THE EFFECTS OF CONVERSATIONAL VERSUS FORMAL NARRATIVE STYLES OF PERSUASIVE MULTIMEDIA ON CHILDREN'S KNOWLEDGE, AWARENESS AND MOTIVATION OF CHILD SEXUAL ABUSE

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by

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LIST OF ABBREVIATIONS

ATID	Alessi and Trollip's Instructional Design
CBI	Computer Based Instruction
CLE	Constructivist Learning Environment
CSA	Child Sexual Abuse
CTML	Cognitive Theory of Multimedia Learning
EPRD	Educational Planning and Research Department
ICT	Information Communication and Technology
JAIK	Department of Islamic Affairs of Kedah
KAS	Knowledge and Awareness Server
NGO	Non-profit Gavernment Agency
PMLA	Persuasive Multimedia Learning Application
$PMLA_{cns}$	Persuasive Multimedia Learning Application with narration in conversational narrative style
$PMLA_{cns}$	Persuasive Multimedia Learning Application with narration in formal narrative style
PMMS	Persuasive Multimedia Motivation Survey
WCC	Women's Centre for Change

KESAN GAYA NARATIF PERBUALAN BERBANDING GAYA NARATIF FORMAL BAGI MULTIMEDIA PEMUJUKAN TERHADAP PENGETAHUAN, KESEDARAN DAN MOTIVASI KANAK-KANAK TENTANG PENDERAAN SEKSUAL KANAK-KANAK

ABSTRAK

Tujuan kajian ini adalah untuk membangunkan dan mengkaji kesan penggunaan aplikasi pembelajaran multimedia pemujukan (*Persuasive Multimedia Learning Application* (PMLA)) dalam meningkatkan pengetahuan dan kesedaran kanak-kanak tentang penderaan seksual kanak-kanak. Pada masa ini, kanak-kanak mudah terdedah kepada sebarang jenis penderaan kerana mereka mempunyai pengetahuan yang terhad tentang keselamatan peribadi dan mereka tidak mempunyai kesedaran tentang isu ini. PMLA direkabentuk dengan mengintegrasikan pembelajaran multimedia dan teknologi pemujukan serta dibangunkan berdasarkan model reka bentuk pengajaran Alessi dan Trollip. Pembolehubah bebas bagi kajian ini adalah mod penyampaian PMLA yang melibatkan PMLA dengan gaya naratif perbualan ($PMLA_{cns}$) dan PMLA dengan gaya naratif formal ($PMLA_{fns}$). Manakala pembolehubah bersandar ialah pengetahuan, persepsi kesedaran dan persepsi motivasi terhadap PMLA. Di samping itu, pembolehubah moderator pula ialah lokasi sekolah (bandar dan luar bandar) dan jantina. Sekumpulan 222 kanak-kanak sekolah rendah berusia antara 7 dan 9 tahun dari 4 buah sekolah (dua buah sekolah adalah dari bandar dan dua buah sekolah dari luar bandar) terlibat dalam kajian ini. Dalam kajian ini, setiap sekolah dari kawasan Bandar dan luar Bandar ditentukan secara rawak berinteraksi sama ada dengan $PMLA_{cns}$ atau $PMLA_{fns}$. Data yang dikumpul dianalisis dengan menggunakan analisis statistik ANCOVA dan ANOVA sehala. Dapatan kajian menunjukkan bahawa pengetahuan, persepsi kesedaran

dan persepsi motivasi kanak-kanak dilihat meningkat selepas mereka menggunakan PMLA. Hasil kajian juga menunjukkan bahawa kanak-kanak yang menggunakan $PMLA_{cns}$ menunjukkan perbezaan yang signifikan dalam pengetahuan, kesedaran dan motivasi berbanding kanak-kanak yang menggunakan $PMLA_{fns}$. Walau bagaimanapun, jika dibandingkan di antara kanak-kanak dari bandar dan luar bandar, kedua-dua golongan menunjukkan pengetahuan dan persepsi kesedaran yang sama namun kanak-kanak luar bandar menunjukkan persepsi motivasi yang lebih tinggi terhadap bahan pengajaran berbanding kanak-kanak dari bandar. Dari segi jantina, terdapat perbezaan yang signifikan dalam pengetahuan antara $PMLA_{cns}$ dan $PMLA_{fns}$. Sebaliknya, tidak terdapat perbezaan yang signifikan dalam persepsi kesedaran dan persepsi motivasi antara kanak-kanak lelaki dan perempuan. Oleh itu, kajian ini telah menunjukkan bahawa gaya naratif perbualan dalam PMLA mempunyai kesan positif ke atas pengetahuan, persepsi kesedaran dan persepsi motivasi terhadap bahan pengajaran bermultimedia tanpa mengira lokasi sekolah mereka atau jantina.

THE EFFECTS OF CONVERSATIONAL VERSUS FORMAL NARRATIVE STYLES OF PERSUASIVE MULTIMEDIA ON CHILDREN'S KNOWLEDGE, AWARENESS AND MOTIVATION OF CHILD SEXUAL ABUSE

ABSTRACT

The purpose of the study is to develop and investigate the effects of persuasive multimedia learning application (PMLA) in increasing children's knowledge, perceived awareness and perceived motivation of child sexual abuse. Currently, children are easily exposed to any type of abuse since they have limited knowledge on personal safety and they are not aware of this issue. PMLA has been designed by integrating multimedia learning and persuasive technology and developed based on Alessi and Trollip instructional design model. The independent variable for this study is presentation mode of PMLA which involves PMLA with conversational narrative style ($PMLA_{cns}$) and PMLA with formal narrative style ($PMLA_{fns}$). Meanwhile, the dependent variables are children's knowledge, perceived awareness and perceived motivation towards the learning materials. Besides, there are two moderator variables; children's school location (urban and rural) and gender. A group of 222 primary school children between 7 and 9 years old from four schools (two schools from urban and rural area) are involved in this study. In the experiment, each school in both urban and rural areas are randomly assigned to only one treatment mode, which is either $PMLA_{cns}$ or $PMLA_{fns}$. The gathered data are analyzed using ANCOVA and one way ANOVA statistical analyses. The results reveal that children's knowledge, perceived awareness and perceived motivation increased after they have used PMLA. Furthermore, the results

show that children who used $PMLA_{cns}$ show significant difference in knowledge, perceived awareness and perceived motivation than their counterparts in PML_{fns}. However, if compared between children from urban and rural area, children from both urban and rural areas show similar knowledge and perceived awareness but chidren from rural area perceived higher motivation toward learning material compared to children from urban. In terms of gender, there is a significant difference on children's knowledge across $PMLA_{cns}$ and $PMLA_{fns}$. However, there is no significant difference in children's perceived awareness and perceived motivation between boys and girls. Thus, this study has shown that applying cenversational narrative style in PMLA has positive effect on children's knowledge, perceived awareness and perceived motivation towards the multimedia learning material regardless of their school location or gender.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Child sexual abuse (CSA) is a serious world's social problem that requires an effective prevention strategy. Hitrec (2001) stated that children by nature are particularly at risk to all types of abuse because of their lack of knowledge on danger and self-protection. So, children are usually not aware of adults' abuse on them. In the high prevalence of CSA and the negative effects associated with this abusive experience, it stands to reason that research interest must turn towards the prevention of CSA.According to Bolen (2003), the most successful way in preventing CSA is through education. In addition, computer technology recently plays an important role in education system. As a response to that, instructional materials are developed based on the stream of these recent technologies. This enables teachers to utilize different teaching methods and modes to accelerate student learning in their teaching practices. Therefore, appropriate learning applications should be designed in providing appropriate information about CSA to children.

The computer-based applications also facilitate in explaning the complicated concept through multimedia elements such as video and animation. Multimedia has been successfully utilized in learning environment for various educational applications and it has brought various advantages especially in improving children's learning process. Additionally, Acha (2009) claimed that multimedia application has conveyed a great support to individual learning in the sense that it allows the student to access different

kinds of information at the same time (eg. words, pictures) at their own pace. Not only that, Shank (2005) added that multimedia potentially extends the amount and types of information available to learners. Also, McCracken and Wolfe (2004), found that multimedia can engage the human sense to inform, persuade, and entertain. Current efforts have ventured into technology evolution to support the changes in a particular aspect of human behavior into predefined way. This enables computer applications to persuade as effectively as humankind (Canaday, 2004). Briefly, persuasive technology refers to interactive computer system, which is deliberately designed to change people's attitude and behaviors (Fogg, 2003).

The integration of multimedia elements into computer-based application is becoming a potential teaching and learning approach in classroom. This opportunity could be applied to benefit children in educating them about self-protection and how to avoid from potential of sexual abuse situation. This study thereforeis aimed at evaluating the effectiveness of the integration of multimedia learning and persuasive technology in learning application with the intention to provide knowledge and increase children's awareness of CSA.

1.2 Background of the Study

Children are precious to the country. They should be developed to the optimum level by providing safe and conducive environment. As a support for that, protecting them from being abused isan important aspect that should be given priority. Unfortunately, the number of child abuse cases keeps on increasing every year worldwide, including in Malaysia as released by the Malaysian Department of Social Welfare (Alavi, Aizan,

Subhi, Mohamad & Sarnon, 2012; Cheah & Choo, 2011). Particularly, the statistic by the Malaysian Department of Social Welfare reveals that child abuse reports rose from 3831 in 2012 to 4119 in 2013. The statistics in Malaysia only represented cases that are reported to Malaysian Department of Social Welfare, the Royal Malaysian Police, and hospital or clinic while the child received a treatment. Besides that, the number of unreported cases is far greater. This is because children are afraid to tell someone what has happened and the difficulty in the legal procedure for validating the incident (Bilginer, Hesapcioglu & Kandil, 2013). According to Havelin (2000) and Nor Shafrin (2012), CSA is a silent crime.

Figure 1.1 shows the number of child abuse cases in Malaysia for every state. Cumulatively, Selangor and Kuala Lumpur, have the highest number of reported child abuse cases between 2011 and 2013. This may indicate higher levels of public awareness in these states (UNICEF Malaysia Communications, 2009). There are different thoughts about CSA between people who live in urban areas and those who live in rural areas. According to Nor Shafrin (2012), people who live in urban areas are normally more liberal and open minded compared to people who live in rural areas, where they still cling to the customs and culture. These people usually hide the case and they feel embarrassed as well as worried if their children would be condemned by the society.Cheah and Choo (2011) recommend that selective child maltreatment prevention program should initially commence in the highly urbanized regions and poorer population based on association between rapid urbanization and child maltreatment and local research data on social risk factors in urban areas.

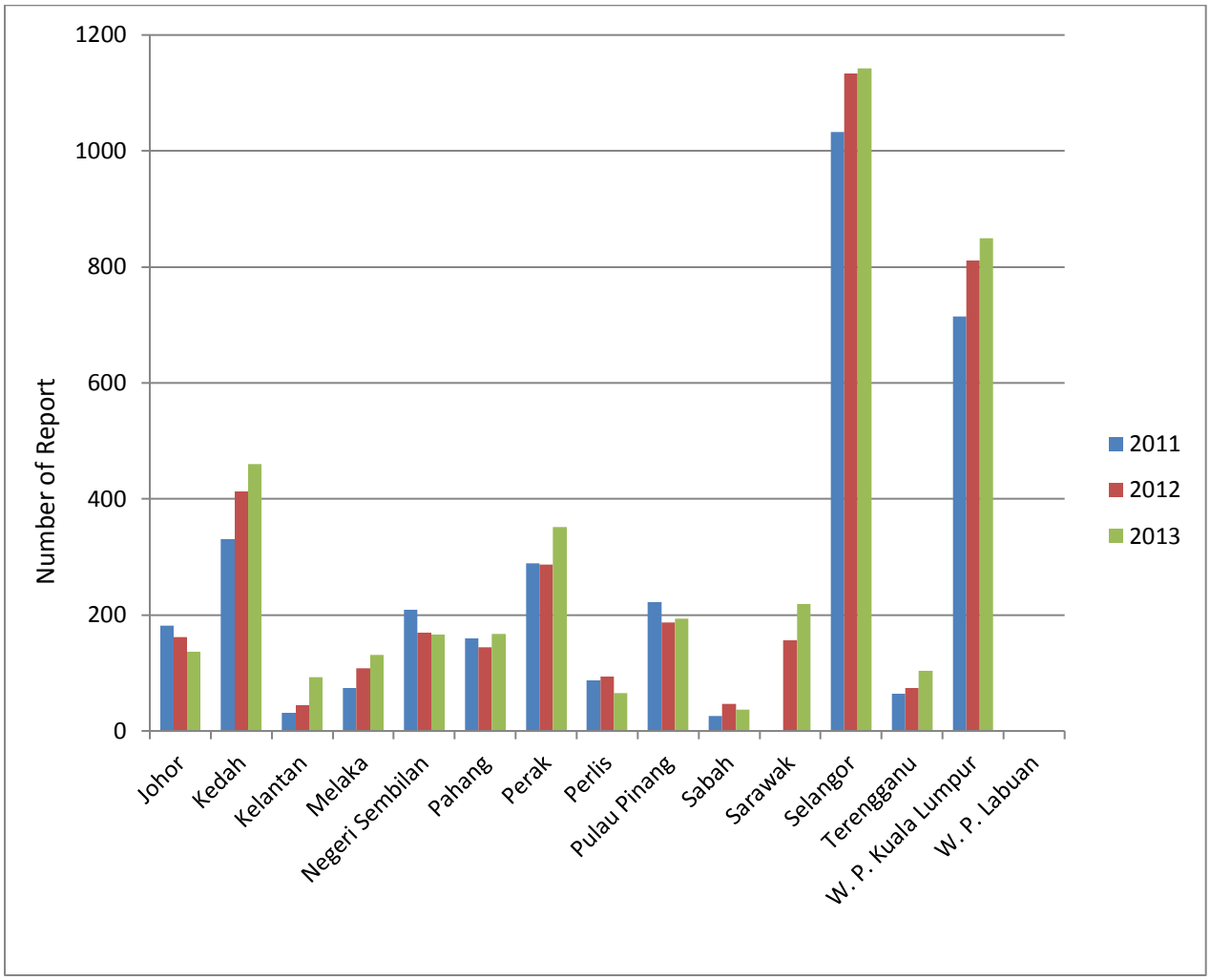

Figure 1.1 TheNumber of Child Abuse Cases in Malaysia for Year 2011 to 2013
(Source: Malaysian Department of Social Welfare, 2015)

Referring to Table 1.1, among all types of child abuse reported from 2004 until 2013, sexual abuse is among the highest cases that were reported. Most victims of CSA are female (Nor Shafrin, 2012; Pareda, Guilera, Forns & Gomez-Benito, 2009). Moreover, sexual abuse could give a great negative impact to the victim during their childhood in physical, emotional and psychological context. In fact, sexual abuse victim faces the greatest trauma in life compared to other types of child abuse (Darshini & Teoh, 2009;

Noor Maizura, & Salwana, 2010). CSA can be defined as inappropriately exposing or subjecting a child to sexual contact, activity or behavior. Sexual abuse includes oral, anal, genital, buttock, and breast contact (Prevent Child Abuse America, 2004).

Table 1.1 TotalCases of Child Abuse and Neglect Reportedto Malaysian Department of Social Welfare for year 2004 to 2013

	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Abandonment	26	68	53	63	58	62	115	114	112	175
Neglected	563	601	682	761	952	981	1250	1271	1460	1493
Physical	459	431	459	586	863	895	846	1062	1080	1134
Sexual*	**529**	**566**	**670**	**754**	**733**	**728**	**937**	**825**	**963**	**1093**
Incest	30	57	49	21	72	n.a	n.a	n. a	n.a	n.a
Emotion	52	77	50	45	90	98	71	87	114	119
Others	0	0	36	49	12	25	38	69	102	105
Total	**1659**	**1800**	**1999**	**2279**	**2780**	**2789**	**3257**	**3428**	**3831**	**4119**

Note: *Excludes incest if figure for incest available.

(Source: Department of Social Welfare, 2015)

Children need guidance and support from their parents and the society to become wise adolescents. Sadly, Singh, Ying and Nurani (1996) found that 71.4% abusers were known by the victims. It was agreed by Darshini and Teoh (2009) who found that 30% of the the abusers are relatives such as brothers, fathers, mothers, uncles or cousins,while around 60% of them are other acquaintances such as friends of the family, babysitters, or neighbours and only 10% of CSA cases arethe strangers.

Therefore, protecting children from being abused is very important and should be treated with certain priority. Raising public awareness and other efforts to prevent child from sexual abuse is everyone's responsibility. In Malaysia, the awareness of CSAhas been accepted as social problem in 1989, following the death of a numberof abused

children. Countless effortshave been attemptedto prevent CSA by researchers, government agencies, NGOs and individuals around the world through education, forums, campaigns and trainings. Since then, program aimed at helping children in avoiding and reporting sexual abuse began to develop and later implemented in the 1980s (Finkelhor & Leatherman, 1995). Bolen (2003) also suggested that the most successful part of CSA prevention program is by teaching children the concepts about sexual abuse and expose children to self protection skills.

In Malaysia, the government and NGOs have implemented various prevention efforts such as campaigns, workshops, parenting skills, imprisonment of abusers, special medical services and toll free callcenter for the public to get help and report the cases. However, these efforts were claimed as not enforced effectively by Alavi et al., (1999) since 1999. Country report by Cheah and Choo (2011) also shows that current prevention programs have been in the form of punishment, penalty and disciplinary action on abusers and theseefforts have still failed to reduce the repeated incidents and improve the personality of the abuser. In fact, child abuse cases seem to keeps on increasing. The report felt that general public does not perceive child abuse as a serious problem and this may be inter-related to the lack of public knowledge on the prevalence of child abuse. In relation to that, Cheah and Choo suggested a need to improve efforts in enhancing public information on child abuse and its prevention. Similarly, education or training specifically dedicated to child abuse prevention also needs to be improved. Therefore, prevention program implemented must motivate the public to gain knowledge and increase their awareness of CSAso they can act appropriately.

In line with this situation, Malaysia has a national policy framework, structural organization and legislation to enhance and develop programs for child maltreatment prevention. The National Action Plan for Children and National Child Protection Policy are linked to the objectives and visions of the National Social Policy and the National Mission through its Vision 2020 (Cheah & Choo, 2011). In the National Child Protection Policy, there are seven objectives and eleven strategies to be implemented in the short, medium and long term from 2009 to 2015. The objectives of the policy highlight the rights of the child for survival, protection, development and participation, all of which are associated with the Convention on the Rights of the Children (CRC). Among the outlined objectives and strategies, the fourth objective and the seventh strategy in the plan are aligned with this study. The strategy aims to provide basic knowledge to children to enable them to protect themselves from neglect, abuse, violence, and includes exploitation and risk identification.

In addition, education and learning in this 21st century have been rapidly shifting toward technology based instructions. In relation to that, with the advent of the multimedia technologies and the Internet, learning about CSA can be supported with multimedia elements such as graphic, text, animation, video and audio. This attribute, in fact, plays an important roles in the use of computer (especially for children use). Currently, there is a field that combines computers and persuasion into an assistive tool, which are deliberately designed to change people's attitudes and behaviors (Fogg, 2003).

In a nutshell, CSA is a social problem worldwide and it can happen to any children around the world. It is worrying because the literature claimed that children have limited knowledge about CSA (Hitrec, 2001), and the lack of awareness among children

is the main stumbling block that needs to be tackled by the researcher. Because of that, children should have appropriate knowledge towarrd CSA, so that they are aware and know the way to react appropriately or speak to someone if any kinds of sexual abuse or dangerous situation occur. By applying multimedia elements and persuasive technology in learning application, this study attempts to investigate the effects of integration of persuasive technology and multimedia learning in educating children about CSA and increasing their awareness on CSA. It could be hypothesized that the combination of multimedia learning and persuasive technology could be an effective strategy in educating and increasing children's awareness of CSA.

1.3 Preliminary Investigation

A series of preliminary Investigation (PI) have been conducted to investigate the current issues in the context of children's knowledge and awareness of CSA and the current prevention programs implemented in Malaysia.In this investigation, a qualitative method using semi-structured interview (questions are available in Appendix A) technique was selected in gathering information. It enables this study to collect deep knowledge, generate rich data through face to face contact. With it also, this study followed-up immediately on every unclear or ambiguous answers, gained access to information that respondentsdid not reveal on paper, and flexibly administered the interview according to the needs of individual respondents or situations. This is highly meeting the suggestions by Randolph (2008).

The interviews were conducted with a representative of the Malaysian Social Welfare Department, a representative ofPenang Women's Centre for Change (WCC), a

representative of Family Law Division, Department of Islamic Affairs, State of Kedah (JAIK) and teacher from primary school. The investigation also involved review of several researches and softwares for CSA. The findings of these preliminary investigations as detailed in Appendix B conclude that prevention programs that teach children on how to identify and avoid potential sexual abuse are still inadequate. As a result, there is a need to design and develop learning tool using appropriate multimedia elements and computer technology to deliver knowledge about CSA as an effective strategy in increasing children awareness of CSA.Therefore, utilizing the advantages of multimedia and computer technology is necessary in supporting teaching process more effectively to teach children in avoiding potential CSA situation.

1.4 Problem Statement

In the high prevalence of CSA and the negative effects associated with this abusive experience, it stands to reason that research attention must turn toward preventing CSA. CSA damage consequences to the children and subsequent burden to the health and welfare system in many countries. Much work has been done to protect children from further abuse, but, most of the prevention programs in Malaysia are stressing more on public awareness and there are very limited research and prevention programs focusing on educating children regarding to CSA assault. It is important because UNICEF Malaysia Comunications (2009) has reported that a child is not fully aware that it is wrong for an adult to abuse their body. According to Hitrec (2011), children by nature are particularly at risk to all types of abuse because children are temporarily helpless and dependent on adults. In addition, children, nowadays, seem to have limited

knowledge on CSA and they lack of self-protection skill to avoid CSA. It is therefore important to provide knowledge about CSA to children using appropriate learning program so that they are aware of this phenomenon and they understand the danger of CSA. Greater awareness enables children to take necessary actions when CSA cases occur around them.

Currently, most prevention programs involve face to face between a provider and program participants using conventional methods (Child Welfare Information Gateway, 2011). As a society, there are some difficulties and limitations to address sexuality terminologies to children. At the same time, many parents feel uncomfortable, besides lack of vocabulary and resources to discuss about sexual abuse with their children (Chen & Chen, 2005; Walsh & Brandon, 2012). Because of that, parents initially saw that education program that teaches children about CSA as filling an information vacuum (Daro, 1994). Finkelhor (2009) also added that the concepts that children should learn are categorically complicated. In this computer technology and multimedia era, learning can be supported by utilizing the advantages of multimedia and computer technology to make learning process and understanding the concept easier and effective. Foreign studies such as Stay Safe Primary Prevention Program (MacIntyre, Carr, Lawlor & Flattery (2000) and Interactive Multimedia Application (Goldman & Terrisi-Steele (2004) have employed multimedia to facilitate learning regarding on CSA. Unfortunately, educational programs that utilize computer technology and multimedia in teaching CSA to children are relatively lacking, especially, in Malaysia. An example of a prevention program in Malaysia is provided by Women Centre for Change (WCC), Penang and is named Be Smart Be Safe. This program utilized an hour video to

reinforce the idea to teach children age 10 to 12 years old to say no and get away from an uncomfortable and potentially risky situation, and to tell an adult they trust.

To effectively prevent CSA, preventive approaches targeting children need to be explored to protect the next generations of children and youth from sexual victimization. In Malaysia, research and prevention programs focusing on children remain inadequate, agreeing with the literatures that children require appropriate knowledge about CSA. In fact, the lack of self-protection to avoid CSA could lead the abuse to last for years (AMERICAN Academy of Child and Adolescence Psychiatry, 2008).

1.5 Research Objectives

The research objectives are formulated to overcome the problems described in erlier section and further answer the research questions. The main aim of this research is to study the effects of a Persuasive Multimedia Learning Application (PMLA) in educating children with different location of schools and gender especially to increase their knowledge and perceived awareness on CSA. In order to accomplish the main purpose of this research, the following specific objectives are required to be achieved.

i. To identify current children's knowledge and awareness of CSA.

ii. To design and develop the PMLA with two different presentation modes which utilize the narration in conversational style ($PMLA_{cns}$) and the narration informal style ($PMLA_{fns}$).

iii. To study the effects of $PMLA_{cns}$ and $PMLA_{fns}$ by conducting an experimental study with children to assess children's knowledge and perceived awareness before and after the demonstration of PMLA.

iv. To conduct children's perceived motivation test to assess the children's learning experience after using the PMLA.

1.6 Research Questions

This study attempts to answer three major questions detailed below:

1. What is the effect of the PMLA with narration in conversational style ($PMLA_{cns}$) and PMLA with narration in formal style ($PMLA_{fns}$) presentation modes on the children's knowledge towards CSA? In conjunction, the following subsidiary questions arise:
    a. Is there any significant difference on children's knowledge of CSA across the $PMLA_{cns}$ and $PMLA_{fns}$?
    b. Is there any significant difference on children's knowledgeof CSA across children inurban schools and children in rural schools in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?
    c. Is there any significant difference on children's knowledge of CSAamong children in urban schools in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?
    d. Is there any significant difference on children's knowledge of CSA among children in rural schools in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?
    e. Is there any significant difference on children's knowledge of CSA across boys and girls in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

f. Is there any significant difference on children's knowledge of CSA among boys in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

g. Is there any significant difference on children's knowledge of CSA among girls in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

2. What is the effect of the PMLA with narration in conversational style ($PMLA_{cns}$) and PMLA with narration in formal style ($PMLA_{fns}$) presentation modes on the children's perceived awareness towards CSA? This invokes the following subsidiary questions:

   a. Is there any significant difference on children's perceived awareness of CSA across the $PMLA_{cns}$and $PMLA_{fns}$?

   b. Is there any significant difference on children's perceived awareness of CSA across children in urban schools and children in rural schools in both $PMLA_{cns}$ and $PMLA_{fns}$presentation modes?

   c. Is there any significant difference on children's perceived awareness of CSA among children in urban schools in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

   d. Is there any significant difference on children's perceived awareness of CSA among children in rural schools in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

   e. Is there any significant difference on children's perceived awareness of CSA across boys and girls in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

f. Is there any significant difference on children's perceived awareness of CSA among boys in both $PMLA_{cns}$ and $PMLA_{fns}$presentation modes?

g. Is there any significant difference on children's perceived awareness of CSA among girls in both $PMLA_{cns}$ and $PMLA_{fns}$presentation modes?

3. What is the effect of the PMLA with narration in conversational style ($PMLA_{cns}$) and PMLA with narration in formal style ($PMLA_{fns}$) presentation modes on the children's perceived motivation towards the learning material? This further invokes th following subsidiary questions:

   a. Is there any significant difference on children's perceived motivation towards the learning material across the $PMLA_{cns}$ and $PMLA_{fns}$?

   b. Is there any significant difference on children's perceived motivation towards the learning material across children inurban schools and children in rural schools in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

   c. Is there any significant difference on children's perceived motivation towards the learning material among children in urban schools in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

   d. Is there any significant difference on children's perceived motivation towards the learning material among children in rural schools in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

   e. Is there any significant difference on children's perceived motivation towards the learning material across boys and girls in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

f. Is there any significant difference on children's perceived motivation towards the learning material among boys in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

g. Is there any significant difference on children's perceived motivation towards the learning material among girls in both $PMLA_{cns}$ and $PMLA_{fns}$ presentation modes?

1.7 Research Hypotheses

The aim of this experiment is to investigate the effects of the PMLA with narration in conversational style ($PMLA_{cns}$) and PMLA with narration in formal style ($PMLA_{fns}$) in enhancing children's knowledge and perceived awareness of CSA. Hence, the following hypotheses were formulated as null hypotheses. The null hypotheses will be rejected when the *p*-value is less than the significance level, which is set at 0.05.

1. There is no significant difference on children's knowledge of CSA across the PMLA with narration in conversational style ($PMLA_{cns}$) and PMLA with narration in formal style ($PMLA_{fns}$) presentation modes. To support that, the following subsidiary hypotheses need to be tested:

   $Ho_{1a:}$ There is no significant difference on children's knowledge of CSA across $PMLA_{cns}$ and $PMLA_{fns}$.

   Ho_{1b}. There is no significant difference on children'sknowledgeof CSA across children in urban and rural schools in $PMLA_{cns}$ and $PMLA_{fns}$.

   Ho_{1c}. There is no significant difference on children's knowledge of CSA among children in urban schools across $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{1d}. There is no significant difference on children's knowledge of CSA among children in rural schools across $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{1e}. There is no significant difference on children's knowledge of CSA across gender in $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{1f}. There is no significant difference on children's knowledge of CSA among boys across the $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{1g}. There is no significant difference on children's knowledge of CSA among girls across the $PMLA_{cns}$ and $PMLA_{fns}$.

2. There is no significant difference on children's perceived awareness of CSA across the PMLA with narration in conversational style ($PMLA_{cns}$) and PMLA with narration in formal style ($PMLA_{fns}$) presentation modes. This invokes the following subsidiary hypotheses:

$Ho_{2a:}$ There is no significant difference on children's perceivedawareness of CSAacross$PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{2b}. There is no significant difference on children's perceived awareness of CSA across children in urban and rural schools in $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{2c}. There is no significant difference on children's perceived awareness of CSA among children in urban schools across $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{2d}. There is no significant difference on children's perceived awareness of CSA among children in rural schools across $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{2e}. There is no significant difference on children's perceived awareness of CSA across gender in $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{2f}. There is no significant difference on children's perceived awareness of CSA among boys across $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{2g}. There is no significant difference on children's perceived awareness of CSA among girls across$PMLA_{cns}$ and $PMLA_{fns}$.

3. There is no significant difference on children's perceived motivation toward learning material across the PMLA with narration in conversational style ($PMLA_{cns}$) and PMLA with narration in formal style ($PMLA_{fns}$) presentation modes. This leads to the formation of the following subsidiary hypotheses:

Ho_{3a}. There is no significant difference on children's perceived motivation toward learning material across the $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{3b}. There is no significant difference on children's perceived motivation toward learning material across children inurban and rural schools in both $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{3c}. There is no significant difference on children's perceived motivation toward learning material among children in urban schools across $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{3d}. There is no significant difference on children's perceived motivation toward learning material among children inrural schoolsacross$PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{3e}.There is no significant difference on children's perceived motivation toward learning material across gender in $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{3f}. There is no significant difference on children's perceived motivation toward learning material among boys across $PMLA_{cns}$ and $PMLA_{fns}$.

Ho_{3g}. There is no significant difference on children's perceived motivation toward learning materialamong girls across $PMLA_{cns}$ and $PMLA_{fns}$.

1.8 Significance of the Study

This study contributes to provide children with information on CSA in order to increase their awareness of CSA. The finding of this study is expected to contribute mostly to children and also other various parties such as teachers, parents, goverment agencies, organizations and society as awhole.

The PMLA developed in this study could be used as an additional learning material for Physical and Health Education subject in primary school. Children would explored the PMLA and experience this interactive learning themselves while geting information on CSA. ThisPMLA is effective as digital persuader will eventually motivate children to get knowledge and increase their awareness of CSA and also prepare them to apply suggestion action if facing possible dangerous situation.

On the other hand, the proposed design and development of PMLA will assist multimedia practitioners or developers in designing and developing multimedia learning application particularly in educating children on CSA. This study is designed by combining macro strategy (persuasive principles) and micro strategy (personalization principle).

In addition, this study also contributes to add new knowledge to the design principle of CTML. This study investigates the effect of personalization principle on children's knowledge, perceived awareness and perceived motivation in the domain of CSA.

Personalization principle describes that users learn better through multimedia application when narration are presented in conversational style rather than formal style (Mayer, 2009). This study established that personalization principle can affect children's knowledge, perceived awareness and perceived motivationin the domain of CSA.

1.9 Limitations of the Study

There are some limitationsthat may restrict the probability of generalizing the findings of this study. This study is limited to primary prevention program. This method focuses on the community in general, attempting to prevent the abuse before it actually occurs. The domain area of this study is in Malaysian context. Respondents involved in this study are limited to the Malay-medium National Primary School children aged between 7 and 9 years old.

This study also limited to measure the effects of two different presentations modes of PMLA in increasing children's knowledge, perceived awareness and perceived motivation levels which assess children's learning experience after using both presentation modes of PMLA. PMLA was designed according to Mayer's personalization principle. $PMLA_{cns}$ utilizes narration in conversational style while $PMLA_{fns}$ utilizes narration in formal style. In $PMLA_{cns}$, a teacher interacts with the children, explains and suggests on what children should do when facing dangerous situations in conversational style. In contrast, in $PMLA_{fns}$, the contents and instructions are narrated in a formal way.

Lastly, this study intention is limited to prevention of CSA rather than protection. So that, the study will not ask further questions if the child involved as a respondent is identified as one of the victims of CSA (based on school report).

1.10 Theoretical Framework

To ensure this study is systematically conducted, the theoretical framework for this study is designed based on a macro and micro design strategies (Reigeluth & Merrill, 1978).According to Reigeluth and Merrill, macro strategy concerns with the selection, sequence, and organization of the subject matter topics that are to be presented. In complementing the macro strategy, the micro strategy concerns with the strategies for effective presentation of the learning contents. In regards to that, the macro strategy involved in this study is persuasive technology (Fogg, 2003), whereas micro strategies adopted in this study are Mayer's Cognitive Theory of Multimedia Learning (Mayer, 2001), Personalization Principle chosen to be tested (Mayer, 2009) and Design Guideline for Children (Meloncon, Haynes, Varelmann & Groh, 2010). For environment design strategy, this study considered Constructivist Learning Environment (CLEs) by Jonassen (1999). Figure 1.2 presents the design strategies of this study. Further, brief elaborations on the theories are described within that context in this section and further detailed in Chapter 2.

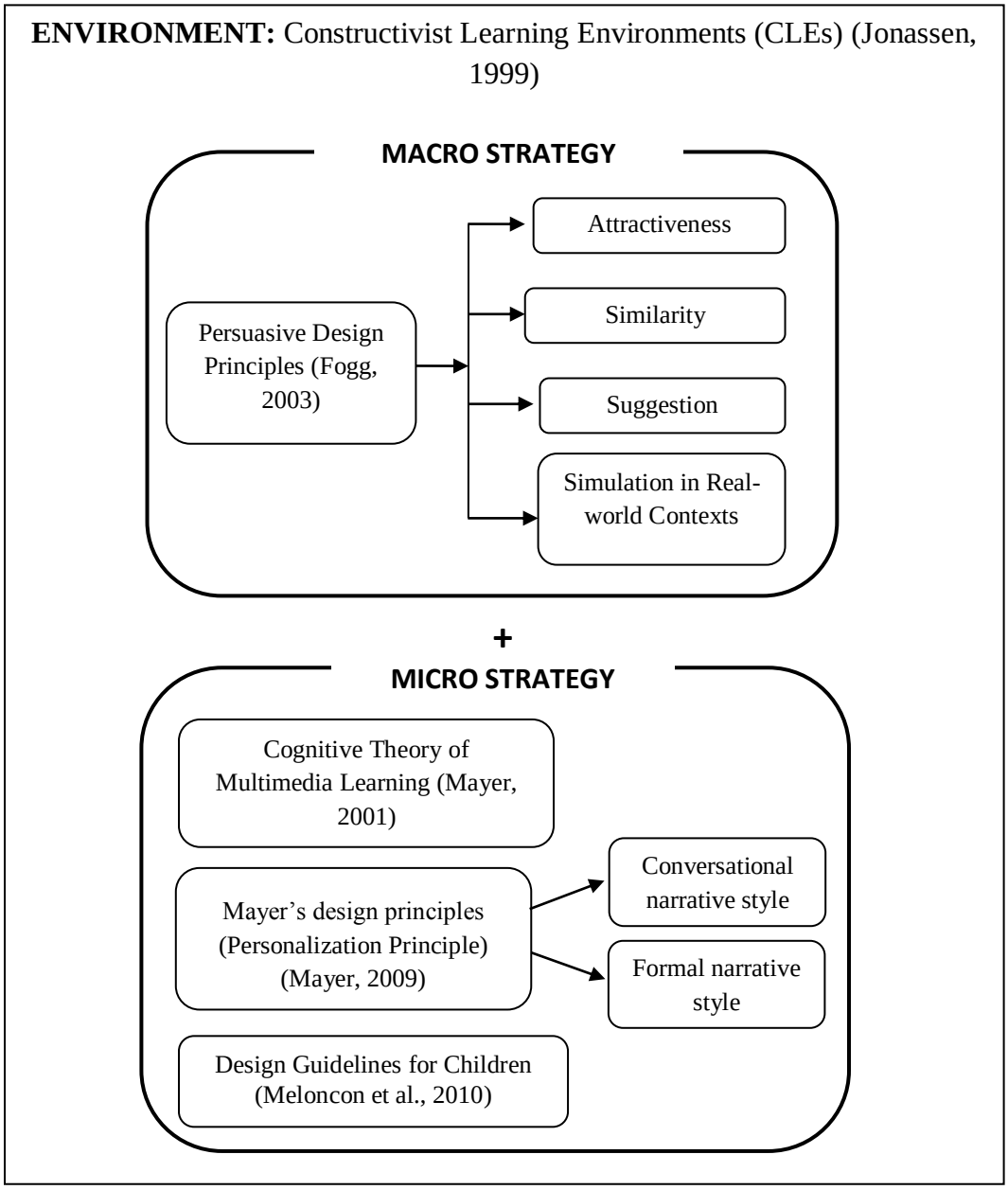

Figure 1.2 Graphical Representation of Theoretical Framework

1.10.1 Persuasive Technology

Fogg (2003) defined persuasive technology as the applications that are embedded with a persuasion strategy by means of computing technology and it has interactive characteristics to change the individual's attitudes and behavior. The combination of persuasion elements and computers guides to 'Computer as Persuasive Technology', known as Captology. The applications of Captology focus more on design, research and activities of interactive computing product. Fogg introduced the functional triad for captology which is a conceptual framework that illustrates different roles that computing technology can play. The functional triad shows that interactive technologies can operate in three basic ways people respond to computer technology which are computer as persuasive tools, computer as persuasive media and computer as persuasive social actor. First, computers as persuasive tool can persuade people by making some behavior easier or more efficient, or leading people through a process of performing calculations or measurements that motivates. Second, computer as a persuasive medium that can persuade people by allow them to explore cause-and-effect relationships, providing them with experiences that motivate or helping people rehearse a behavior. Lastly, computer as a social actor can persuade people by rewarding them with positive feedback, modeling a target behavior or attitude or providing social support.

1.10.2 Cognitive Theory of Multimedia Learning

Mayer's Cognitive Theory of Multimedia Learning (CTML) (2001) describes the way people learn from words and pictures and the way the information is processed through two basic channels; verbal and visual. Mayer's theory is based on the theory of meaningful learning, which draws on Wittrock's et al. work on generative theory and

Paivio's et al. work on Dual Coding Theory (Mayer, 1997). Generative theory contributes to the understanding that meaningful learning occurs when learners selectrelevant information from what is presented, organizethe pieces of information into a coherent mental representation, and integrate the newly constructed representation with others (Mayer, 1997). It explains that cognitive processes occurred within two separate information processing systems: a *visual* system for processing visual knowledge and a *verbal* system for processing verbal knowledge (Mayer, 1997).

1.10.3 Constructivist Learning Environment

Constructivist Learning Environment (CLEs) was suggested by Jonassen (1999). Constructivist theory holds the belief that knowledge is constructed. Hence, this environment is based on problem-based learning in which the learners are expected to explore the learning materials on their own, not transfer from teachers. A series of tools such as related cases, information resources, cognitive tools, conversational and collaboration tools and social contextual support should be provided to facilitate the learners in the learning practice.

1.10.4 Principle of Multimedia Learning

In line with CTML, Mayer (2009) proposed twelve research-based principles for the design of multimedia application, called Multimedia Design Principles. The principles provide guidance in making use of any combination of words and pictures rather than using only text in design and it explains how students learn better from the multimedia elements. Each of the principles is also suggested to be implemented in light of the CTML.

1.10.5 Design Guidelines for Children

In terms of designing for children, a Guideline for Educational Websites for Children by Meloncon, Haynes, Varelmann & Groh, (2010) is reviewed. This guideline contains 10 elements of design guidelines for children (particularly aged 7 to 9 years old), which include three categories; navigation, appearance, and content.

1.11 Research Framework

The research framework of this study is graphically represented in Figure 1.3. The research framework proposes one independent variable with two modes of presentation that attempted to impose effect on three dependent variables. The first mode is $PMLA_{cns}$ that applies narration in conversational style and the second mode is $PMLA_{fns}$ that applies narration in formal style. The independent variable is expected to show a significant variance on the dependent variables. Meanwhile, dependent variables are knowledge, perceived awareness and perceived motivation. There are two moderator variables invelve in this research and they offer a contingent effect on the relationship between the independent and dependent variables. For such purpose, the moderator variables are children's locationof schools and gender.

According to Nor Shafrin (2012), there are different view on CSA between people who live in urban area and those who live in rural area. Therefore, an investigation on children's knowledge and awareness in different location of school would provide useful insight to this study. The rationale is to determine whether children in urban and rural areas achieve equally well in knowledge, perceived awareness and perceived motivation when exposed to PMLA with different modes of narration in PMLA.