Designing for Children
- With focus on 'Play + Learn'

Encourage Children in Jordan to read printed books by using digital media

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Abstract: This paper summarizes the purpose to encourage children aged (8-12) years old in Jordan to read printed books by creating a digital program with multimodal features.

 The fall in the number of children who read printed books is due to the rise in children's use of computers which began in the early eighties. Computer use was popularised with the increasing availability of public computers in libraries and, as the new century began, increased access to computers both in public places and in the home.
Mostly children spend time, which would once have been spent reading or watching television, using the internet and playing yet more computer games, neglecting the fact that books can provide both education and entertainment.

Children will never become good readers if they only read what they are instructed to read in schools. Therefore, work done by libraries, teachers and parents to encourage and inspire children to read printed books is more important than ever. This work requires continuous public information campaigns to encourage reading. Creating interactive spaces, such as in libraries, where playing and learning can be done simultaneously, will allow children's needs to be educated through the means of entertainment to be met.

Keywords: Children, Digital Media, Reading, Printed Books, Computer, Multimodal features.

1. **Introduction**

Understanding what encourages people to love reading is an important issue and will change with age since what inspires a child, teenager and adult to love books is likely to be very different.

Some people view reading as a way of creating strong communities through discussions and interaction. Others see reading as a way to improve the lives of those who are isolated, disadvantaged, and uneducated.

However, most people are encouraged to read by a sense that they are sharing something good and useful. The sheer joy of the reading process fosters genuine understanding and enthusiasm for this practice in readers (O'Callaghan, 2004).

Most researchers to date have studied ways of enhancing digital libraries and how to design information and social spaces for use by adults and children. Little research has been done to explore the desire to read printed books and to promote this process and to convey the idea that books can provide an information space. Books can be used to support sociable environments for knowledge exchange, such as libraries, book clubs, schoolwork, storytelling in children centres, clubs and in the home.

The PhD research aims to enhance children's desire to read printed books by trying to change attitudes of children through their use of digital media. It is very important to study their attitude towards reading as well as their social interaction and behaviours in various environments such as multi dimensional and multimodal environments.

2. **Rationale behind study**

The project emerges out of personal and public concern for the lack of children reading printed books in Jordan. This returns to many factors that passively affect both children and reading, such as social, economical, political and cultural issues.

The reasons why children read printed books needs to be identified and considered. Some examples of behaviour that encourages, as well as practices which discourage, children to read books in Jordan have already been identified, as shown below.

Encouraging behaviours

- The capital of Jordan, Amman, has seen a boom in modern book shops, due to rapid economic growth in the city.
- Entertainment provided by books, magazines and newspapers.

- Efforts have been implemented by Greater Amman Municipality to encourage children to read books by constructing public libraries within the districts of Amman.

Discouraging behaviours

- Despite a growth in book stores within the city, books have never been affordable to the general public.
- Most of parents do not set aside time in their day to sit and read books with their children.
- Schools in Jordan do not encourage extracurricular reading.
- Teachers do not motivate children by encouraging them to read for pleasure (Urdunmubde3, 2009).   Their focus is only on the teaching of literacy to pass exams.
- The lack of promoting books for children on local Jordanian TV channels, radio and daily newspapers. Such media are not encouraging children to buy or borrow books from the local library.

Digital Media will offer designers a possibility to encourage children to read printed books, as it offers them some of the high production values that 3D books possess, such as exciting images, colours, 2D and 3D effects that attract readers. Visual appeal is very important to children and this is not realised by most educators. Talking about a printed book means a physical world which children care about and take an interest in. Shore (2008) has quoted a statement by one of her study participants saying that when developing a digital library it should contain the attraction and interest that printed books do, which are often chosen for their cover colour and design. For children, the book cover may be what attracts their interest in a title and the subsequent illustrations may maintain this interest. However, adults can't understand this desire. Eye- catching, visual appeal is known as the physical factor, and this itself is certainly part of the motivating power of digital media to hold children's interest. The digital media revolution will be the vehicle that inspires children to spend time and effort reading printed books.

Children will appear to be motivated to read independently when book text is embedded within online site content that creates enough interest for them to find the physical version of this book. Thorhauge (2006) suggests that children have become fascinated by the new digital media and that they are spending their free time interacting with this,

rather than with non-electronic products such as books. He said that children visit libraries less, read fewer books and even watch fewer television programmes. Mostly children spend time, which would once have been spent reading or watching television, using the internet and playing yet more computer games, neglecting the fact that books can provide both education and entertainment.

Kulkarni has discussed a future project of the International Children's Digital Library (ICDL) which aimed to develop innovative software and a collection of books that specifically address the needs of the new generation of children as readers. This project has discussed various ways to enhance user experience in an information space; by developing interest, awareness, motivation and trust and by encouraging children (9-13 years old) to participate in social interaction using the ICDL's social booklist system. Kulkarni also discussed how the architecture of such a system is designed, along with prototype interfaces to provide an engaging user experience.

Governments and education authorities are requested to provide greater guidance to parents on the educational value of digital media and to seek ways to increase children's interest in the printed books. The awareness of parents on the educational value of digital media is impacted by their involvement in the digital economy. This digital economy refers to the global economic networking and social activities which are enabled by Information and Communication Technologies, particularly the internet. It includes commercial transactions, personal dialogue, information, entertainment and delivery of services. The term is often used interchangeably with 'internet economy' and 'information society'. (Abba, 2008)

3. **The aim of the study**

To create a digital social networking site to encourage children aged (8-12) years old in Amman to read printed books.

4. **Methods**

The research will be managed in a series of stages outlined below:

4.1. Study background

Existing research mostly concerns the enhancement of the digital reading experience and way of creating social environments such as reading groups and digital libraries to encourage children to read on screen texts. No research was found which explored the use of digital media and interactive programs to encourage children to read printed books.

Studies have shown that interactive media have extraordinary potential in helping children to enjoy learning and to learn effectively. Interactivity through collaboration with others is a proven learning strategy which is commonly used effectively with children in many ways, for example, by undertaking collaborative work with their peers. Similarly, stimulating collaboration in children's story-telling play can lead to improved writing skills.

Multimodality is a system dealing with onscreen interactivity. In addition to more and more robust modalities, conceptual and empirical work on the usage of multiple modalities is now available for guiding the design of efficient, usable multimodal interfaces. It combines graphics, text and audio output with speech, text, and touch input to deliver a dramatically enhanced end-user experience (Jewitt, 2006). Multimodal applications give users multiple options for inputting and receiving information. This technical method enables users to interact with the information through a new digital media and to recall the information; as multimodality used a source of gaining knowledge can develop the literacy of the user.

Children engage with multimodal computer applications in many ways: they point, gesture, gaze at the screen, they move the mouse, click on icons and sometimes talk. Children will learn from interacting with all modes presented on the screen, not only from what is written and said. Children differ in the ways in which interaction with multimodal systems shape their learning. Individuals respond to modalities differently have different preferences. Various multimodal texts offer different filters for understanding and offer different potentials for engagement with text, image, sound and animation. This environment blends contents together (e.g. visual images, sounds and texts) providing users with the sensory information that they need to interpret and respond to the program.

Jewitt listed major contrasts between the old traditional forms (book) and the new technology (computer). This involved considering how the move from the medium of book-page to the digital medium of a computer-screen changes what it means to read and write. Considering differences between the page and screen; and the impact that these

differences have on the user's experience, will be information crucial to this project, since this work is about encouraging the reading of text on a physical page through the use of multimodal new technology (website).

Blaney's (2004) study focused on the process of creating a children's book which develops new ways to utilise digital media alongside traditional methods and techniques such as mark making, drawing, painting and collage. The aim of this work was to promote and develop language and literacy within an innovative contemporary illustration context.

In Barone and Wright's (2008) study about literacy instruction with digital media technologies; they described how digital media and literacy are interwoven within the activities of a fourth-grade classroom. This new technology prepares students to understand to have an understanding of literacy extended from the traditions forms. For instance, teachers may identify with past models of literacy that are paper and pencil bound, but students extend this traditional experience through the comprehension of web-based information sources.

By conducting this literature review the researcher will gain understanding of four things: [1]the definition of literacy and its forms [2]the importance of technology and different modalities [3]the effect of multimodal technologies on children's literacy, [4]the design principle and methods that will be best employed in the successful development of the prototype program. In order to cover this wide scope of knowledge this literature review will need to be expanded and relevant papers identified, evaluated and compared in detail.

4.2. Case Study: Jordan

This study was conducted to provide information for use in designing a prototype program that will encourage children in Jordan to read printed books.

The aim of the survey was to study the children's ability to interact with networking sites, such as Club Penguin.

The study contained two major methods, the first was a semi-structured interview, and the second was a questionnaire survey on a current program called Club Penguin. Club Penguin is a virtual world where children can play games, have fun and interact created by Disney. This was tested on a group of children (aged 8-12 years) from different centres and schools in Amman, Jordan.

Five children's centres were contacted and recruited to take part in the study. The centre managers were introduced to the aims of the case study and each centre nominated 10 children as participants to undertake the survey (Figure 2 and 3).

Figure 2 Shows a child trying the program in the survey

Figure 3 Shows the child answering the questionnaire

The selection of the children was based on an understanding that children in the middle-years of childhood (8-12) are characterised as being more adept at computer-use than preschoolers, but less savvy than teenagers (Shore, 2008). Shore has shown the age span of this category as it is shown in table (1).

Middle Childhood Concerns	
Cognitive	• Strengthen their capacity for remembering, imagining, logical reasoning, problem solving, and critical thinking. • Become more reflective — that is, better able to access, reflect upon, and talk about their own thoughts and feelings, and to describe themselves in complex ways. • Focus on activities for longer periods of time. • Communicate easily, using language effectively in a wide variety of situations.
Social/ Emotional	• Begin to negotiate a wide range of social interactions without adult help and to establish relationships that are not extensions of their parents' networks. • Form stronger, more complex relationships, particularly with peers of the same sex, and grow in their desire to be liked and accepted by friends. • Gain the ability to play and learn in teams or groups. • Begin to create social hierarchies and a sense of "groupness."
Moral	• Begin to form a consistent set of values that guides their behaviour. • Strengthen their sense of right and wrong, understanding and adhering to social norms.
Environmental	• Continue to be strongly influenced by their families' values and routines. • Start and finish elementary school, spending about 7 hours per weekday in a school environment. • Spend significant stretches of time immersed in media, often "multitasking."

Table 1, Middle Childhood Concerns, Shore (2008)

The questionnaire was designed in a way that covers all issues related to the design of the program, attraction factors, usability, and children's desires. It was also designed to determine the gaps in interaction between the children and the program.

A semi-structured interview was conducted with the manager of each centre. The aim of this study was to understand the role of children's centres in creating an interactive environment for the children.

The study outcomes:

- Reading is one of the main activities undertaken by all the centres.

- The library is a major part of each centre, and many activities are connected with the library.

- The centres consider that parents have the big role in encouraging their children to read printed books by coming to the library and sharing time with their children. Unfortunately few people in Amman do this.

- The centres believe in the importance of digital media to promote books and encourage reading.

- One of their future dreams is to create an electronic library or a website onto which they can easily save books and promote reading.

The results of research using this sample can, therefore, represent the wider population and be used to understand why this age group of Ammani children mostly do not read printed books. The research can also inform the design of a relevant prototype computer program to encourage children to read traditional books.

Analysis and Results:

Club Penguin is a software program for children aged (6-14) years old that forms an environment where children can play, learn and have fun.

100% of the participants liked the program, and many of them were already members of Club Penguin and had used the program before. This suggests that children in Amman deal with computers and are familiar with using the mouse and the keyboard keys. It also suggests that access to the internet is available in Amman, even in poor districts.

Reading plays a main part in the program, because children need to read instructions to know how to use the program, need to read news to be updated with the program activities, and need to chat with friends online. So the child is improving his reading unconsciously in an interesting and easy way by interacting with the software.

However, the children still do not enjoy reading. When children begin using a new computer game they are interested in the game itself, e.g. catching the mouse, and their interaction with the interface is aimed at helping them to play the game. Illustrations and icons are often enough to guide the child's play without them having to read instructions

written in text. By trying the game many times children learn how best to operate it. The attitudes of children testing the program was revealed in their questionnaire responses. The preferred program activity, i.e. that which the children gave the highest ranking to, was playing games. The children gave the lowest ranking to the activity of reading written text, such as news, suggesting this was their least favourite activity.

Although Jordan is an Arabic country, and the major language is Arabic; most of children prefer the program to be in English. This is another issue which needs further study. Why do children not prefer a non-native language for an on-screen interface? Users of all ages, both children and adults, prefer the English to the Arabic interface. One reason is that sometimes English words are hard to translate into the Arabic language and looks odd when appearing on an interface.

Characters in the program can play a big role in attracting the child and developing the child's personality. Children may find themselves represented in the program by a particular character, such as the penguin in 'Club Penguin'. This identification can be facilitated by the use of specific names or colour which can be controlled by the child, give the user the ability to choose, move, think, interact and discover things by himself through manipulation of the character figure.

5. Proposed Design

The proposed design will deal with children aged (8-12) years old, this age category is representing the children who collect with aim of making distinctions between objects or social such as exchanging objects and playing games (Valkenburg, 2004).
The proposed design project will be based on developing a social networking site for children to encourage them to read printed books.

6. Conclusion

Today, many cultural centres in Amman are working hard to build children's literacy skills in a safe environment, including making efforts to improve their reading. These institutions are ready to follow new ideas and embrace new technologies that aim to encourage reading and improve children's literacy. However, and in spite of their efforts, they must keep in mind the importance of the classic (printed) book in the life of the

children. Printed books can provide fun and enjoyment, and technology must play its part in encouraging Children to continue to enjoy the classical art of reading books. Classic printed books offer Children a window into another world, a world where they can think outside of their normal avenues of thought (Alexis, 2009).

In Jordan, many parents complain that their children don't read, forgetting that they have responsibility for promoting this activity. Children will never read if they do not find their home to be a suitable environment for this purpose, or if they do not gain support and stimulation for their reading from their parents. Libraries in Amman centres complain that parents do not visit the library with their children and do not take the time to sit and share reading with them.

As an outcome of interviews with both Jordanian authorities concerned with the development of children's literacy, and with children themselves, a case study must be undertaken on designing Arabic language digital programs encouraging children to read books.

This research will contribute by the development of a set of design principles to inform the design of a prototype digital program encouraging children to read printed books. The usability of this prototype will be used to improve the relationship between children and printed books.

The proposed website design will act as a valuable tool to stimulate and increase children's desire to read printed books and be a formative experience by participating actively in the development of children reading interests and capabilities.

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