

Research Article

Evaluating the Design of a Board Game About Sex Education for Children Ages 6 to 10 in Surabaya

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Abstract.

This study focuses on sex education, a topic notably absent from the education curriculum across Southeast Asia, including Indonesia. Due to its contentious nature, discussing sex education openly is often avoided, resulting in limited educational and media resources available for education about this matter to children and teenagers. The objective of this research is to develop a comprehensive and age-appropriate educational board game, specifically designed to address early sex education for children aged six to ten. The study primarily instructs children on matters of self-protection and the establishment of personal boundaries. Through a mixed-method approach via design thinking, the study combines qualitative interviews with quantitative evaluations of the prototype. The research encompasses various stages, including data collection, design concept, and evaluation, which involves a post-test assessment of the design prototype. This research provides crucial insights into the effective communication of delicate subjects, such as early sex education, to a young target audience.

Keywords: board game, early sex education, learning media, interactive media, visual communication design

1. Introduction

In the diversity of cultures and traditions that make up our global society, discussions surrounding early sex education and self-protection can often be met with a spectrum of reactions. However, given the rise in sexual assault rates in Indonesia until 2023 and the Ministry of Woman Empowerment and Child Protection's statistics data report until January 2023 it shows that assault to children happen to children in elementary school [1], the necessity for thorough sexual education is becoming more and more apparent in this dynamic and quickly modernizing country. With a particular focus on its possible use in delivering early sex education to children between the ages of six and ten, this essay embarks on an exploratory trip into the field of educational media

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through the medium of boardgame design. In this context, we explore a novel and groundbreaking methodology that includes design experimental workshops, prototyping, and user testing. These methods are the driving forces behind the creation of a board game that aims to close the existing gap in sexual education. The aim of this study is to create a board game that serves as a complete and age-appropriate instructional media for early sex education of children between the ages of six and ten. The study's main focus is to create a learning media about teaching kids how to set and maintain personal boundaries and defend themselves. The study used a mixed-method approach through design thinking, integrating quantitative evaluations of the prototype with qualitative interviews. Data gathering, design idea, and evaluation, which includes a user's pretest posttest assessment of the design prototype are some of the phases that this research covers.

2. Literature Review

Officially, the curriculum system in Indonesia has not yet incorporated sex education. However, discussions regarding the reproductive system are conducted during the intervals between instructional sessions. This amount is still regarded to be insufficient. Sex education plays a significant role during childhood in fostering appropriate values and attitudes toward sexuality. This period is particularly significant as it marks a critical stage for shaping informed decision-making abilities and navigating the rapid physical development that occurs during these formative years. [2]. Child psychologists from Pusyangatra, a subunit of BkkBN Indonesia (National Population and Family Planning Agency), assert that it is imperative to introduce elementary students to the concept of their own intimate body parts, educate them about biological sex, and acquaint them with the distinctions between genders at an early stage of their development. Nevertheless, the available learning and teaching media remain constrained. According to the survey conducted among parents of elementary school pupils in Surabaya, it is evident that parents perceive sex education as a subject that imparts knowledge deemed improper for children and exclusive to adults.

Sex and sexuality are distinct concepts within the realm of human experiences. Sex encompasses the classification of biological processes related to reproductive organs and procreation. Sexuality encompasses various dimensions that exert influence on society, encompassing biological, social, political, and cultural components, and their interplay with sexual acts and individual experiences. Sexuality encompasses various

dimensions of human existence that are influenced by biological, social, political, and cultural variables, and are intricately connected to sex and sexual behavior within societal contexts (Sexuality and Social Change: Making the Connection Strategies for Action and Investment) [3].

A previous research endeavor on the topic of sex education for children delves into the crucial significance of providing sexual education during early life, with particular emphasis on the pivotal role of educators in imparting this knowledge. The study's results indicated the possibility of customizing the delivery of sex education to correspond with the psychological growth stages observed throughout early infancy. This study employed a thematic analytic methodology to investigate the perspectives of three academic disciplines: educational psychology, educational sociology, and religious education. Based on the results of the study, it is crucial to deliver comprehensive sexual education through clear and customized language that corresponds to the cognitive and emotional development of young individuals. This strategy should entail the active participation of educators, parents, and the entire community [4].

2.1. Hypotheses

This study aims to investigate the hypothesis that the creation and utilization of a board game specifically designed for children between the ages of six and ten will have a substantial positive impact on their cognitive, social, and emotional growth. It is expected that the captivating and interactive characteristics of the boardgame design will not only cultivate enhanced problem-solving abilities, teamwork, and critical thinking towards the opposite gender, but also have a positive impact on their overall comprehension of the notion of consent, familiarity with the anatomy of their intimate parts, and facilitate the acquisition of knowledge regarding sex education in an enjoyable, interactive, and easily accessible manner.

3. Methodology Research

The research in this study was undertaken by employing a combination of qualitative and quantitative methodologies. Qualitative data is acquired through the implementation of interviews with a diverse range of individuals, including (1) experts specializing in early sex education, (2) child psychologists, (3) teachers from schools representing various socio-economic backgrounds, and (4) parents of the target demographic. The purpose

of this qualitative study was to obtain a deeper understanding of the proper extent of sex education for children aged six to ten, as well as to examine the methods employed by parents when discussing this topic with their elementary school-aged children. The study employed a quantitative research approach to investigate the existing level of knowledge regarding sex education among children aged 6 to 10. The survey was conducted in three distinct schools, each representing different sociocultural backgrounds. The first school selected for the survey was a public institution, where parents reported a monthly income exceeding 5-10 million rupiah. The second school was a private establishment, with parents reporting a monthly income surpassing 10-15 million rupiah. Lastly, the third school chosen was a public institution, with parents reporting a monthly income below 5 million rupiah. The examination of the socioeconomic disparities among schools aims to ascertain whether there is a correlation between the economic context of a school and the extent of sexual education included into its curriculum. Upon the completion of data collection, the Design Thinking approach is employed to analyze and cultivate empathy towards the research subject, specifically youngsters aged six to ten years. The design thinking methodology which entails the steps of empathize, define, ideate, prototype, and test was used in our study (see Figure 1). The 'empathize' stage of this approach is used to collect relevant information on the media assets that are currently available for sex education.

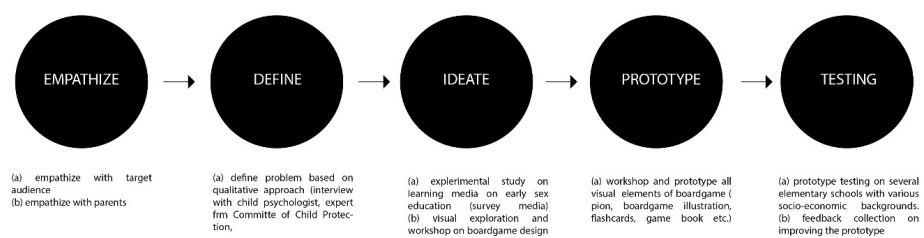


Figure 1: Research Method implementing Design Thinking.

In order to do this, we spoke with specialists in the field of sex education, including the Indonesian Committee for Child Protection. Furthermore, discussions were held with child psychologists that focus on the cognitive development of kids between the ages of six and ten. The purpose of these exchanges was to determine what the key elements of early sex education should be for kids in this age range. The expert interviews especially the ones with child psychologists were quite helpful in determining which media platforms would be best for teaching kids about sex education. In defining the target population and its unique educational needs, these discussions are very important.

Building upon primary data gathered from expert interviews and literature review by the scholarly insights of Jean Piaget’s Child Development literature review, the scope of our research on early sex education falls into three distinct facets: (1) Introduction to Private Body Parts, (2) Fostering an Understanding of Consent, and (3) Promoting Self-Protection. These dimensions include crucial components such as gaining a thorough understanding of the anatomical terms related to one’s intimate regions, developing an understanding of the complex notion of consent, and instilling caution against the possibility of risks from strangers. Besides that, this research also conducted interviews on several schools with different socio-economic backgrounds and curriculum to analyze to what stage of sex education is being mentioned or taught at elementary school levels in Surabaya.

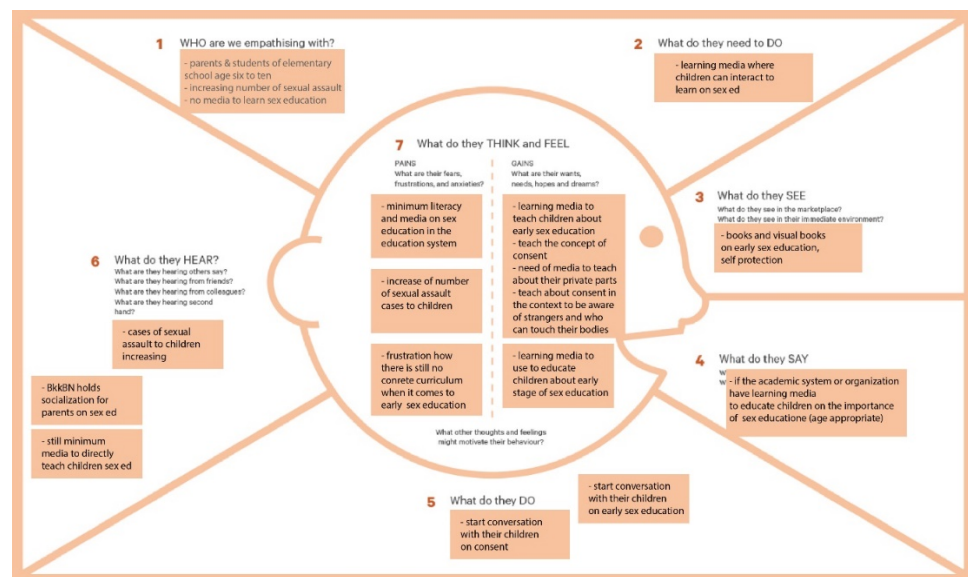


Figure 2: Empathy Map of Parents of Target Audience.

Following the completion of the empathize stage (see Figure 2), the subsequent phase, referred to as “define,” is employed to scrutinize the problem utilizing the qualitative research data gathered from interviews conducted with experts, parents, and teachers. Additionally, a sampling approach was employed to select three schools with distinct socioeconomic backgrounds, with the aim of gaining insights into their present level of comprehension regarding sex education. The initial phase of the process involves examining the issue of developing an educational tool aimed at children between the ages of six and ten, which facilitates their understanding of their anatomical structures, namely the male and female reproductive organs, as well as introducing them to the concepts of consent and personal safety. The process of determining the materials to be included in the learning media involved soliciting a second opinion

from a child psychologist, conducting interviews with specialists in the fields of sex education, and doing a literature review on the stages of children's development. Following an analysis and sketch of the scope of sex education for children, the subsequent stage of the research process, known as "Ideate," was undertaken to generate concepts and ideas for the appropriate medium for effectively disseminating the required educational contents. A study was conducted to assess the effectiveness of various learning media, such as visual books, card games, and board games, on children aged six to ten. The study involved a three-week observation period during which the different media were tested and evaluated. The findings of the observation indicate that the inclusion of interactive media is necessary to facilitate children's comprehension of sensitive subjects like sex education. By utilizing interactive media, such as board games, children can engage in a learning process that enables them to acquire knowledge about the distinguishing attributes of individuals belonging to the opposite sex. Upon conceptualizing the notion of developing an educational medium in the format of a board game. By engaging in a brainstorming session, a variety of design suggestions for an interactive boardgame were generated. The objective of the boardgame visualization concept was to develop a board layout inspired by the educational setting of elementary school pupils in the Surabaya region. This approach aimed to incorporate visual aspects that are both recognizable and relatable to the students. The qualitative research findings indicate that the content pertaining to sex education for children can be categorized into three primary categories, which are then subdivided into three distinct phases within the educational program. The main purpose of incorporating educational media is to enhance the cognitive and physical development of children, while also addressing the important topic of self-protection from sexual assaults. The qualitative data concerning sex education targeting children between the ages of six and ten can be classified into three discrete phases.

- The first phase involves a thorough analysis of sexual organs and the physiological functions of bodily components.
- The second phase focuses on the identification and differentiation of appropriate touch and improper touch.
- Phase 3 encompasses the acquisition of knowledge related to self-protection and the preservation of one's physical well-being.

The aforementioned phases were incorporated into flashcards that have illustrations depicting study scenarios for each phase, along by supplementary sentences aimed at

instructing each topic within the context of sex education. Given that the boardgame's content is organized into several phases, it is imperative for participating youngsters to progress through each stage and provide responses to all flashcards in order to achieve victory in the game. Therefore, it is imperative for individuals such as teachers, parents, or social workers to provide parental advice during socializing events, ensuring their presence to observe and rectify any misunderstandings that may arise over specific subjects. This guidebook provides a comprehensive explanation of the game's mechanics and elucidates the significance of parental guidance in order to mitigate any misunderstandings among children engaging in the board game. Following the completion of the design process for each component of the board game, the subsequent phase involved conducting user testing on the prototype and gathering feedback. The testing was conducted in the former educational institution, wherein the students actively engaged in the completion of surveys and interviews. The results of the boardgame evaluation indicated that a majority of the participants (71%) expressed the opinion that the game's player count may be expanded to accommodate a range of six to eight players. In contrast, a significant proportion of respondents (29%) expressed the belief that a group size of four individuals was optimal. This preference was attributed to the perceived advantage of each member being able to concentrate on the study examples shown on the flashcards.

4. Results and Discussion

Following an extensive examination of the intended recipients of the information and seeking guidance from professionals in the domain of child sexual education, the collected survey results underwent a process of reanalysis. The methodology encompassed the synthesis and integration of research data to produce a comprehensive board game design idea, with the purpose of facilitating the experimental exploration of the prototype design. This paper presents a thorough examination of the outcomes obtained from the conducted survey. The study utilized a survey consisting of 15 questions that centered around sexual education, with a specific emphasis on self-protection. After doing a comprehensive analysis of the survey findings, it becomes apparent that there is a notable deficiency in the understanding of self-defense among students aged 6 to 10 years. The analysis of the questionnaire yields noteworthy results that exert a substantial impact on the investigation.

on the inquiry on participants' comprehension of the disparities in physical proportions between males and females (specifically, the introduction to the terms vagina and penis), it was found that 73% of respondents reported having this understanding, whilst 27% acknowledged their lack of awareness in this area.

The user's text lacks academic language and structure. The user's text is already written in an academic style. It is worth mentioning that a significant proportion of pupils aged 6 to 10, precisely 68%, demonstrated a restricted comprehension of the anatomical terms "penis" and "vagina" when engaging in discussions on the male and female reproductive systems, correspondingly.

A series of inquiries was conducted to analyze the responses of adolescent persons to hypothetical situations, specifically focusing on their conduct when prompted to remove their upper clothes. The findings derived from the administered questionnaire indicate that a significant majority, comprising 87% of the participants, choose to decline and actively seek assistance rather than conforming. A minority of respondents, comprising approximately 5% of the studied sample, proposed that the individual initiating the request should likewise disrobe. Furthermore, an additional 7% of participants acknowledged their compliance with the request, but only 1% of responders attempted to unzip the individual's trousers on their own. The above result described reactions provide useful insights into the cognitive processes of young persons and their vulnerabilities in situations related to self-preservation.

5. Conclusion

The boardgame titled LIKU LIMU (Protect My Body, Protect Your Body) is designed for children aged six to ten and serves as an educational tool for early sex education. This game aims to stimulate children's cognitive and motor skills while addressing the important topic of self-protection against sexual crimes. The sex education material for children between the ages of six to ten is divided into three distinct periods.

The first phase, an overview of sex organs and the physiological functions of body members will be provided.

Phase two of the program focuses on the identification and differentiation of safe touch and dangerous touch.

Phase 3 Acquiring Knowledge on Self-Protection and Safeguarding One's Physical Well-being

This boardgame facilitates diverse forms of interaction for youngsters through the utilization of cards and prizes within the gameplay. Question Cards are a set of inquiries designed to assess children's understanding and comprehension of self-protection measures. The Warning Card is designed to provide both pleas and cautionary messages to individuals who may be exposed to instances of sexual harassment in their surroundings. It is important to note that the content of this card is specifically tailored for individuals within the age range of 7 to 10 years, ensuring appropriateness for their developmental stage. The Surprise Cards in the LIKU LIMU game serve as illustrations of instances of self-protection. These cards function as traps, introducing an element of unpredictability and chance into the gameplay. Depending on the player's luck, they may either advance many steps forward or, conversely, regress several steps backward. This competitive impact adds an additional layer of complexity to the game. The LIKU LIMU board game facilitates the development of children's talents through the incorporation of learning media, such as Question Cards, Warning Cards, and Surprise Cards. By engaging with these aspects, children can enhance their visual and auditory skills during gameplay. The LIKU LIMU boardgame's ultimate design was thereafter subjected to testing among the intended demographic of primary school students aged six to ten. The purpose of this study was to assess the audience's comprehension of the game rules that were developed and to evaluate their grasp of self-protection information.

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