Chapter 36
Green Light, Drink Right

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Abstract

Background: Increased availability and consumption of sugary beverages in early-childhood is associated with increased caries risk. Even though parents hold purchasing power, children have significant influence on their parents’ purchase decisions.

Problem statement: Young children lack the attention span and cognitive ability to understand the implications of their choices. However, it is still imperative that they make correct food/drink choices for their health and wellbeing. There is a need to come up with a way to help them make the right nutritional choices from an early age as possible.

Objective: To create a product that captures the attention and interest of preschoolers in increasing their knowledge and awareness regarding drink/food choices.

Novelty: To the best of our knowledge, there has never been a product in the market that utilizes the traffic light concept in advocating healthy drink choices in an interactive manner. This product is also very versatile in that the products featured on it can be changed according to need as long as it is coordinated to the traffic light concept.

Benefits to society: This project, utilizing the ‘play-learning’ concept, matches the cognitive abilities of preschoolers, improves learning and is an effective tool in increasing their knowledge on drink/diet choices. The low production cost combined with the versatility of the product makes it a desirable product for oral health promotion. Potential to be commercialized for usage under the National Preschool Oral Health program under the Ministry of Health and as an education tool for kindergartens and nurseries nationwide.

Introduction

Increased availability and consumption of sugary beverages in early childhood is associated with increased caries risk (Marshall et al., 2003). Large evidences shown that high intake of drinks rich in free sugar is also associated with excess weight gain and more likely to be overweight (Ludwig DS et al, 2001; Vasanti SM, 2006). Peng et al., 2010 reported that while parents hold purchasing power, children have significant influence on their parents’ purchase decisions, making it important for the children themselves to know what they should and should not drink even at a young age.

The preschool years have been identified as an ideal time to intervene to promote healthy habits, as childhood interventions can promote lifelong healthy behaviours prior to the development of unhealthy habits (Hodges et al, 2013). According to Piaget, (1951;1952), there are four stages in cognitive development of children: Sensorimotor (Birth -2 years); Preoperational Stages (2-7 years); Concrete Operational Stages (7-11 years); Formal Operational Stages (11 years and over). In toddler and preschoolers, which belongs to Preoperational Stage, they use the knowledge they gained from their senses during the Sensorimotor stage to start thinking logically but not concrete yet. Typically they actually need to experiences the task themselves in order to understand how it works. They use their imagination and fantasy and perceives the task as their own understanding. Abstract and symbolic thinking facilitates language development and make-believe play. During the end of this stage children can mentally represent events and objects (the semiotic function), and engage in symbolic play. For example, children at Preoperational stage can understand that picture of a sweet beverages in a can container represents a drink and a red traffic light on a picture represent that they have to stop/ to having it. This stage of their development allows them to make the connection between an object and the desired behavior in relation to the object.
However, one of the greatest challenges of oral health promotion or behavioral advocacy to a demographic as young as preschoolers is getting the preschoolers to concentrate on the message we are trying to deliver. Hence the utilization of an interactive model was introduced to capture and prolong the attention span of these preschoolers.

Content

An educational product consisting of a short educational video, and an interactive model called “Green Light, Drink Right” was developed. The model features 10 beverages popular with our target demographic of preschoolers. The beverages are randomly placed on a PVC model with a corresponding switch. The switches are placed on a circuit that connects to a corresponding light bulb. Some switches are connected to the red light bulb, some to the yellow and some to the green. The positioning of the switches and beverage associated with it are at random.

When a switch is pressed, either a red, yellow or green light will light up depending on the category of the beverage that has been assigned to the switch. The red light denotes drinks with high sugar content and which should only be drunk rarely. Drinks that have lower sugar and can be drunk moderately corresponds to the yellow light, while drinks in the ‘green-light’ category are drinks that are encouraged to be consumed. The entire model runs on a 12v 3Ah battery.

This model allows the preschoolers to relate the simple concept of ‘stop, look (careful) and go’ of the traffic light to their drink choices.

Effectiveness of this product was evaluated in three groups of preschoolers using a visual questionnaire. The preschoolers were given a visual questionnaire where they are mix and match an assortment of drinks to whether they feel they can consume the drinks regularly, sometimes or hardly ever. After completing the questionnaire the preschoolers were introduced to the Green Light, Drink Right model and given a brief explanation of what red light, yellow light denotes. The students were allowed to ‘play’ with the model for about 20-30 minutes. This product which utilizes the ‘play learning concept’ managed to attract the attention and interest of the preschoolers during the testing phase where the students were found to be deeply engrossed and engaged in the play of this product. After the allotted time, the students were again asked to complete another visual questionnaire. The pre-post test score showed a significant increase in knowledge and awareness among the preschoolers (from 42.9% to 80.2%, p-value< 0.001) after exposure to the Green Light, Drink Right, rendering this product a success. A follow up review with the preschools a month after the initial exposure also revealed that the students retained the knowledge awareness gained from the product. Teachers feedback revealed that the preschoolers actively referred to the traffic light concept of the Green Light, Drink Right during their daily meals or snacktimes.

The low production cost combined with the versatility of the product makes it a desirable product for oral health promotion. This product has a great potential to be commercialized for usage under the National Preschool Oral Health Promotion program under the Ministry of Health or as an education tool for kindergartens and nurseries nationwide.
Conclusion

This product, utilizing the ‘play-learning’ concept, matches the cognitive abilities of preschoolers, improves learning and is an effective tool in increasing their knowledge on drink choices. It has a great potential to be a successful product when marketed to the right demographic.

References