

eToyBox Study Malaysia: Development and Evaluation of Digital Nutrition Education Materials for Preschool Teachers



Undergraduate

Woo PX¹, Poh BK¹, Chong YT¹, Ruzita AT¹, Koh D², Cheah WL³, Lee JAC⁴, Nelson GL⁴, Yatiman NH¹, Reeves S⁶, Essau CA⁵, Summerbell C⁷ and Gibson EL⁵

¹ Nutritional Sciences Programme & Centre for Community Health Studies (ReaCH), Faculty of Health Sciences, Universiti Kebangsaan Malaysia. ² Centre for Education and Community Well-being, Faculty of Education, Universiti Kebangsaan Malaysia. ³ Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS). ⁴ Faculty of Cognitive Sciences and Human Development, Universiti Malaysia Sarawak (UNIMAS). ⁵ School of Psychology, University of Roehampton, London, UK. ⁶ School of Life and Health Sciences, University of Roehampton, London, UK. ⁷ Department of Sport and Exercise Sciences, Durham University, Durham, UK

Introduction

- **Digital materials** are interactive, allow printing on demand and can cater to individual learning styles, thus **offering greater flexibility and accessibility** than printed materials. [2]
- ToyBox Study Malaysia sets out to convert existing printed education materials into digital format, **eToyBox**, for **better reach and sustainability**.
- These digital materials are intended to help **preschool teachers** learn how to **integrate healthy eating practices** into the daily lives of kindergarten children.

Objective

- To **develop and evaluate understandability and actionability** of digital nutrition education materials for preschool teachers.

Methodology

Preparation:

- Ethical approval from JEPUKM
- Informed consent from preschool teachers

Phase I: Needs Assessment

- Subjects: Preschool teachers (n=17)**
- **Online self-administered questionnaire**
 - Sociodemographic data
 - Views on digital nutrition education materials

Phase II: Development of Infographics and Videos

- **Jom Minum & Makanan dan Snek Sihat e-modules**
- Canva, Heyzine & Filmora editing apps were used
- Developed based on previous ToyBox printed education materials

Phase III: Evaluation of Understandability and Actionability of Infographics and Videos

- **Panel of evaluators (n=6)**
- Consisted of nutrition experts and preschool teachers
- The Patient Education Materials Assessment Tool (PEMAT)

Acknowledgement: This project is supported by Newton Fund Impact Scheme (UKRI & MIGHT). Special thanks to all the preschool teachers who participated in this project.

Results & Discussion

Phase I : Needs Assessment



100 %

- **All 17 subjects** (preschool teachers) agreed that the printed modules of ToyBox Study Malaysia should be **converted to digital format**.
- The subjects' preference for digital education materials over printed materials could be related to the **convenience of digital devices and access to digital content**. [4]

Phase II: Development of Infographics and Videos

- *Jom Minum* and *Makanan dan Snek Sihat* modules were developed into **infographics and demonstration videos**.
- The use of **visual and audio elements** can facilitate learning and teaching, make it more enjoyable and optimize the permanence of learning. [1]

Jom Minum



Infographics (flipbook)



Demonstration video

Makanan dan Snek Sihat



Infographics (flipbook)



Demonstration video

Phase III: Evaluation of Understandability and Actionability of Infographics and Videos

	Jom Minum	Infographics	Video	Makanan dan Snek Sihat	Infographics	Video
Understandability (%)		95.8 ± 5.1	100 ± 0		95.8 ± 5.1	98.6 ± 3.4
Actionability (%)		93.3 ± 10.3	100 ± 0		96.7 ± 8.2	100 ± 0

- The overall average score of **understandability and actionability** for *Jom Minum* and *Makanan dan Snek Sihat* e-modules ranged from **90% to 100%**.
- The cut-off score for understandability and actionability was 70%, thus these e-modules demonstrated **excellent level of effectiveness**. [3]

Conclusion

- *Jom Minum* and *Makanan dan Snek Sihat* e-modules were **successfully developed** and were found to be **effective**.
- These infographics and videos can be used in the **planned eToyBox online nutrition education** to provide nutrition education to **preschool teachers**.

References

- Casteleyn, J., & Mottart, A. (2012). Presenting material via graphic organizers in science classes in secondary education. *Procedia-Social and Behavioral Sciences*, 69, 458-466.
- Lin, M. H., & Chen, H. G. (2017). A study of the effects of digital learning on learning motivation and learning outcome. *Eurasta Journal of Mathematics, Science and Technology Education*, 13(7), 3553-3564.
- Shoemaker, S. J., Wolf, M. S., & Brach, C. (2014). Development of the Patient Education Materials Assessment Tool (PEMAT): a new measure of understandability and actionability for print and audiovisual patient information. *Patient education and counseling*, 96(3), 395-403.
- Wikramanayake, G. N. (2005). Impact of digital technology on education.