Response to Reviewer 2 Comments

Many thanks to your advice on giving positive suggestions which are very helpful to improve research quality and value of the paper. Regarding to these questions raised in the review phase, I tried my best to amend and add needed contents into these points. Please find my revision as follows :

Point 1: In the paper, the authors explores the optimization method of emergency popular science information design elements in public health events.

But the research was not presented clearly. In my opinion, the paper mainly introduce the popular science information design process with the case of COVOD-19. So, what is the innovation? Covid-19 is a good case, so it is necessary to discuss according to the case. So, I suggest the authors to reconstructed the paper, and derive the academic topics.

Response 1:

The innovations of this paper are shown as follows:

(1) Theoretical Innovation.

Firstly, the theoretical construction and empirical research on the design of popular science information for public health emergencies in China are still weak. Most of the studies put forward design suggestions, or are only limited to the design discussion and practice of individual cases, without precise research on different audience groups. Therefore, the theoretical framework needs to be innovated. This study provides theoretical support for emergency popular science design from the direction of perceptual narrative theory.

Secondly, under the background of public health emergencies, the traditional emergency popular science design is dominated by designers' subjective consciousness, ignoring the emotional needs of the public. As a result, the visual communication of emergency popular science information deviates from the audience's psychological model, which leads to the audience's lack of interest or cognitive impairment and affects the effect of popular science information dissemination. This study applies Kansei engineering and narrative design theory to the popular science information design, enriching and improving the theoretical research on the emergency popular science information design system in public health field.

Thirdly, from the perspective of public participation, the fuzzy evaluation method is used to study the optimization of popular science elements based on public demands, and statistics, graphics, computer vision, aesthetics, communication and other disciplines are crossed and integrated to expand the application scope of problem study.

(2) Application Value Innovation.

Above all, perceptual narrative theory is an important way to solve the effectiveness of emergency popular science information design. It has the characteristics of timeliness, accuracy and accessibility, so that the presentation of information can better meet the diversified needs of the public and meet the different information needs of different groups. It is conducive to alleviate social anxiety for public health emergencies, curb the spread of false information and correctly guide public opinions, and it is also beneficial to construct a preventive system to deal with public health

emergencies, and comprehensively improve the ability of the society to response and deal with emergencies and to resist risk.

Moreover, the public's effective participation in the popularization of scientific knowledge of public health events is an important embodiment of national governance ability. To improve the public interest and attention to popular science, dissemination of major public events needs to be strengthened and popular science information visual design method needs to be improved. The design method of perceptual narration has become one of the best ways to communicate information and establish contact with the audience, and also it is an important process of realizing popular science information from perception to cognition.

I still insist that popular science information design of public health emergency should take COVID-19 as an example. The reasons are as follows: First of all, this paper takes COVID-19 as a representative case to propose the design procedure and optimization method for emergency science popularization in public health events. This new design process and method is not only suitable for COVID-19 event, but also for other public health events. If the whole paper only discusses COVID-19 event, it would be too limited. Besides, for the problems and shortcomings in the public health field exposed to the COVID-19 event, the new method proposed in this paper can be used as a reference for relevant departments when exploring the practical path for the emergency science popularization system. Finally, this paper study is carried out from macro perspective to micro perspective. Emergency science popularization design is an important content of public health events. At the same time, it is also an effective means and guarantee to popularize scientific knowledge and laws and regulations to the public, which is of positive significance to improve public satisfaction and the effect of popular science information of public health emergencies.

Certainly, the author is also very grateful for the valuable opinions. In the following study, I will try to discuss the popular science information design related to COVID-19 event from a microscopic perspective.

Point 2：Moreover, the layout of the manuscript is poor, and I can’t read some important figures, e.g., Fig 8 and 9.

Response 2: Done.