveness, familiarity (audience's knowledge about the messenger as a result of repeated coverage and media attention), similarity (resemblance perceived between the endorser and audience), and likability (liking the endorser's lifestyle and conduct) of an endorser will render the endorser's influence more effective.	Individuals from our target audience were familiar with all 5 celebrities but appeared to like Celebrity A in particular. Physical attractiveness was not mentioned regarding any of the tested celebrities.
Match-up hypothesis (Mowen et al., 1979)	An endorser will be most effective when there is perceived congruence between the brand or product, the endorser, and the target audience.	There appeared to be perceived congruence between 4 of the 5 celebrities and food. However, not all 4 celebrities seemed congruent with all types of food dishes or all types of restaurants. Two of the 4 celebrities appeared to be more congruent with the target audience. That these distinctions were made suggests that relevance to a proposed alternative to wild meat dishes, to the social context, and to respondents themselves is important to classic consumers.
Meaning-transfer model (McCracken, 1989)	The celebrity endorser's cultural meanings, which accumulate through their fame (e.g., performances, achievements, etc.), are captured and are tied to the values and culture in which they have gained this fame. The meanings are then transferred to the products and brands they endorse.	Certain celebrities appear to have socially ascribed images and meanings that are connected with the type of food participants suggested they should endorse. This was mentioned and discussed by classic consumers, suggesting that these images and meanings are noticeable to the target group and could generate dissonance if endorsement and images are not aligned to the message.
Value-proposition-centered framework (Schimmelpenninck & Hunt, 2020)	No single model of celebrity endorsement effectiveness is sufficient to explain endorsement strategies because advertisements have been designed using various endorsement concepts. This framework encompasses the 4 models presented above to guide effective endorsement strategies.	Given that all the considered models could be applied to the case study, the value-proposition-centered framework appears most suitable for the case.

endorsement and is recommended in the social marketing and behavioral interventions literature (Olmedo et al., 2017; Smith & Strand, 2009). It can help ensure there is a match between the celebrity and the product or behavior being endorsed and between the celebrity and the target audience. Testing can also help determine whether unintended consequences might ensue. These might include feelings that the individual is overexposed in advertisements, the presence of the celebrity overshadowing the message, or the involvement of the celebrity provoking suspicion or mistrust (de los Salmones & Dominguez, 2016; Duthie et al., 2017; Muda et al., 2012). Finally, testing can also detect reactance (i.e., defiant behavior) among the target audience. This refers to a perceived loss of agency or autonomy after being exposed to a message, typically communicated by an untrusted source, and indicates the message, endorser, or both are not appropriate (Mols et al., 2014). Testing the intervention elements with members of the target audience allows these issues to be uncovered and addressed before implementation.

Using a general causal model for a conservation intervention that seeks to replace an undesirable behavior with a desirable behavior, we show in Figure 2 how the steps in Figure 1 can guide intervention design to demonstrate how and why the desired impact could be achieved (Brittain et al., 2020; Mayne,

2017). Figure 2 also shows how the steps described above can reduce the risk of unsupported assumptions in the casual links between actions and short-term outcomes. The assumptions linking short-term outcomes to long-term outcomes and impact need to be tested before embarking on a celebrity-endorsed behavioral change intervention. This requires a broad understanding of the context within which the behavioral system is embedded.

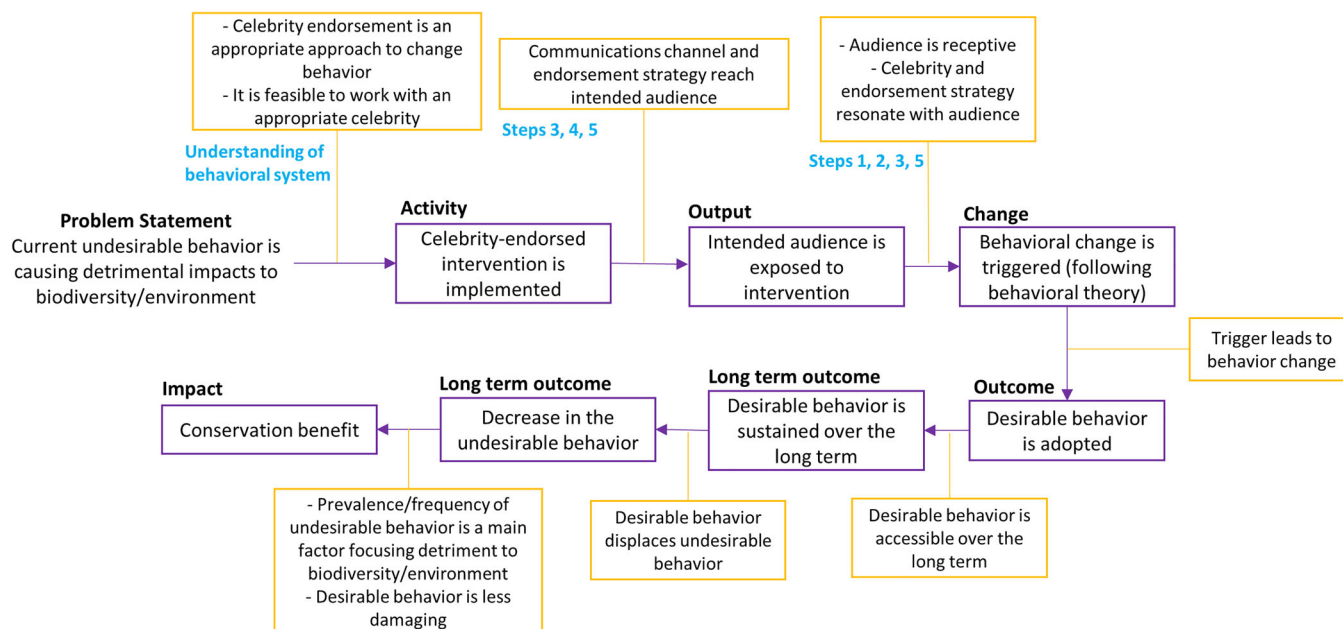
## Implementation (step 6)

After testing has provided evidence that the intervention can be effective, the next step is implementation. This includes monitoring and evaluation to enable intervention management, adaptation, and learning.

## CASE STUDY

We implemented steps 1–5 of the proposed guide to develop an intervention to reduce wild meat consumption in HCMC with particular reference to pangolin meat.





**FIGURE 2** Example of how the guide for decision-making of celebrity-endorsed behavioral intervention design can inform a theory of change for an intervention that seeks to achieve behavioral change through celebrity endorsement (yellow outline, assumptions in the causal links; green text, steps in Figure 1 that help reduce risk presented by assumptions; step 1, endorser model selection; step 2, celebrity endorser selection; step 3, endorsement strategy development; step 4, communication channels identified; step 5, testing with target audience).

## Problem statement

Pangolins (Manidae spp.) are threatened by illegal trade and consumption. Approximately 715,000 pangolins were trafficked globally from 2010 to 2019 (Challender et al., 2020). Although all 8 pangolin species are protected under national legislation in most range states and included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), illegal trade and consumption continue (Burgess et al., 2020). Overexploitation has led to severe population declines in parts of East and Southeast Asia (Challender et al., 2020). Trade data suggest that large quantities of pangolins and pangolin parts are traded illegally to Vietnam from international sources, including scales and meat from Southeast Asia and scales from a range of African countries (Heinrich et al., 2017; Ingram et al., 2019). For these reasons, demand reduction has been recognized as a priority intervention that could help mitigate the threat pangolins face from overexploitation (CITES, 2016).

## Behavioral system

Existing research provides evidence of pangolin meat consumption in urban centers of Vietnam (Sandali et al., 2016; Shairp et al., 2016). However, these studies did not account for potentially biased responses related to the purchase and consumption of pangolin products being illegal in Vietnam (Olmedo, Veríssimo, Milner-Gulland, et al., 2021). Using a specialized questioning method designed to elicit more accu-

rate responses when a behavior is sensitive, we estimated that 170,000 people a year could be consuming pangolin meat in HCMC, given the city's 8.4 million population (Olmedo, Veríssimo, Milner-Gulland, et al., 2021). This evidence suggests that consumption of pangolin meat by individuals in HCMC ought to be addressed, which could improve the conservation status of pangolins.

## Target audience

To gain further insights into the consumption of pangolin meat in HCMC, we conducted a study with respondents who had consumed meat from wild animals (hereafter referred to as wild meat) in restaurants in the city (Olmedo, Veríssimo, Challender, et al., 2021). We used a conceptual framing from the food-choice literature and focused on the consumption of wild meat in general, avoiding direct reference to pangolin meat consumption due to the known sensitivity of this topic (Olmedo, Veríssimo, Milner-Gulland, et al., 2021). We characterized and segmented wild meat consumers into 3 groups based on demographic and psychographic variables: up-and-coming professionals, classic consumers, and students. Although we found no significant differences between the groups' psychographic characteristics, they differed in their demographic profiles, agency (power to change their own behavior) in restaurants, and wild meat consumption habits (see Olmedo, Veríssimo, Challender, et al. [2021] for complete results).

In line with social marketing literature that suggests focusing on a high-impact behavior to achieve desirable outcomes (Lede

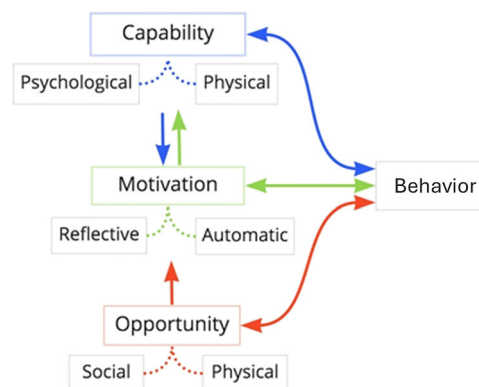
et al., 2019; Schultz, 2011), we sought to reduce the likelihood of individuals ordering wild meat at a restaurant, as opposed to an alternate dish. Among our groups, classic consumers were mostly individuals who received a basic education (completed high school, secondary, or vocational school), earned 5–10 million Vietnamese Dong (VND) per month, and were 36–55 years old. Classic consumers were significantly more likely than students to pay for a meal at a wild meat restaurant and to order a combination of wild and domesticated meat (e.g., beef) than the latter option alone (Olmedo, Veríssimo, Challender, et al., 2021). Classic consumers therefore had agency to select restaurants that serve wild meat and the ability to pay for meals and were likely to eat wild meat in these restaurants (Olmedo, Veríssimo, Challender, et al., 2021). For these reasons, we chose this group as our target audience.

To gain further insight into this group's wild meat consumption in restaurants, we conducted focus group discussions (FGD) with members of this group (methods and results in Appendix S1). This qualitative study confirmed the results of the broader survey in Olmedo, Veríssimo, Challender, et al. (2021). Both studies highlighted the importance of food-internal attributes (physical qualities of food, such as taste, smell, and texture) in driving wild meat consumption. The FGD allowed a deeper and richer understanding of the reasons for ordering and eating wild meat for this consumer group. The main reason for consuming wild meat, which the FGD participants highlighted, was to “change taste,” referring to eating something novel and different rather than dishes consumed regularly. Other reasons were the taste of the meat itself and food-external attributes (socially ascribed perceptions of consumption), such as wild meat being more “exciting” than other types of food, which not everybody consumes, and the meat being part of a meal bought to show respect to special guests. Wild meat's good pairing with alcohol and perceptions of its comparative healthiness (due to the belief that domestic animals are fed growth promoters) were also reasons for consumption.

Wild meat consumption was described as a social activity in which people partake with others. Although the restaurants that classic consumers usually frequented tended to serve wild meat alongside other dishes, offering special dishes such as wild meat was particularly expected when treating business partners, bosses, or clients (Appendix S1). We considered this social context in the design of our behavioral intervention and selection of potential celebrity endorsers.

## Behavior change model

We considered a range of behavioral models for our case study (Appendix S2). We selected the capability–opportunity–motivation B (COM-B) model (West & Michie, 2020), which is based on the assumption that capability, opportunity, and motivation must be present for a behavior to occur (Figure 3). Capability is the physical and psychological capacity to carry out a behavior; opportunity refers to the social and physical factors outside of the individual that render the behavior possible; and motivation is defined as the brain processes that lead to a behav-



**FIGURE 3** The COM-B (capability–opportunity–motivation B) model (capability, psychological and physical capacities to enact a behavior; motivation, automatic or reflective brain processes that lead to the behavior; opportunity, social and physical factors from the individual's environment that make the behavior possible) (adapted from West & Michie [2020]).

ior, including emotions and impulses (automatic) and evaluation and planning (reflective). Results summarized here (and presented in full in Olmedo, Veríssimo, Challender, et al. [2021] and Appendix S1) show that consumption of wild meat was not an automatic behavior, but rather a choice consumers made among alternative restaurants and dishes; thus, it is a reflective behavior. Wild meat is consumed in the same social context as other types of food (Olmedo, Veríssimo, Challender, et al., 2021). Qualitative results further supported this being a reflective behavior, given that price was identified as a barrier to consumption; consumers must decide whether to order wild meat or not depending on its price and their disposable income (Appendix S1). Exploring our behavioral system with the COM-B model therefore enabled us to identify a target behavior: consumers' reflective choice of wild meat versus potential alternatives in a restaurant setting.

These foundational insights led us to our celebrity endorsement guide (Figure 1), which entails identification of the problem statement, behavior to be modified, target audience, and focal behavior based on empirical research within the study system.

## Celebrity endorsement selection model (step 1)

Several models and theories have been proposed to explain how celebrity endorsement can persuade intended audiences (Table 1). These models provide evidence that celebrities can be effective in persuading people to change behavior if celebrities possess key attributes. To test whether wild meat consumers consider that celebrities possess these attributes, we conducted a quantitative exercise and follow-up qualitative research (Appendices S1 & S4). In the quantitative exercise, we asked wild meat consumers to list well-known individuals who possessed attributes described in celebrity models (e.g., being trustworthy [Table 1]). Respondents were then asked to rank 10 individuals according to who was more strongly associated with each attribute (Appendices S1 & S4). Our findings suggested that

celebrities could be effective messengers to address classic consumers' reflective motivation when consuming wild meat at restaurants, given that several famous individuals were perceived to possess messenger attributes found to influence behavior.

We evaluated a range of models and theories for celebrity endorsement effectiveness ahead of their application in our case study (Table 1). All of the models considered elements applicable to our case study (i.e., they highlighted celebrity attributes that resonate with our target audience) and could therefore be applied in an intervention to reduce consumption of wild meat. However, the source-credibility, source-attractiveness, and meaning-transfer models, along with the match-up hypothesis, all suggested single determinants of the effectiveness of celebrity endorsement. These were (respectively) credibility, attractiveness, socially ascribed meanings and images, and congruence. Qualitative research with our target audience suggested that celebrity attributes pertaining to all of these models may play a role in influencing our target audience (i.e., perceived credibility, likability, congruence with the target audience and product endorsed, and images associated with the celebrities [Appendix S1]). Therefore, we considered the value-proposition-centered framework, which combines all of the previously mentioned models, as the most appropriate to guide celebrity selection in this case study (Table 1).

Schimmelpfennig and Hunt (2020) propose a value-proposition-centered approach that accounts for intangible values that may be placed on an idea, brand, or product (e.g., emotional or expressive values). To identify an effective endorser, they put forward 5 value propositions of the product endorsed: provides best performance (describes a strategy for products for which the main value is qualitative or technical superiority, in which case the endorser must possess expertise in the product promoted); enhances physical attractiveness (for attractiveness-related products where the physical attractiveness of the endorser enhances their credibility); has a positive effect on a nominal decision (in a low-cognitive-involvement decision, such as purchasing fast-moving consumer goods, choice of product creates positive feelings when associated with celebrity endorsement due to the purchaser's liking the endorser); crafts a unique experience via endorser attributes (celebrity endorser and product promoted are congruent and therefore the endorser renders the advertisement more acceptable for the audience); and allows consumers to build their persona (purchasing a product serves to reinforce one's own identity and group membership, and the celebrity's socially ascribed meanings are in line with this identity, thus reinforcing a consumer's motivation to purchase) (Figure 4).

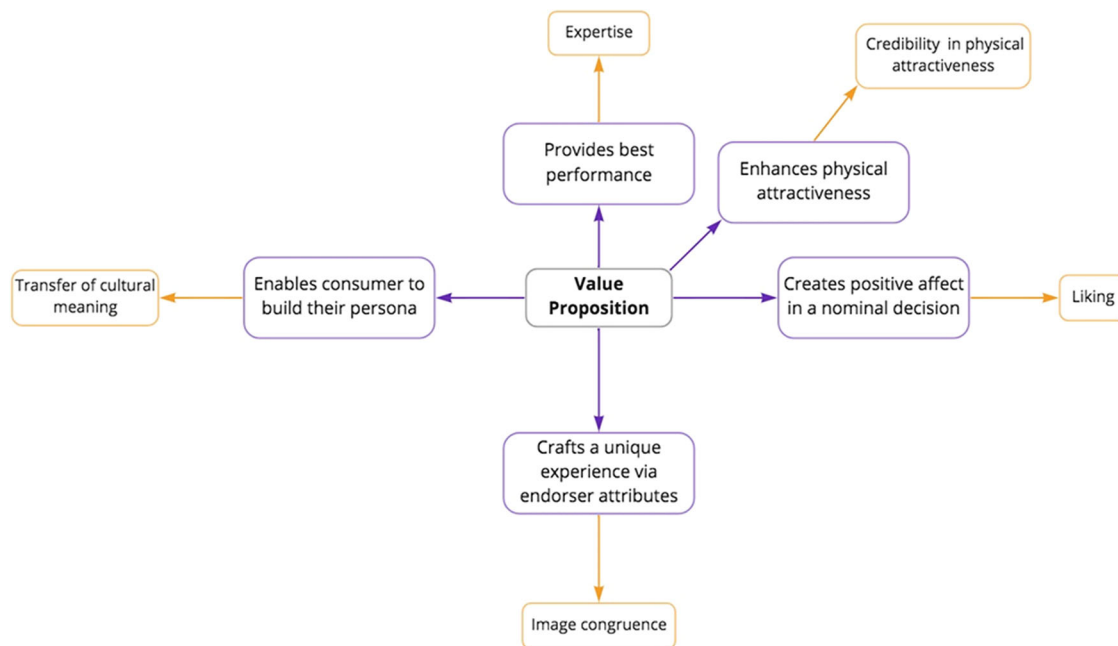
## Selecting a value proposition

We shortlisted celebrities who could potentially be effective in delivering messages to influence consumption of wild meat in HCMC based on the 5 elements of the value proposition model (Appendices S1 & S4). We used insights from the FGD to consider how our intervention could use celebrity endorsers

to put forward a substitute to wild meat that would resonate with classic consumers. We discarded *enhances physical attractiveness* because there was no evidence that motivation to consume wild meat is associated with physical appearance (Appendix S1). We also discarded *creates positive affect in a nominal decision* because this is described as effective in situations of low cognitive involvement (Schimmelpfennig & Hunt, 2020). Although our results indicated consumers are sometimes treated with a wild meat meal, and therefore do not make the choice themselves (Olmedo, Veríssimo, Challender, et al., 2021), classic consumers tended to actively choose wild meat restaurants or order wild meat.

We considered the enables-consumer-to-build-persona proposition because FGD results showed wild meat consumption is sometimes described as a way to show off. This has been described as a motivation for wild meat consumption in past research (Sandalj et al., 2016). However, food-internal attributes of the consumption experience were discussed at greater length in our qualitative study (Appendix S1) and were identified as the main reason wild meat was consumed in our previous study (Olmedo, Veríssimo, Challender, et al., 2021). Additionally, evidence does not suggest wild meat consumers consume these dishes as a means to identify themselves or demonstrate group membership, as described under this proposition (Schimmelpfennig & Hunt, 2020). Therefore, this proposition was also discarded.

The results of our FGD indicated that knowledge of or close association with food was important to classic consumers, which relates to the provides-best-performance proposition. Our evidence suggests that the most important attribute driving consumption of wild meat is taste (Olmedo, Veríssimo, Challender, et al., 2021) and that an alternative must satisfy the desire to change taste from ordinary, frequently consumed food. Hence, an alternative would need to be promoted as having a better, more novel, or at least similar taste to wild meat. Shortlisted celebrities who were perceived as persuasive were also considered trustworthy and were associated with dishes that are congruent with their image (Appendix S1). This congruency speaks to the final crafts-a-unique-experience proposition via endorser attributes, which takes its conceptual construct from the match-up hypothesis and contends that congruence between the endorser, the audience, and the concept endorsed will render the message more likely to be accepted by the target audience (Table 1). Perceptions of trustworthiness (honesty and believability) follow the provides-best-performance proposition, which is grounded in the source-credibility model and holds that endorsers who are perceived to be credible will contribute to an advertisement's effectiveness (Table 1). For these reasons, our intervention design combined the provides-best-performance and crafts-a-unique-experience-via-endorser-attributes propositions. The first proposition guides the selection of attributes that need to be highlighted through our endorsement (i.e., taste, change taste) and celebrity attributes (i.e., trustworthiness), and the second guides the selection of wild meat alternatives and the celebrities closely associated with them.



**FIGURE 4** Value-proposition-centered framework to guide celebrity endorsement strategy depicting 5 potential propositions (purple) and their respective celebrity endorsement strategy (yellow) (adapted from Schimmelpfennig & Hunt [2020]).

## Celebrity endorser selection (step 2)

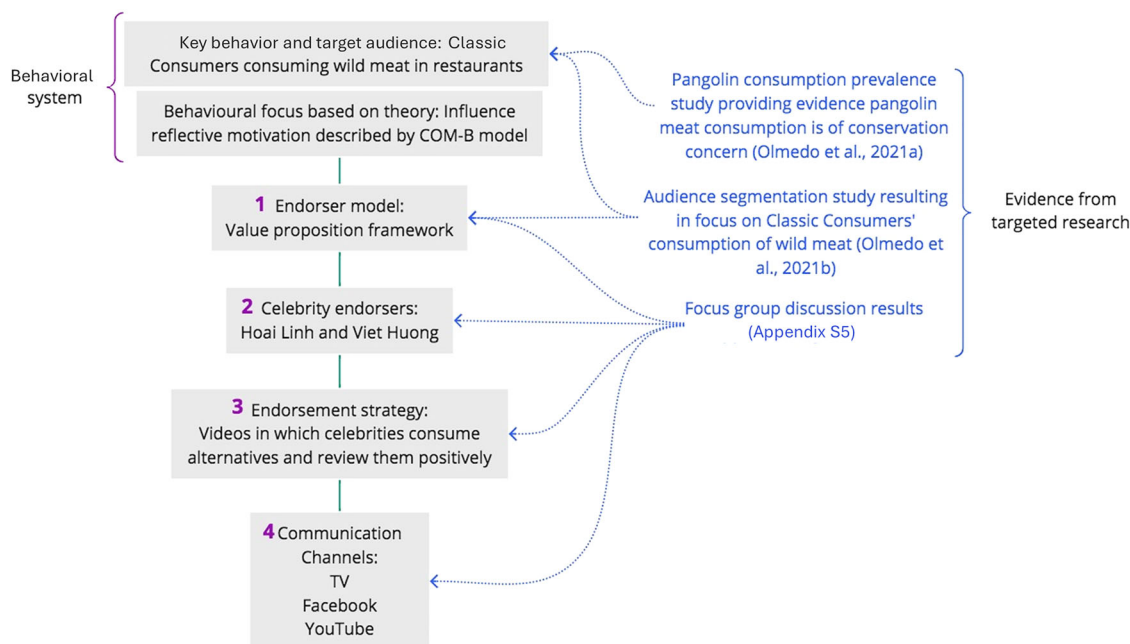
Our FGD indicated that the attributes that must be made salient in the endorsement of an alternative are reasonable price, atmosphere, service, taste, suitability for the social context of “boozing,” and a restaurant’s expertise in specializing in a single dish. A suggested alternative that fits these attributes was said to be a variety of food grilled in the southern Vietnamese style. Due to this food style’s affordability and popularity, participants stated that the most suitable celebrity to endorse it would be Celebrity A because these attributes were congruent with perceptions associated with him (Figure 5; Table 3; Appendix S1). Although other specific dishes were linked to Celebrity A, because of the importance of change taste, we selected grilled food because this refers to a range of food including meat (but not wild meat). In addition, Celebrity A was considered honest, believable, and persuasive and was strongly linked to the alternative proposed here and had congruence with the target audience (Figure 5). This suggested that Celebrity A had the appropriate image to endorse the alternative of grilled food to classic consumers (crafts a unique experience via endorser attributes proposition) and reflect its desirable attributes (provides best performance proposition).

Celebrity B, who was also considered trustworthy and persuasive, was associated with a specialty of the Mekong Delta, Chau Doc fish, and snail vermicelli. This dish was thought to be tasty and reasonably priced. Celebrity B was also associated with rice noodle soup and a snail restaurant but due to the associations of the first dish with multiple attributes, we selected Chau Doc fish and snail vermicelli as an alternative that could be effectively endorsed by Celebrity B (Appendix S1;

Table 3). The strong association of Celebrity B with this dish and her congruence with the social context and image of exploring novel dishes indicated Celebrity B also had the expertise to promote important qualities of the alternative (provides-best-performance proposition) and the correct image to do so (crafts-a-unique-experience-via-endorser-attributes proposition). However, it was unclear whether there was a perceived congruence between her and the target audience, given that participants in our qualitative study did not appear to relate to her in the same way as Celebrity A (Figure 5).

Celebrity C was associated with dishes that also matched perceptions of his personality as an endorser: novel, unique, special, and expensive dishes, such as crabs and rare snails. Celebrity C was associated with seafood, which is likely to satisfy the desire to “change taste,” although there is a potential risk to encouraging wild-caught seafood as a substitute for wild meat in that the switch may lead to the unsustainable consumption of wild-caught seafood (similar to the unintended consequences of shifting demand from rhinoceros horn to saiga antelope [*Saiga tatarica*] horn [Thomas-Walters et al., 2020]). Furthermore, negative perceptions of him and his influence, combined with the alternatives associated with him being associated with expensive food items, led us to decide against Celebrity C as a potential endorser for our intervention (Figure 5). Evidence from our qualitative study also indicated that he was unlikely to resonate with classic consumers and that his presence in an endorsement would suggest the advertisement speaks to a younger or more affluent audience. Furthermore, although some consumers of wild meat in HCMC may be wealthy, our research showed around one half of classic consumers earned an average income (VND 5–10 million) (General Statistics Office, 2018;





**FIGURE 5** Comparison of attributes of 4 celebrities considered for intervention to reduce wild meat consumption in Ho Chi Minh City (attributes from celebrity model in Figure 4 [blue]; green, perceptions and images associated with the celebrity; purple, type of food celebrity is associated with).

Olmedo, Veríssimo, Challender, et al., 2021), and our qualitative results suggested high price is a barrier for wild meat consumption (Appendix S1). Thus, our results indicated that promoting an affordable alternative to wild meat, rather than an expensive dish, would be more effective in reducing consumption. We also discarded Celebrity D because participants had negative perceptions of him (Figure 5; Table 3; Appendix S1). Neither Celebrity C nor Celebrity D was considered persuasive by our target audience; both were said to be likely to influence young people instead and, due to their ownership of restaurants, it was suggested their endorsement of food would be met with suspicion. Celebrity E was the only celebrity who was not considered to be relevant to food endorsement; thus, she was not considered further (Appendix S1).

## Endorsement strategy and communication channels (steps 3 and 4)

As part of our qualitative study, participants discussed what it would look like for a celebrity to endorse potential alternatives to wild meat. They described celebrities recording their exploration of alternate dishes on video and sharing their genuine opinion on camera. Considering the 5 strategies of celebrity endorsement in the decision guide, participant suggestions fit the strategy advertising disseminated in the media to inform or persuade (Ambroise & Albert, 2019).

Celebrity B had reviewed restaurants on her YouTube channel and Facebook page. Given her videos appeared to have been well received by our focus group, we proposed Celebrity B's endorsement strategy ought to be via a video similar to those

she produced in the past. Although our FGD results indicated YouTube and Facebook were not perceived as reliable channels, both platforms were known as channels on which Celebrity B shared her content. Therefore, her presence in a video and dissemination via her YouTube channel and Facebook page should prove the advertisement's authenticity. Furthermore, FGD results showed Facebook and YouTube were the channels most frequently used by our target audience; therefore, it was very likely classic consumers would be exposed to this endorsement.

Celebrity A was perceived as more traditional and was associated with the official government communication channel in Vietnam: television. We proposed a strategy similar to that for Celebrity B, but focused on grilled food in the southern style, to be broadcast on television and later disseminated on Facebook. The endorsement would benefit from the reliability of being broadcast on television and would later reach a wider audience on the social media platform, increasing the likelihood of reaching our target audience.

The insights gained from the empirical research enabled us to develop 2 potential intervention concepts that would address the consumption of wild meat in restaurants in HCMC (Table 2). The interventions would be aimed at the personal level, targeting motivation factors in the COM-B model (West & Michie, 2020). By promoting alternative restaurants and dishes, we targeted the reflective processes of ordering wild meat by highlighting the attractive attributes of alternatives through celebrity endorsement. The only barrier detected in association with wild meat consumption was price; a high price was said to limit classic consumers' frequency of wild meat consumption. Concerns about wild meat being fake, knowledge that

**TABLE 2** Proposed celebrity-endorsed behavioral intervention concepts developed following the value proposition model (Schimmelpfennig & Hunt 2020) and focus group discussion results (Appendix S1).

Proposed intervention	Alternative dish and attributes highlighted	Communications Channel
1	Celebrity B chooses to eat a special dish from the Mekong Delta (Chau Doc fish and snail vermicelli) instead of wild meat in a restaurant that resembles the outdoors in this region (e.g., open, garden-style, casual). She gives her opinion on the dish highlighting its tastiness (different from ordinary), the specialty of the restaurant, the atmosphere, and reasonable price	Broadcasted live on her YouTube channel and shared on her Facebook page
2	Celebrity A chooses a southern-style grilled food restaurant instead of one serving wild meat. The restaurant is garden style and casual, and he selects it to “change taste.” Celebrity A eats one or 2 dishes and highlights its good and different taste from everyday food, its freshness, good pairing with alcohol, reasonable price, restaurant atmosphere, and quick service.	Broadcast on television and disseminated through his Facebook page

*Note.* Following the provides-best-performance proposition, we identified the alternative dishes to wild meat attributes that must be made salient and the alternatives themselves. Following the crafts-a-unique-experience-via-endorser-attributes proposition, we identified the celebrities, alternative dishes, and communication channels.

wild animals consumed might be raised on farms, awareness of the illegality, and wildlife declines due to overexploitation were not deterrents to consumption (Appendix S1). Therefore, these elements were not referenced in our proposed interventions.

Positively framed messages (e.g., focus on benefits of an alternative) are more likely to be effective than those that stigmatize a behavior or attempt to instill a sense of shame or guilt (Mols et al., 2014; Schultz, 2011). Such negative messages might trigger members of the target audience to defy the message (Mols et al., 2014). Therefore, both interventions suggested in Table 2 were framed in a positive way.

## Testing and implementation (steps 5 and 6)

The next step was to test the proposed interventions with classic consumers (Figure 1). This is required to confirm that the advertisements resonate with the target audience and to ensure the alternatives are suitable for the various contexts in which wild meat is consumed (i.e., casually with friends and colleagues and to treat business partners and clients [Brown et al., 2008]).

Testing the proposed intervention concepts allowed for the development of a detailed theory of change that mapped out how the endorsement strategy, message, and celebrity endorser were expected to shift classic consumers' decisions regarding what type of food to eat (wild meat vs. alternative) in specific contexts. A theory of change also includes indicators to be measured at every step to allow for monitoring of the intervention and ensure that conditions for the desired behavioral change are met (Center for Theory of Change, 2021).

To test our intervention concepts (Table 2), we conducted a follow-up FGD with classic consumers in 2021 (methods and results in Appendix S1). Both concepts resonated with participants in that they were perceived as coherent, did not incite confusion or reactance, and were understood to be aimed at an audience similar to their profile. There was no indication of mismatches between the alternatives to wild meat consumption proposed by Celebrity B and Celebrity A and images associated with the celebrities and both individuals were perceived positively. This suggested that the provides-best-performance and creates-unique-experience-via-endorser-attributes propositions effectively guided development of a concept that would

be accepted by the target audience. Although Celebrity A was thought to be more popular than Celebrity B, he was allegedly involved in a scandal prior to the FGD, which meant FGD participants deemed him inappropriate for this intervention.

The dishes endorsed in the 2 concepts appeared to be congruent with the celebrities and liked by classic consumers, but they were not perceived to be appealing enough to replace the consumption of wild meat dishes. Specifically, the alternatives were not considered special enough, out of the ordinary, or fancy, and the restaurants did not appear to offer the atmosphere desired for meals with business clients (Appendix S1). The contrast of a high price for wild meat and a reasonable price for the alternatives presented in both concepts did not capture participants' attention and was therefore not convincing. The celebrities' rejection of a restaurant that serves wild meat was not picked up by participants. When asked why, they stated that it was not emotional and noticeable enough.

These results indicate that neither celebrity would be persuasive in this instance within the pretested concepts; thus, further testing would be needed prior to implementation. The alternatives proposed would not effectively replace wild meat, the reasons for rejecting the wild meat restaurants were not convincing, and the celebrities' rejection of these restaurants was not noticeable. Participants provided suggestions for alternative concepts that might be more effective in convincing other classic consumers not to consume wild meat, and they noted it would be necessary to identify another suitable, male celebrity for this particular intervention. Participants considered that Celebrity A may have been an appropriate choice before his reported scandal but not since.

Therefore, at this stage, moving to step 6, intervention, would not be advisable. Instead, next steps would involve adapting the concept to another male celebrity who more clearly rejected wild meat in favor of an alternative and retesting this concept for further feedback prior to implementation.

## CONCLUSION

There is a recognized need for guidance on the implementation of celebrity endorsement in conservation interventions (Ho

et al., 2020). Although various endorser selection models have been used in other fields to guide celebrity engagement, this practice remains limited in conservation (Olmedo et al., 2020). Our results highlight the importance of conducting targeted research to ensure decisions are evidence based at every step and how research results can be integrated into decision-making through a case study.

Application of the guide would not have been possible without carrying out multiple studies specific to our case study in HCMC prior to the celebrity testing itself. Conducting such research is time consuming and requires funding and capacity for data collection and analysis. However, as we demonstrated, such research is the foundation of effective design, implementation, and evaluation of behavioral interventions. Too often interventions lack underpinning research, which means their impact is potentially limited and not easily quantified (Kidd et al., 2019; Michie et al., 2011).

There are many practical complexities involved in the use of celebrities in interventions once the research and design phases are complete. For example, celebrity liaison officers routinely face problems related to tracking celebrities prior to making a request, accessing celebrities' time, and rejections of requests (Brockington, 2014b). We experienced a challenge of this type in our intervention concept testing: Celebrity A's scandal made him unsuitable. If we had conducted tests prior to the scandal and launched the intervention afterward, the change in audience perception would likely have caused the intervention to fail, despite rigorous underpinning research. Overall, although this guide is designed to offer best practices in the development of celebrity endorsement behavior change campaigns, following these steps does not guarantee success. There are inherent risks and vulnerabilities involved in using celebrity endorsers, and practitioners must weigh the time and effort expended in designing and implementing a celebrity-endorsed campaign against the expected beneficial behavioral change.

Although we applied our guide to the consumption of wildlife, it is widely applicable across fields. Celebrity endorsement is popular in the context of wildlife trade and consumption, but there are a number of other biodiversity and broad environmental problems to which celebrity endorsement has been applied, including climate change (Doyle et al., 2017). Using our decision guide would enable interveners to plan the use of celebrities strategically, thereby maximizing the likelihood of influencing human behavior and achieving conservation objectives. For example, the guide could be used, for example, to design interventions that promote the adoption of sustainable practices, such as eating environmentally friendly diets, opting for a waste-free lifestyle, and improving energy and water use. More broadly, application of the guide to environmental conservation and beyond will contribute to knowledge generation relative to celebrity endorsement. This has been called for across a wide range of disciplines that draw on the theory and practice of behavioral science (Eren-Erdogmus et al., 2016; Knoll & Matthes, 2017).

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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