Current Status and Design Strategies of Scenario Experimental Materials in Management Psychology Research

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Abstract

Although scenario experiments constitute a research design that simultaneously possesses internal validity and ecological validity within the domain of management psychology, detailed and normative guidelines for the design of scenario experiment materials remain lacking. Building upon this, the present study—following an introduction to the conceptualization, typology, and distinctions from situational priming methods of scenario experiments—conducted a coded analysis of 93 scenario experiments from 20 domestic and international management psychology journals over the past five years, and developed design strategies for scenario experiment materials across three phases: pre-design, design, and post-design. The pre-design phase focuses on the appropriateness of employing scenario experiments; the design phase concentrates on how to formulate initial material drafts, sequentially encompassing five sub-phases: determining scenario quantity, preliminary scenario design, selecting scenario media, standardizing scenario materials, and constructing realistic scenarios. The post-design phase emphasizes evaluating the authenticity and validity of the materials. Should the materials fail validation or require expansion, researchers should revert to the design phase for iterative modification or revision until compliance with standards is achieved. Future research may prioritize theoretical selection and utilize critical incident technique, information technology, and iterative decision-making scenarios to enhance the appropriateness, richness, and authenticity of scenario materials.

Full Text

The Vignette in Experimental Vignette Methodology: Current Status and Design Strategies in Managerial Psychology Research

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Abstract: Although experimental vignette methodology (EVM) enhances both internal and ecological validity, detailed and standardized guidance for designing vignettes remains lacking in management psychology. This study first introduces the definition, types, and distinctions between EVM and contextual priming methodology. Building on this foundation, we coded and analyzed 93 scenario experiments published in 20 major domestic and international management psychology journals over the past five years. From this analysis, we developed a comprehensive design strategy for vignettes across three stages: pre-design, design, and post-design. The pre-design stage focuses on determining whether EVM is appropriate for a given research question. The design stage addresses how to draft vignettes through five sub-stages: determining the number of vignettes, initial vignette design, selecting presentation media, standardizing vignette materials, and enhancing realism. The post-design stage evaluates whether vignettes achieve authenticity and validity. If vignettes fail these evaluations or require expansion, researchers should return to the design stage for continuous revision until they meet established standards. Future research should emphasize theoretical grounding and leverage critical incident technique, information technology, and iterative decision-making scenarios to improve vignette appropriateness, richness, and authenticity.

Keywords: experimental vignette methodology, vignette, design strategy, managerial psychology experiment

Experimental vignette methodology has emerged as a cutting-edge approach that balances internal and ecological validity, attracting increasing attention from management psychology scholars (Ng et al., 2020). This method involves researchers manipulating independent variables and controlling confounding factors through simulated real-world scenarios to observe how different situations affect individuals' cognition, emotion, and behavior. Despite its growing application in management psychology, traditional laboratory experiments and survey methods remain dominant (Freedman et al., 2018), likely because vignette design raises the methodological barrier to entry. Moreover, even studies employing EVM often feature inadequately standardized materials (Wason et al., 2002). Non-standardized vignette materials can easily generate validity threats such as framing effects, social desirability effects, and false responses (Antonakis, 2017), further underscoring the need for comprehensive vignette design guidelines.

While existing research has defined the methodological paradigm of EVM at

a broad level, these discussions typically focus on overall implementation procedures rather than the specific details of material design (Aguinis & Bradley, 2014). Although some studies have attempted to address this gap, they have been limited to design principles (Rungtusanatham et al., 2011; Wason et al., 2002) and have not systematically introduced comprehensive design strategies. Consequently, the question of "how to design vignettes for experimental vignette methodology" remains unresolved in management psychology. The absence of concrete, detailed, and standardized design guidelines has created challenges in material design, raised questions about validity, and hindered the broader adoption and development of EVM.

In light of these issues, this study aims to synthesize and develop design strategies for vignettes in management psychology experiments, providing scholars with a practical guide for designing and standardizing experimental materials. Our goal is to enhance the rigor and validity of EVM and promote its further development. We begin by clarifying the definition, types, and distinctions between EVM and contextual priming methodology. Next, based on coded data from 93 scenario experiments published in 20 authoritative domestic and international management psychology journals over the past five years, we systematically examine key aspects of vignette design and identify common problems. We then propose a comprehensive design strategy framework. Finally, we discuss future directions for vignette design.

2. Experimental Vignette Methodology

Experimental vignette methodology, also known as scenario experiments or the vignette method, is a research approach in which researchers manipulate independent variables and control confounding factors by simulating real-world scenarios, randomly assign participants to different experimental groups, and observe how various scenarios affect individual cognition, emotion, and behavior. As a core element, a vignette is a brief description that systematically integrates people, events, and objects (Atzmüller & Steiner, 2010), which can vividly simulate reality through media such as text or video to elicit authentic responses from participants (Hughes & Huby, 2002).

EVM encompasses multiple categories, detailed in Table 1 . Based on research purpose, vignettes can be divided into implicit decision-making and explicit decision-making scenarios (Aguinis & Bradley, 2014). The former requires participants to rank scenarios containing different attribute levels to understand the relative importance of each attribute, while the latter requires participants to make explicit judgments and choices, making it suitable for assessing clear processes and outcomes. Based on media format, vignettes can be categorized as single-sensory or multi-sensory media scenarios. Single-sensory approaches use text, images, or audio to engage one sensory modality, offering low cost, simplicity, and single-channel processing. Multi-sensory approaches employ video, digital media, or role-playing to engage multiple senses, but involve higher costs and more complex design processes. Based on implementation location, vi-

gnettes can be traditional laboratory-based or online scenarios, utilizing specialized equipment (e.g., VR) or internet platforms, respectively. Based on participant perspective, vignettes can be first-person or third-person scenarios, with the former requiring participants to imagine themselves as the protagonist and the latter requiring them to participate from an external viewpoint.

Table 1 Categories of Experimental Vignette Methodology

Category	Description	Characteristics
Implicit Decision-Making	Participants rank scenarios with different attribute levels to understand relative importance	Suitable for understanding implicit decision-making processes (why)
Explicit Decision-Making	Participants make explicit judgments and choices	Clear dependent variables, suitable for assessing explicit processes and outcomes
Single-Sensory Media	Uses text, images, audio to present vignettes	Low cost, simple implementation, single-channel processing (how)
Multi-Sensory Media	Uses video, digital media, role-playing to present vignettes	High cost, complex design process, multi-channel engagement
Traditional Laboratory	Conducted in labs with specialized equipment (e.g., VR)	Fewer media limitations, high internal validity (where)
Online	Uses internet platforms (e.g., Credamo) to recruit participants and conduct experiments	Low cost, optimized external validity, convenient implementation
First-Person Perspective	Participants imagine themselves as the protagonist in the scenario	High immersion (who)
Third-Person Perspective	Participants engage from an external viewpoint	Objective evaluation

Existing literature often conflates contextual priming with experimental vignette methodology because both are experimental approaches that utilize contextual scenarios. However, based on their definitions, we identify three key differences, summarized in Table 2 . First, regarding methodological characteristics, contextual priming uses experimental stimuli to activate a psychological process, placing participants in a readiness state that unconsciously influences

subsequent unrelated tasks (Zhang, Y., & Xin, Z., 2016). In contrast, EVM does not require such a preparatory state; participants respond directly to experimental stimuli through immersion. Second, regarding scenario characteristics, contextual priming materials need not simulate reality, whereas EVM materials must be modeled on real-world situations. Third, regarding manipulated variables, contextual priming can only manipulate psychological variables such as cognitive representations (Bargh & Chartrand, 2000), while EVM can manipulate not only psychological variables but also environmental, behavioral, and relational variables, making it more broadly applicable. These methodological differences also dictate different techniques: word search tasks are commonly used in contextual priming, while reading materials and video viewing are more frequently employed in EVM.

Table 2 Conceptual Distinctions Between Experimental Vignette Methodology and Contextual Priming

Concept	Definition	Scenario Characteristics	Manipulated Variables	Common Techniques
Experimental Vignette Methodology	Researchers manipulate independent variables and control confounding factors by simulating real-world scenarios, randomly assigning participants to groups to observe effects on cognition, emotion, and behavior	Simulates reality	Psychological, environmental, behavioral, and relational variables	Reading materials, video viewing

Concept	Definition	Scenario Characteristics	Manipulated Variables	Common Techniques
Contextual Priming	Researchers use prior unrelated stimuli to activate a psychological process, creating a readiness state that unconsciously influences subsequent tasks	Need not simulate reality	Psychological variables only	Word search tasks
Commonalities	Both are experimental methods; contextual scenarios are an application modality			

3. Current Status of Vignette Design in Management Psychology

This section uses the three-stage framework of pre-design, design, and post-design to code scenario experiments published between January 2019 and May 2023 in 20 authoritative domestic and international management psychology journals, summarizing the current status and methodological issues in vignette design.

3.1.1 Literature Search and Screening

Following PRISMA guidelines (Moher et al., 2010), we retrieved and screened journal articles, with the process illustrated in Figure 1 [Figure 1: see original paper].

Search. We searched Chinese databases (CNKI, Wanfang, VIP) and English databases (Web of Science, EBSCO). Chinese search terms included "scenario experiment, situational experiment, scenario simulation, situational simulation, situational story, role-playing"; English terms included "vignette, paper people, scenario study or scenario experiment." Given that FT50 journals feature standardized, transparent vignette designs, we selected mainstream management psychology journals from the FT50 list: *Journal of Management*, *Journal of Applied Psychology*, *Academy of Management Journal*, *Journal of Business Ethics*, *Organizational Behavior and Human Decision Processes*, *Organization Studies*, *Human Resource Management*, *Organization Science*, *Human Relations*, *Journal of International Business Studies*, *Journal of Management Studies*, and *Administrative Science Quarterly*. We also included *Personnel Psychology*, *Journal of Organizational Behavior*, *Leadership Quarterly*, and *Journal of Vocational Behavior* as reputable journals in the field. Chinese journals were *Acta Psychologica Sinica*, *Psychological Science*, *Management World*, and *Nankai Business Review*. Since Aguinis and Bradley's (2014) seminal methodological discussion of EVM has seen citation rates rise sharply since 2019, and because research purposes require vignettes to be standardized, complete, and transparent—criteria early studies rarely met (Baguley et al., 2022)—we limited our search to January 2019–May 2023.

Initial screening. We screened titles and abstracts, including management psychology literature and excluding non-empirical studies.

Secondary screening. We read full texts of initially qualified studies, excluding those that did not employ EVM or describe vignette design strategies.

Inclusion. The final analysis included 72 articles (7 Chinese, 65 English) comprising 93 scenario experiments. Two researchers independently completed all stages, discussing and resolving discrepancies through re-examination.

3.1.2 Coding

We analyzed the current state of vignette design in management psychology across pre-design, design, and post-design stages. Based on research in other fields (Matza et al., 2021) and the characteristics of EVM, we pre-specified five sub-stages for the design phase: determining the number of vignettes, initial vignette design, selecting presentation media, standardizing vignette materials, and enhancing realism. The post-design stage focused on whether vignette drafts achieved authenticity and validity.

3.1.3 Inter-coder Reliability

Two coders independently coded the data, and we calculated inter-coder reliability using Holsti's (1969) formula, achieving a reliability coefficient of 0.978. Discrepancies were resolved through discussion.

3.2.1 Pre-Design Stage Status

Our classification of manipulated variables revealed that research topics primarily involved ethical sensitivity (30.55%), leadership (26.39%), and employee work behavior (19.44%). Power/status, interpersonal relationships, and work-family conflict also appeared, though team management variables were rarely manipulated (5.56%). Regarding variable types, 52.78% involved behavioral variables, 26.39% cognitive variables, and 12.5% situational variables, with examples including leadership style, organizational identification, and team task interdependence. Interaction relationships (e.g., supervisor-subordinate relations), individual characteristics (e.g., disability type), and emotional states (e.g., sincerity) were also represented.

3.2.2 Design Stage Status

Our coding revealed that the five pre-specified sub-stages adequately covered essential design tasks, making them useful for synthesizing design strategies.

(1) Determining the number of vignettes. Vignette materials consist of background and manipulation components, so the total number depends on both. Results showed that in 97.85% of experiments, all vignette versions shared a single, identical background. Only 2.15% used two or more backgrounds, implemented either as between-subjects designs (different groups read different backgrounds) or within-subjects designs (same participants sequentially read different backgrounds). For manipulation materials, multi-factor experiments commonly employed factorial designs, making the number of manipulation materials a function of the number and levels of manipulated variables.

(2) Initial vignette design. Researchers must design both background and manipulation materials. Common background design approaches include adopting existing materials verbatim, adapting them, or creating original designs. Manipulation materials similarly can be adopted, adapted from existing materials or measurement scales, or originally designed. When designing backgrounds or manipulations de novo, researchers can gather material through interviews, field studies, real-world practices, and official reports, then screen and process these to form initial vignettes.

(3) Media selection. Diverse media formats were used: text (94.62%), images (9.68%), video (6.45%), role-playing (4.30%), audio (3.23%), and interactive websites (1.08%). Additionally, 20.43% employed mixed media, with text-plus-image being most common.

(4) Vignette standardization. Standardization typically involved six approaches: symmetrical design, consistent length/duration, fictionalized names, character gender control, clear and accurate wording, and emphasis of key content. Text materials were typically 100–300 characters or English words. Gender control methods included gender specification, neutralization, random assignment, and gender manipulation. However, 10.75%, 27.96%, 33.33%, 34.41%, 2.15%, and 58.06% of studies failed to employ these standardization approaches, respectively, indicating that many researchers neglect this crucial step.

(5) Enhancing realism. 62.37% of experiments took no measures to enhance realism, leaving them vulnerable to questions about whether they authentically reflect the real world. We identified six approaches to increase authenticity: drawing from real-world events (54.29%), using immersive media (31.43%), strategically arranging experimental procedures (20.00%), presenting relevant images (8.57%), using real names (2.86%), and mimicking media styles (2.86%). Among studies that attempted to enhance realism, 25.71% used multiple approaches.

3.2.3 Post-Design Stage Status

(1) Vignette evaluation. Evaluation covered authenticity, content validity, and construct validity, using qualitative or quantitative methods. Authenticity was evaluated qualitatively in 3.23% of studies and quantitatively in 11.83%. Content validity was evaluated qualitatively in 3.23% and quantitatively in 2.15%. Construct validity was primarily assessed through quantitative manipulation checks (91.40%), highlighting both the prevalence of quantitative methods and the need for greater attention to authenticity and content validity. Two additional issues emerged: only 17.20% evaluated vignettes before formal experiments, risking wasted resources from poorly designed studies, and 8.60% conducted no manipulation checks. Among studies with manipulation checks, direct (85.88%), discriminant (7.06%), and instructional (47.06%) forms were used, suggesting researchers could verify activation of intended constructs but not eliminate concerns about unintended variables.

(2) Vignette extension. Sixteen articles conducted multiple scenario experiments to enhance external validity through varied scenarios. Operationalization involved changing background information (58.82%), manipulation methods (35.29%), or manipulation levels (11.76%). 35.29% combined these approaches, with background changes plus manipulation method changes being most popular.

4. Design Strategies for Vignettes in Management Psychology

Vignette design comprises three stages: pre-design, design, and post-design, as illustrated in Figure 2 [Figure 2: see original paper]. The first step is determining whether to use EVM (pre-design stage). Next, in the design stage, researchers

draft vignettes through five sub-stages: determining the number of vignettes, initial design, selecting media, standardizing materials, and enhancing realism. In the post-design stage, drafts must be evaluated for authenticity, content validity, and construct validity. If vignettes fail evaluation or require expansion, researchers should return to the design stage for revision until they meet five criteria: alignment with research topics, accurate activation of intended variable levels, inclusion of necessary information, control of confounding factors, and authentic reflection of reality.

Figure 2 Vignette Design Process

4.1 Pre-Design Stage

Before designing vignettes, researchers should determine whether EVM is appropriate for their study. We outline two scenarios to guide this decision: appropriate and inappropriate applications, with details and examples in Table 3 .

Table 3 Pre-Design Stage Strategies

Design Strategy	Content	Examples
Appropriate Applications	Difficult sample access; sensitive research topics; manipulated variables involve social interaction variables or relationships (cognition, power, status, behavior of interaction parties; organizational/team/work characteristics)	Coyne et al. (2019); Zhong et al. (2023); Pieper et al. (2019); Hu, Q., et al. (2021)

Design Strategy	Content	Examples
Inappropriate Applications	Core variables cannot be effectively manipulated; virtual scenarios cannot adequately reflect reality (stable personality traits, demographics, cognitive styles, values; mergers, system dynamics)	—

4.1.1 Appropriate Applications Difficult sample access. When target samples for surveys or secondary data are hard to obtain, EVM offers a viable alternative. Compared to traditional experiments, EVM can address diverse topics efficiently and cost-effectively. Its logic of simulating real-world scenarios to elicit realistic responses (Aguinis & Bradley, 2014) allows researchers to bypass direct sample recruitment.

Sensitive research topics. When studying sensitive topics (e.g., abusive supervision), traditional methods may cause psychological harm, leading to avoidance and ethical concerns. EVM creates psychological distance between participants and research objects through virtual scenarios (Bradbury-Jones et al., 2014), protecting participants while enabling investigation of sensitive issues.

Suitable variable types. EVM is particularly appropriate for variables involving social interactions or relationships, including: (1) participants' cognition, power, status, and behavior; (2) characteristics of interaction partners (colleagues, leaders) such as power, status, traits, cognition, behavior, and demographics; and (3) contextual variables like organizational, team, and work characteristics. When manipulating participant psychology, researchers typically manipulate third-party behaviors or external environments. When manipulating participant behavior, researchers can use protagonist imagination or construct scenarios that prompt relevant actions. Other variables can be manipulated directly.

However, researchers should exercise caution due to three common criticisms: (1) limited external validity—though scenario variation is possible, EVM cannot exhaust all contexts and remains distant from reality (Klebe et al., 2021); (2) behavior vs. intention discrepancy—EVM often measures intentions rather than actual behaviors, risking overgeneralization (Klebe et al., 2021); and (3) interpretation issues—causal inference may be compromised by differences in

information processing, personal experiences, insufficient vignette information, and specific element interference (Matza et al., 2021).

4.1.2 Inappropriate Applications Given that EVM is both experimental and purports to be realistic, we identify two inappropriate scenarios to prevent misuse: (1) when core variables cannot be effectively manipulated (e.g., stable personality traits, demographics, cognitive styles, values)—participants may fail to identify with contrasting virtual characters, preventing accurate activation of intended variable levels; and (2) when virtual scenarios cannot adequately capture reality (e.g., dynamic complexities of merger decisions)—participant responses to virtual and real scenarios would differ substantially, undermining precise investigation of underlying psychological mechanisms.

4.2 Design Stage

Vignettes consist of background and manipulation materials. Background provides the stage for scenario development, conveying necessary information about characters, relationships, time/place, work characteristics, and manipulation 铺垫 while controlling confounding factors (Rungtusanatham et al., 2011). Manipulation materials depict different levels of manipulated variables. For example, in Ling et al. (2019), the background established a company setting with a manager-subordinate relationship, while manipulation materials described varying levels of supervisor-subordinate closeness.

The design stage involves five sub-stages to draft background and manipulation materials, with research examples in Table 4 .

Table 4 Design Stage Strategies

Sub-stage	Strategy & Content	Examples
Determine Number of Vignettes	Background: Single vs. multiple backgrounds (between/within-subjects) for enhanced external validity. Manipulation: Number equals product of variables and levels.	Cook & Kuhn (2021); Coyne et al. (2019)

Sub-stage	Strategy & Content	Examples
Initial Design	**Top-down:** Adapt existing materials; base on variable concepts, theories, antecedents. **Bottom-up:** When literature is insufficient, gather raw materials (interviews, reports, practices), classify/screen by variable levels, then integrate.	Zhong et al. (2023); Hassan et al. (2021); Ling et al. (2019); Hurst et al. (2019); Jiang, X., et al. (2022); Pieper et al. (2019); Cook & Kuhn (2021); Hu, Q., et al. (2021)
Select Media	Text, images, audio, video, interactive websites, role-playing, mixed media. Selection based on research topic and trade-off between realism and cost.	Jiang, X., et al. (2022); Amarnani et al. (2022); Smallfield et al. (2020); Greenwood et al. (2022); Liao et al. (2023); Pieper et al. (2019)
Standardize Materials	Symmetrical design, consistent information load, fictional names, gender control, clear wording, key content emphasis.	Ling et al. (2019); Zhong et al. (2023); Cheng et al. (2023); Levine & Wald (2020); Hu, Q., et al. (2021); Ritzenhöfer et al. (2019); Liao et al. (2023)
Enhance Realism	Draw from real world, strategic procedure arrangement, immersive media, relevant images, real names, mimic media styles.	Cook & Kuhn (2021); Paustian et al. (2023); Hu, Q., et al. (2021); Smallfield et al. (2020); Pieper et al. (2019); Greenwood et al. (2022)

4.2.1 Determine Number of Vignettes The first design question—"which scenarios to create"—can be abstracted as a function of background and manipulation material quantities.

For background materials, researchers choose between single or multiple backgrounds. Single backgrounds are shared across all vignette versions, while multiple backgrounds involve two or more distinct contexts. Multiple backgrounds enhance external validity and can use between- or within-subjects designs, though within-subjects designs are preferable as they avoid alternative explanations.

For manipulation materials, the number typically equals the product of manipulated variables and their levels (Atzmüller & Steiner, 2010). Variable and level selection should be theory-driven (Aguinis & Bradley, 2014), with control variables manipulated when necessary to rule out confounds.

4.2.2 Initial Vignette Design This central design stage follows two approaches: adoption and original design, with the latter including top-down and bottom-up methods (see Figure 3 [Figure 3: see original paper]).

Adoption. Researchers should first consider adopting existing vignettes related to their manipulated variables, as validated materials enhance credibility. However, three issues require consideration: cultural applicability, conceptual comprehensiveness, and translation accuracy. Additionally, not all existing materials have undergone rigorous validation, so caution is warranted.

Top-down method. This approach designs vignettes based on existing literature. For backgrounds, literature review clarifies necessary information for participant understanding and story completeness. Researchers can adapt existing backgrounds or develop new ones based on variable concepts, antecedents, and theories (Hassan et al., 2021; Zhong et al., 2023). For manipulations, three design modes exist: adapting existing materials, rewriting measurement scales, or developing materials based on variable definitions, theories, and research (Ling et al., 2019; Hurst et al., 2019). Mode three requires clear construct definition, theoretical boundaries, differentiation from related concepts, and theory-based justification for manipulations.

Bottom-up method. Used when literature is insufficient, this approach involves: (1) gathering raw materials through interviews, official reports, or other studies (Hu, Q., et al., 2021; Rice et al., 2023; Pieper et al., 2019); (2) classifying and screening materials by manipulation levels using expert ratings or surveys; and (3) integrating qualified materials into initial vignettes. Background design follows similar steps, with sources including practice, participant information, and online materials (Becker et al., 2023; Cook & Kuhn, 2021; Liu et al., 2021), screened for necessity, credibility, and relevance. The two methods can be combined, as demonstrated by Hu, Q., et al. (2021).

4.2.3 Select Presentation Media Media visualize vignettes. To bridge participants and materials, researchers choose from six formats: text, images, audio,

video, interactive websites, and role-playing. Realism increases across these formats, enhancing immersion and ecological validity but risking confounds and higher costs (Eckerd et al., 2021). Selection should consider research topic and the realism-cost trade-off. Different media vary in effectiveness for specific topics—for instance, text elicits moral judgments while VR prompts moral behavior in ethics research (Terbeck et al., 2021). Researchers should balance these factors based on their specific circumstances.

4.2.4 Standardize Vignette Materials Standardization controls confounds and improves estimation of core relationships. Six universal principles apply: (1) **Symmetrical design**—manipulation materials should match in sentence structure, wording, plot, structure, and format across conditions, as asymmetrical designs can cause framing effects (Wason et al., 2002); (2) **Consistent information load**—vignettes should be similar in length, duration, and difficulty to avoid introducing confounds, though information overload should be avoided. Most studies limit text to 100–300 characters/words, with backgrounds and manipulations at 50–150 and 50–200 words, respectively; (3) **Fictional names**—prevent interference from real names; (4) **Gender control**—through specification, neutralization, random assignment, or manipulation (Ritzenhöfer et al., 2019); (5) **Clear, accurate wording**—avoid jargon, rhetoric, ambiguity, uncertainty, and emotional language; (6) **Key content emphasis**—use italics, bold, font size, or color for text; tone and intonation for audio. However, excessive emphasis may distract participants (Matza et al., 2021). Additionally, explicitly stating character ages improves response consistency, as age-matching assumptions are often overlooked (Grol-Prokopczyk, 2014).

Special cases require additional considerations: for images, size, resolution, and position should be consistent; for videos, actor attractiveness and background complexity may introduce alternative explanations; for third-person perspectives, objective evaluation methods may reduce social desirability. Researchers should identify and address confounds based on theory (Bernerth & Aguinis, 2016).

4.2.5 Enhance Realism Authenticity is EVM's key feature and advantage (Jared, 2019). Realism enhancement should be embedded across all sub-stages.

In initial design, real-world sourcing and strategic procedure arrangement help build familiar contexts (Paustian et al., 2023). For manipulation materials, interview-based sourcing enhances authenticity. In media selection, video and interactive websites provide multi-sensory experiences, while relevant scene images increase credibility. In standardization, mimicking writing styles and layouts of websites or apps creates immersive browsing experiences. Real names and first-person perspectives also enhance realism.

Researchers must balance standardization and realism, as increased authenticity may introduce confounds (Eckerd et al., 2021). Theory-based control of these confounds is essential. For difficult-to-control factors, researchers can use

pretest authenticity evaluations to make trade-offs or conduct multiple scenario experiments with different versions. For example, real company names increase realism but may introduce prior knowledge interference; researchers can evaluate whether vignettes are credible without real names or compare results across real and fictional name conditions.

4.3 Post-Design Stage

Vignettes from the design stage cannot be used directly in formal experiments without evaluation of their authenticity, clarity, completeness, and effectiveness in activating intended variable levels. The post-design stage therefore focuses on evaluating and refining vignettes until they meet standards, and considering how to extend vignettes to enhance external validity. Relevant studies are summarized in Table 5 .

Table 5 Post-Design Stage Strategies

Strategy	Content	Examples
Evaluate Vignettes	**Authenticity:** Qualitative (expert panel on familiarity/immersion) or quantitative (scales in pretests)	Becker et al. (2023)
	Content validity: Qualitative (expert panel on clarity, relevance, completeness) or quantitative (CVI, scales)	Coyne et al. (2019)
	Construct validity: Manipulation checks in pretests (quantitative)	Zhong et al. (2023)
Extend Vignettes	**Rewrite:** Change storylines, character occupations/industries, perspectives, delete irrelevant information, control additional variables	Jiang, X., et al. (2022); Levine & Wald (2020); Ling, W., et al. (2019)

Strategy	Content	Examples
	Design new: Change manipulation levels or methods	—

4.3.1 Evaluate Vignettes Researchers should assess authenticity, content validity, and construct validity to ensure vignettes are realistic, clear, complete, and successfully manipulate intended constructs.

Authenticity evaluation uses qualitative or quantitative methods. Qualitatively, researchers recruit review panels (not necessarily familiar with the research) to evaluate familiarity and immersion (Rungtusanatham et al., 2011). Quantitatively, scales can be used in pretests (e.g., Pilling et al.'s 4-item scale).

Content validity evaluation assesses clarity, relevance, and completeness. Qualitatively, expert panels identify confusing terms and evaluate whether manipulations match constructs and provide necessary information. Quantitatively, the Content Validity Index (CVI) can be calculated: experts rate clarity, relevance, and importance on 1–3 scales; CVI equals the proportion of experts giving a rating of 3; values >0.8 indicate acceptable validity (Marie et al., 2021). Scales can also assess wording clarity in pretests. Most studies implicitly assume authenticity and clarity, neglecting formal evaluation, which can lead to superficial responses and cognitive biases (Harrits & Møller, 2021). Therefore, authenticity and content validity evaluations should be independent, emphasized steps.

Construct validity evaluation uses manipulation checks in pretests to verify experimental effectiveness. Researchers should employ three forms: direct checks (verify intended construct activation), discriminant checks (rule out alternative explanations), and instructional checks (with objective answers to screen inattentive participants). After evaluation, researchers should revise problematic vignettes based on feedback until they meet standards, using qualitative and quantitative methods complementarily.

4.3.2 Extend Vignettes When evaluation results are satisfactory, vignettes can be used. However, since realism enhancement relies on specific situations, researchers should consider whether additional scenario experiments are needed to improve external validity. If so, vignettes should be extended.

Rewriting existing materials is an efficient option. Researchers typically focus on backgrounds, extending materials through storyline changes, character occupation/industry modifications, perspective shifts, irrelevant information deletion, and additional variable control. For example, Ling, W., et al. (2019) specified character industries and redefined managers as R&D personnel. Since manipulation materials remain unchanged and validated, only background standardization, enhancement, and evaluation are needed. If manipulation levels or

methods are changed, the full design process must be repeated.

4.4 Illustrative Example

Several coded articles align with our design strategies (Amarnani et al., 2022; Bode et al., 2022). We demonstrate our framework using Amarnani et al.'s study, which examined how customer mistreatment affects customer-directed organizational citizenship behaviors.

Pre-design: The research aimed to investigate causal effects with a manipulable behavioral variable (others' behavior) in a non-dynamic context, making EVM appropriate.

Design stage: (1) **Number of vignettes:** Single background (common practice) with a single-factor design (customer mistreatment: present vs. absent), yielding 2 vignettes. (2) **Initial design:** Using a bottom-up approach, interviews with service industry employees created background materials (telecom customer service center context). Manipulation materials combined bottom-up (interview data) and top-down (variable definition) approaches. (3) **Media selection:** Mixed media (text + audio) suited to the customer service context. (4) **Standardization:** Symmetrical design, similar duration (~50s), clear wording, fictional company name (XYA Services Ltd), same voice actor, and emphasis through tone. (5) **Realism enhancement:** Real-world sourcing from interviews; audio voicemail format.

Post-design: Pretests evaluated authenticity (credibility ratings) and construct validity (manipulation checks). Materials were revised based on participant feedback.

5. Future Directions

5.1 Integrating Critical Incident Technique with Vignette Design

Future research should employ critical incident technique (CIT) in vignette design. CIT gathers critical incidents from individuals to explore their emotional, cognitive, and behavioral impacts (Liu, Z., et al., 2020). When manipulating specific emotions, cognitions, or behaviors, researchers can first ask separate samples to recall relevant critical incidents, then design experimental materials based on these events.

5.2 Leveraging Information Technology to Enhance Realism

Information technology can enhance vignette authenticity. VR technology supports realism and immersion: for static physical spaces (e.g., office privacy), researchers can create VR panoramas; for conversational scenarios, VR digital humans can simulate interactions; for uncommon, interactive contexts (e.g., mine escape scenarios), VR wearables can be used. For online interaction scenarios, software can simulate interactive processes.

5.3 Designing Iterative Decision-Making Vignettes for Real Behavioral Data

Existing vignettes for behavioral manipulation typically involve simple text paragraphs with low participant engagement. Iterative decision-making vignettes optimize this by allowing participant choice rather than random assignment. For example, in moral licensing research, traditional vignettes randomly assign participants to moral vs. non-moral conditions, whereas iterative vignettes allow participants to choose whether to engage in moral behavior. Future research should design such vignettes to obtain authentic, rich behavioral process data. Platforms like Twine already support this development (Freedman et al., 2018).

5.4 Emphasizing Theoretical Guidance and Appropriateness Judgments in Vignette Design

Future research should prioritize theoretical guidance and appropriateness assessment. **Pre-design:** Researchers should select EVM based on research purpose, topic, resources, and variable characteristics, while acknowledging common criticisms (low external validity, over-structuring) and combining EVM with other methods. **Design stage:** Variable selection and level determination must be theory-driven. When drafting manipulations, researchers should clarify core construct features, theoretical boundaries, and manipulation levels (individual vs. team) before adopting, adapting, or creating materials. Standardization also requires theory-based identification and control of confounds. For backgrounds, theoretical considerations determine whether multiple backgrounds are needed, and what contextual details to include. **Post-design:** Researchers should use expert panels, CVI (Marie et al., 2021), and manipulation checks to assess authenticity, clarity, and effectiveness.

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