

Different Ways to Present a Discrete Choice Experiment (DCE) to Respondents: A Scoping Review

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Introduction and Aim of Study

Presentation of a DCE refers to what respondents see in the DCE, including all the information presented prior to the survey and within the choice set/s. A growing number of studies across many disciplines have sought to investigate the impact of presentation differences in a DCE on the resulting findings. This includes investigations into the impact of framing effects, and presentation of specific attributes such as 'risk' in health care-related DCEs.

However, as far as the authors are aware, there has been no review dedicated to investigating the DCE literature as a whole in relation to the influence of differences in DCE presentation on results. Hence the aim of this study is to conduct a scoping review in order to identify and summarise existing literature that compares DCE presentation differences using between-subject designs.

Methods

Figure 1 provides an overview of the screening process. In order to be included in the review, the focus of the study must be a DCE where respondents must accept or reject an option or choose between two or more options. The DCE must include at least a single attribute with at least two levels. The study must also include at least two arms where the presentation of the DCE is different in some way. The study must also be in English and be peer reviewed article or be a relevant systematic review or dissertation.

The literature search was intended to be broad to capture as many studies as possible, so no restriction was placed on the discipline area for included studies. A number of data bases were searched including EBSCO Host, Pubmed, Scopus (Elsevier) and Web of Science Core Collection.

Figure 1: Screening process

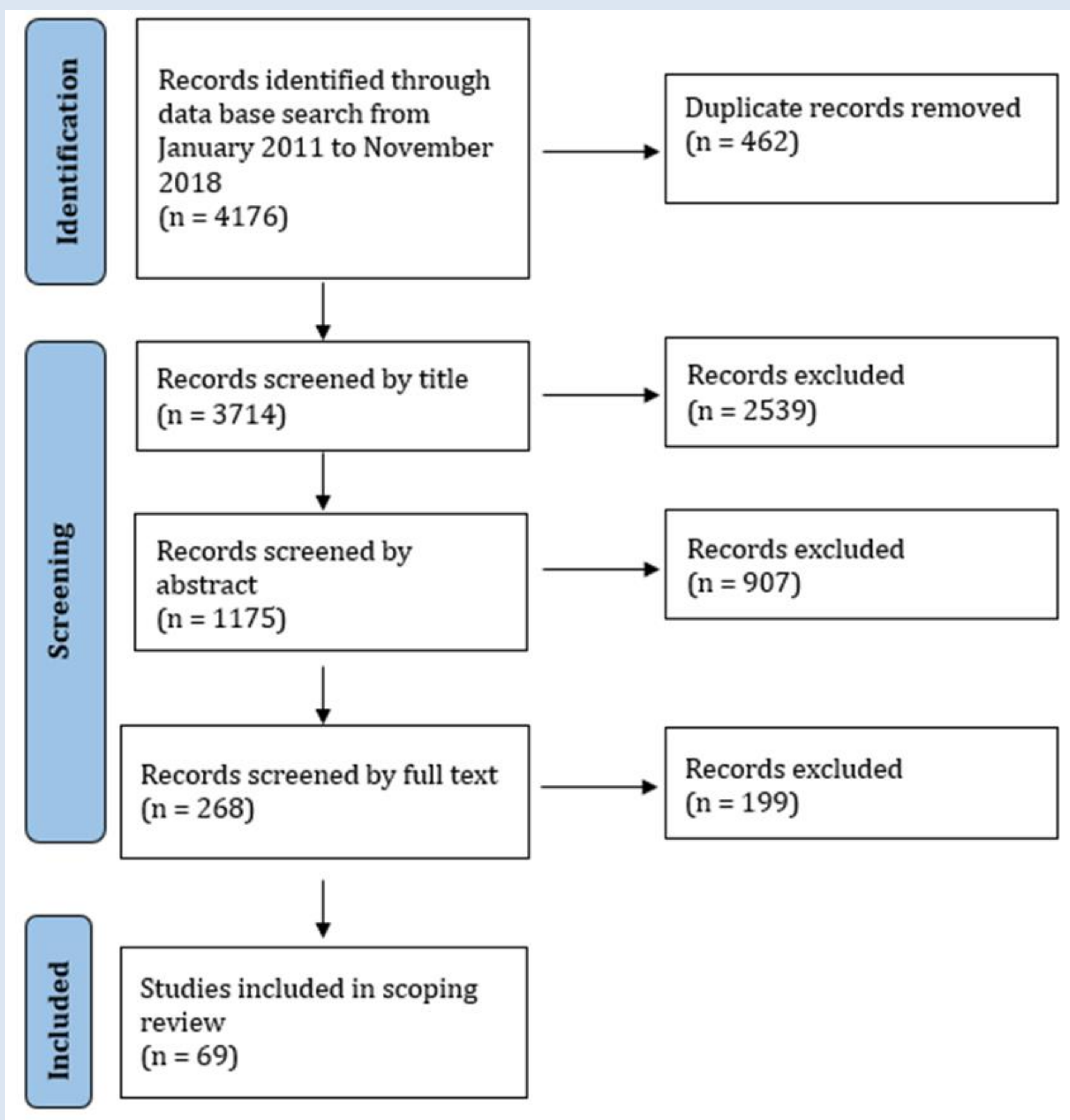


Figure 2: Main presentation difference types

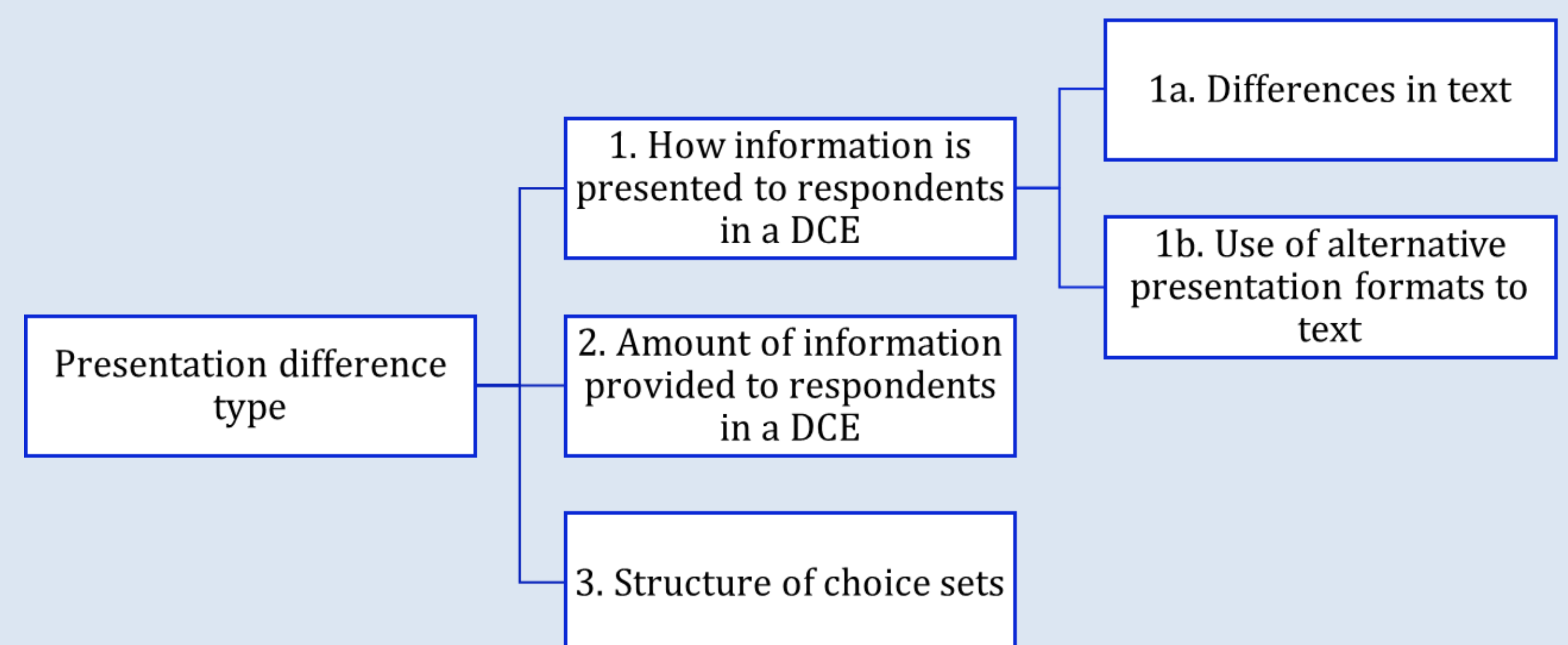


Table 1: Frequency of presentation difference types

Frequency of presentation difference type*	No.
Differences in text	40
Amount of information provided	22
Differences in presentation format	19
Structure of choice sets: Number of options	5
Structure of choice sets: Number of attributes	3
Structure of choice sets: Number of levels	1
Total	90

*Researchers could use more than one presentation difference type in a study

Results

Sixty nine articles were included in the review. Data extracted covered seven main components: general study details, survey development details, choice set construction details, choice set presentation details, details of arms, details of econometric models used and whether there were any differences in results detected between arms.

Details of arms is the section most relevant to the research question as it summarises the various ways DCEs have been presented differently between arms. Figure 2 presents a summary of the main presentation difference types in studies. Table 1 summarises the frequency of each presentation difference type.

The most common difference between arms was in terms of the text shown to respondents i.e. framing of text. This includes positive and negative framing (Veldwijk et al., 2016), 'gain' or 'loss' framing (Grisolia et al., 2018) and also use of the anchoring effect (Jahn et al., 2018). There were also studies where each arm in the DCE presented slightly different choice scenario (Sicsic et al., 2016; Spinks & Mortimer, 2015).

Varying the amount of information provided between arms was also popular. For instance, Kostyra et al. (2016) provided one arm with extra information in the form of a summary rating as an extra attribute to the choice sets, which the other arm did not see.

Some researchers also chose to use other ways to present information besides text. For instance, Arrua et al. (2017) had two arms, with one shown a traffic light labelling system and the other shown the Chilean nutrition warning system.

Although less frequent, researchers also sometimes chose to systematically manipulate the number of options, attributes or levels presented to respondents in each arm. The most prominent is Oehlmann et al. (2017), where the researchers had a total of 16 arms with each varying in terms of the number of options, attributes and levels presented to respondents.

In examining results for the included studies, the methods used to test for differences by arm were extremely varied. This meant that it was difficult to find standardised criteria to define when there is a difference in results by arm.

Hence, the question has been defined in terms whether there are any detected statistical differences by arm as reported from the methods used by the authors. The vast majority (94%) of the studies detected some difference in results by arm. There were only four studies that reported no differences by arm. These results should be viewed with caution, as statistical difference does not necessarily translate to an economically significant difference.

Conclusions & Directions for Future Research

As far as this author is aware, this is the first literature review to investigate presentation differences in DCEs, as a between-subjects design, across multiple disciplines. Studies included covered a broad range of topics including health, consumer goods and services and environmental topics, including land use, housing and national parks.

In this scoping review, the intention was to understand what has been investigated in the existing literature. For this reason, key details of each DCE have been reported without assessing the quality of each study. Future work could assess whether different conclusions would emerge were a quality assessment applied such that only 'high-quality' DCEs were included. Future studies in this area are strongly recommended to indicate through keywords and abstract terms that the study involves presenting a DCE in different ways or when two or more arms have been used. This would substantially improve the ability of future researchers to search for relevant articles.

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