Message Framing

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Many previous studies have revealed that people's decision-making may differ depending on message framing—whether the same content is presented with an emphasis on gain or loss. However, almost nothing is known about preschooler responses according to message framing.

message framing for preschoolers issue involvement delivery method

1. Introduction

Early childhood education promotes children's holistic development, including physical, socio-emotional, and cognitive aspects, while instructing children in basic habits regarding health and safety. It includes topics such as personal hygiene, diet, and coping with accidents and emergencies. Such education can serve as a foundation for preschoolers' development and tends to be strongly persuasive in its ability to induce desirable attitudes and behaviors. When conveying persuasive messages such as "you should always brush your teeth after eating" or "you should wash your hands after outdoor activities," it is important to give children reasons for doing so in order to affect their attitudes and behaviors in the long term. Therefore, it is necessary to research and discuss strategies adults can use to more effectively and persuasively deliver educational messages to children. However, it is difficult to find in-depth research regarding this topic.

The most widespread current behavioral economic theory is prospect theory [1][2], which considers that people value loss more than gain (of equal value). It posits that people tend towards risk aversion when gains are anticipated and towards risk-seeking when losses are anticipated, taking risks for even the smallest of gains. This theory has led to countless studies on message framing in the fields of health communications [3][4][5], public service campaigns [6][7], and marketing [8][9], among others.

Message framing refers to a communication strategy that aims to motivate human behavior using a persuasive message that highlights either gain or loss [10]. Gain-framed messages emphasize the expected gain from behaving a certain way, while loss-framed messages emphasize the expected loss from not behaving a certain way. Early studies on this topic found that loss framing was more effective at motivating people, which was interpreted in the context of prospect theory's loss aversion [11]. However, later studies have failed to produce consistent results; researchers have explained the mixed results by referring to moderating variables.

Perceived risk is one of the most actively discussed moderating variables. Based on the certainty effect of prospect theory [1], researchers have suggested that presenting a loss-framed message is more effective for behaviors with

high perceived risk (e.g., early detection of cancer), while a gain-framed message is more effective for behaviors with low perceived risk not accompanied by special risks (e.g., use of disease prevention products) [5][12][13][14]. In addition, it has been determined that individual differences in perceived risks are related to certain behaviors that influence the framing effect [15][16]. Another moderating variable of the framing effect that has been suggested in many studies is issue involvement. Researchers have confirmed that if the message recipient has a close connection to the issue or if the message is processed in depth, a loss-framed message is more persuasive than a gain-framed message, and vice versa [4][8][17][18]. These results were mainly interpreted through the Elaboration Likelihood Model [19]. Finally, another moderating variable that has recently attracted attention is the method of message delivery. Researchers have suggested that conveying messages with visual aids allows for more thorough encoding of information and induces more specific and in-depth cognitive processing than verbal messaging alone [20][21].

As such, a number of diverse studies regarding message framing have been conducted, but the study participants have been almost entirely limited to adults. Even though persuasive messages for young children are frequently delivered in daily life and may have great educational and developmental meaning, children's responses to these persuasive messages and the framing effects in children have not been studied in depth. Early childhood is a crucial period, in which children's cognitive, linguistic, and socio-moral development appears rapidly [22][23][24][25][26][27][28][29][30]. Thus, their responses to persuasive messages and framing effects may differ from those of adults as well as according to age group. In this context, the purpose is thus to examine the influence of preschoolers' age, issue involvement, and delivery method on message framing in light of the established research and new experimental data in the course of discussing the best persuasion strategies to adopt in early childhood education.

2. The Effect of Age on Message Framing

During early childhood, cognitive, linguistic, and socio-moral development are abruptly brought up. First, in terms of cognitive development, children concentrate their attention by themselves and their ability to control attention voluntarily as their age increases to 2.5 years, 3.5 years, and 4.5 years [31][32]. As short-term memory capacity increases during these years, children can catch the changes of objects up to two or three items for 3- or 4-year-olds, and up to three or four items for 5- or 7-year-olds [29]. Furthermore, the performance of complex inhibition tasks that require suppressing the dominant response and executing the opposite response is possible from the age of two and greatly improves between the ages of 3 and 5 [23][24].

Children are constantly stimulated by language after birth and show great overall improvement in language skills in the process of remembering and imitating the language of others around them. Grammatical morphemes appear in children's language after 30 months, and syntax-like structures appear when overlapping sentences are used. Moreover, as the vocabulary for use increases exponentially, language comprehension and expression skills increase significantly after the age of 2.5 years [22][25].

Children's socio-moral development appears during these years as well. The theory of mind that is needed in order for children to recognize and understand other people's beliefs, desires, intentions, and emotions develops greatly

between the first and second half of the age of 4, and the higher-order mind theory develops greatly between the first and second halves of the age of 5 [33][34]. It has been revealed that the self-regulating ability to generate and control motivation to achieve individual wishes and emotional execution functions that delay satisfaction and resist temptation for immediate beneficial results also develop significantly in early childhood [35][36]. The emergence of independent behavioral self-regulation begins between 12 and 36 months, and develops further within a supportive context in which parental guidance and scaffoldings are provided [37][38]. By the age of 3 or 4, children who have been exposed to parental guidance (that models appropriate behavior, encourages, and demands appropriate behavior) begin to internalize social norms and expectations [26][30][37].

According to Kohlberg [39][40], most children before the age of 9 are at the level of preconventional morality. At this level, moral judgment is given externally, and is judged according to the rules of the authority that provide punishment or compensation. Within this level, children go through Stage 1 (obedience and punishment) and reach Stage 2 (individual needs and exchange). He mentions that social interactions are important for children's moral development. As parents encourage children to take others' perspectives and provide more opportunities to engage in conversations about issues that have values, they can promote the progress of moral thinking in children [27][28][41].

As such, the cognitive development that occurs between the ages of 3 and 5 facilitates language understanding, situational judgment, causal understanding, and future prediction [42][43][44][45], and the development of executive function and social moral development leads children to follow adult rules and regulate their behavior in order to interact naturally with others [33][34][35][39][40]. These various developments in early childhood suggest that framing effects may differ according to the age of children. For example, if children become more sensitive to risk and have a higher risk perception as their age increases due to cognitive development and social experiences, it can be postulated that loss-framed messages might be more persuasive than gain-framed messages to older children.

However, the results of previous studies are not sufficient to prove this hypothesis. Kim and Kim [46] delivered public service announcements about water conservation and preservation using gain- and loss-framed messages, and showed that the latter were more effective with students in both lower and upper elementary grades. Meanwhile, a study by Improgo and colleagues [47] gave audiovisual presentations to first-graders about the necessity of hand-washing and found that only gain-framed messages increased children's hand-washing knowledge and beliefs. Bannon and Schwartz's [48] study presented gain- and loss-framed messages about the importance of healthy nutrition to kindergarten children, then compared their responses when selecting apples as a snack. Both the gain- and loss-framed message groups showed improved behavior compared to the control group, but there was no significant difference between them. As such, previous studies have not shown consistent results or patterns by age; in particular, few studies have specifically examined the impact of children's age on the framing effect with age as a variable. Therefore, researchers aimed to confirm whether children's age moderates the framing effect and if the expected results would be found. Moreover, if the level of cognitive processing and message interpretation differs by children's ages, interactions would be possible between age and other variables (issue involvement, delivery method) in children's response to the messages. Thus, researchers additionally aimed to investigate these interactions and discuss the results.

3. The Effect of Issue Involvement on Message Framing

Issue involvement is another variable that may influence children's understanding and acceptance of persuasive messages. Issues that are highly relevant to children can elicit better understanding of messages, fostering a positive attitude and willingness to accept the messages. On the other hand, children may not feel interested in or able to fully understand issues that are not relevant to them, causing a decline in attitudes and willingness to follow the persuasive messages. As such, issue involvement may have a major influence on children's attitudes and behavioral intentions regardless of framing type, although few studies have empirically investigated this impact. Therefore, researcher examines and discusses the main effect of issue involvement on persuasive message delivery.

On the other hand, many studies of adults have found that issue involvement can moderate the message framing effect [4][18][49][50]. Researchers have confirmed that if the message recipient has a close connection to the issue, loss-framed messages are more persuasive than gain-framed messages, and vice versa if the connection is more distant. These results were mainly interpreted through the Elaboration Likelihood Model [19], which posits that persuasive messages are delivered through either a central or peripheral route depending on the level of cognitive processing. In other words, it is argued that information considered important by the recipient is subject to more in-depth cognitive processing (central route), while information not considered important is subject to shallower cognitive processing (peripheral route). Based on this model, many studies have found that in high-involvement situations, loss-framed information increases people's attention and induces deeper cognitive processing (central route), thereby producing a greater persuasive effect than gain-framed information. In contrast, in low-involvement situations gain-framed information is processed superficially (peripheral route), thereby having a higher persuasiveness than loss-framed information.

A study by Donovan and Jalleh [4] introduced women to a new children's vaccine that included side effects by presenting gain- and loss-framed messages; the gain-framed message was more effective among women who were not closely involved with child care. Maheswaran and Meyers-Levy's [18] study used framed messages to inform college students about the need to lower cholesterol levels and take diagnostic blood tests. The loss-framed message was more effective in the group that perceived high relevance in the delivered content, while the gain-framed message was more effective in the group that perceived low relevance in the content. Moreover, Moorman and van den Putte [49] found that the persuasive effect of messages about smoking cessation was greater for loss-framed messages in participants with high issue involvement and for gain-framed messages in participants with low issue involvement. Thus, several studies of adults have gathered results supporting existing theoretical models. However, little has been done to verify whether these results can be confirmed in children. A study by Kim and Kim [46] selected two issues, water conservation (personal effort) and water preservation (public effort), and examined the framing effects; loss-framed messages were more effective for both issues. However, issue involvement may not have varied much between these issues because they fell into a similar category, that of environmental protection.

4. The Effect of Delivery Method on Message Framing

Message delivery method has been proposed as another variable that influences the framing effect. First, presenting visual aids when delivering a message has been revealed to be effective in message recipients' understanding of messages and for improving memory. For example, researchers have shown that the visual elements that accompany linguistic information enables the recipients to understand risks more precisely and reduce errors in information delivery by using anecdotal narratives [20][51][52]. Furthermore, it has been found that visual images can improve message recipients' recall of information [53].

Many previous studies have suggested that presenting visual images can be an important factor in increasing the effectiveness of persuasion. Garcia-Retamero and Cokely [20] confirmed that visual aids could increase the persuasive effect of messages about sexual health in adults. Other studies have found that graphic warning labels on cigarette packages are more effective than text-only warning labels in increasing willingness to quit or reducing smoking among adolescents and adults [53][54]. Furthermore, researchers have suggested that the effects of such visual images are closely related to various factors, such as induced attention [55][56], deep cognitive processing [21][56], and strong emotions [53][55]. Hence, researchers hypothesized that the verbal delivery of messages with visual images could be very favorable for children, who have lower attention spans, linguistic understanding, and cognitive processing ability compared to adults.

On the other hand, presenting visual images has been clearly shown to be effective, mainly with loss-framed messages. Many studies mentioned above suggest the effect of visual images presented loss-framed messages in their study scenarios [52][53][55][56]. Moreover, a study by Seo and colleagues [57] using both gain- and loss-framed messages found improvements in persuasive effect with visual images only with the latter, and no effect of images or the opposite effect (persuasive effect with verbal only) with gain-framed messages depending on the issue. However, other studies argue that visual elements can be effective regardless of framing type. Garcia-Retamero and Cokely [20] found that visual aids were effective in improving adults' sexual health behavior for both gain- and loss-framed messages, and suggested that these results could be shown in individuals who had high cognitive processing abilities. In other words, visual aids enable more thorough encoding of both potential gains and losses, meaning that individuals who have higher cognitive processing skills can easily process the information without other conditions to facilitate information processing in each (deep or shallow) route. [20][58].

Taking these previous results together, the effect of visual image presentation in children might be stronger and more pronounced with loss-framed messages. In addition, considering that the level of cognitive processing increases as children age, this pattern may vary depending on the age of children.

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