CONNECT

Proceedings of CHI UX Indonesia 2015 (CHIuXiD 2015)
The International HCI and UX Conference in Indonesia

In cooperation with ACM SIGCHI

08-10 April 2015
Bandung, Indonesia

Edited by
Eunice Sari, Johanna Hariandja, Thedy Yogasara, Ellya Zulaikha,
Emil R. Kaburuan, Paulus Insap Santosa, Adi Tedjasaputra, Harry B. Santoso
# TABLE OF CONTENTS

Table of Content
Welcome from Conference Chairs
What is CHI UX Indonesia?
International Board of Reviewers
Organizing Committee
Keynotes
Industry Talks
Workshops
ACM Paper Abstracts
Position Papers
Design Challenge Proposals

## ACM Paper Abstract

Development of Gamification-Enriched Pedagogical Agent for e-Learning System-based on Community of Inquiry  
*Andika Yudha Utomo, Harry Budi Santoso*

nRoom: An Immersive Virtual Environment for Collaborative Spatial Design  
*Cagri Hakan Zaman, Asiya Yakhina, Federico Casalegno*

The Evaluation of the Usability and Effectiveness of TELEREC E-Collaboration System  
*Wan Fatimah Wan Ahmad, Alimatu-Saadia Yussiff, Emy Elyanee Mustapha*

User Experience on Numerical Application Between Children with Down Syndrome and Autism  
*Naziatul Shima Abdul Aziz, Wan Fatimah Wan Ahmad, Nurul Jannah Zulkifli*

Designing Knowledge Management System Prototype for Mental Health Practitioners  
*Khafidlotun Muslikah*

Supporting Social and Adaptive Interaction in Collaborative Rehabilitation Training  
*Johanna Renny Octavia, Karin Coninx*
### Measuring User Experience of a Potential Shipment Tracking Application
*Nova Eka Diana, Ocky Aditia Saputra*

- p. 4

### Investigating Social Media Potential for Teacher Learning in Aceh, Indonesia
*Christine Pheeney, Helen Klieve*

- p. 4

### Developing Deaf or Hard of Hearing Children’s Social and Emotional Skills Through Interactive Experiences
*Tan Ching Ying Michelle*

- p. 5

### Understanding HCI Education Across Asia-Pacific
*Eunice Sari, Bimlesh Wadhwa*

- p. 5

### An Eye Tracking Study: Exploration Customer Behavior on Web Design
*Juni Nurma Sari, Ridi Ferdiana, Paulus Insap Santosa, Lukito Edi Nugroho*

- p. 6

### A Preliminary Study to Determine Criteria for Personalized E-Commerce
*Rianto, Lukito Edi Nugroho, Paulus Insap Santosa*

- p. 6

### POSITION PAPERS

#### Lecturer Decision Support System (DSS) Based on Indonesian Lecturer Academic Position Rank
*Spits Warnars*

- p. 7

#### Interaction Design of Mobile Game-Based Learning for Letter Learning
*Herika Hayurarani, Nurmaya, Muhammad A. Ziqri, Maulana Shiddiq, Dian A. W. Harbyantinna*

- p. 11

#### Interaction of Self-Concept and Online Identity among Children, Teenagers and Early Adults in Indonesia
*Lidia Sandra*

- p. 15

#### Evaluation and Measurement of User Experience for a Learning Management System
*Dadang Syarif Sihabudin Sahid, P. Insap Santosa, Ridi Ferdiana, Lukito Edi N.*

- p. 19
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hidden Modern Health Problems and Crouching Traditional Exercise Solutions for Computer Users</td>
<td>23</td>
</tr>
<tr>
<td><em>Laurentius Noer Andoyo, Lidia Sandra</em></td>
<td></td>
</tr>
<tr>
<td>Conceptual Integrity of Dialog Boxes: Installing Oracle DBMS and Setting-up Oracle Service</td>
<td>27</td>
</tr>
<tr>
<td><em>Bernaridho I. Hutabarat, Maria Lucia Luciana, Bistok D. Lelono</em></td>
<td></td>
</tr>
<tr>
<td>Playability Evaluation in Mobile Games Using Playability Heuristic Technique</td>
<td>31</td>
</tr>
<tr>
<td><em>Mira Kania Sabariah, Bimo Eka Putra, Bayu Munajat</em></td>
<td></td>
</tr>
<tr>
<td>An Evaluation of Mobile Quran Apps</td>
<td>35</td>
</tr>
<tr>
<td><em>Murni Mahmud, Adamu I. Abubakar</em></td>
<td></td>
</tr>
<tr>
<td>DESIGN CHALLENGE PROPOSALS</td>
<td></td>
</tr>
<tr>
<td>Prototype Pengukur Ketinggian Air dan Pengaturan Buka-Tutup ada Pintu Air Berbasis Website</td>
<td>39</td>
</tr>
<tr>
<td><em>Alexander Samuel, Marcela Astrid</em></td>
<td></td>
</tr>
<tr>
<td>Floodout - Aplikasi Statistik Data Pelanggaran Pembuangan Sampah Sembarangan</td>
<td>39</td>
</tr>
<tr>
<td><em>Dayuanti, Inayati Makrifah, Mochammad Noor Syamsu</em></td>
<td></td>
</tr>
<tr>
<td>FVS System</td>
<td>40</td>
</tr>
<tr>
<td><em>Deni Kurnianto Nugroho, Fahmi Tyastomo, Azhim Rosyed Ibrahim</em></td>
<td></td>
</tr>
<tr>
<td>JFIS - Jakarta Flood Information System</td>
<td>40</td>
</tr>
<tr>
<td><em>Ocky Aditia Saputra, Ahmad Fahrizal, Taufik Hidayat Raharjo</em></td>
<td></td>
</tr>
<tr>
<td>Multiplying Sensor-Based Automatic Sluice for Preventing Flood in Indonesia</td>
<td>41</td>
</tr>
<tr>
<td><em>Dian Ayu Wulandari Harbyantinna, Maulana Shiddig, Muhammad Al Ziqri</em></td>
<td></td>
</tr>
<tr>
<td>Infloodmation Application to Ease Flood Problems</td>
<td>41</td>
</tr>
<tr>
<td><em>Nigel Chrisman Santoso, Martin Wibowo, Hilda Satyadi</em></td>
<td></td>
</tr>
<tr>
<td>Floody</td>
<td>41</td>
</tr>
<tr>
<td><em>August Viera, Khoerintus, Stephen Porsalino</em></td>
<td></td>
</tr>
</tbody>
</table>
Welcome from Conference Chairs

It is with great pleasure we welcome you to CHI UX Indonesia (CHIuXiD) 2015. CHI UX Indonesia 2015 is an international ACM In-Coop Conference that provides a platform for Human-Computer Interaction (HCI) and User Experience (UX) academics and professionals from across Indonesia to share and learn about the development of HCI and UX in the region. This year CHI UX Indonesia 2015 is organized for the first time by CHI UX Indonesia (Indonesia ACM SIGCHI Chapter) in collaboration with Industrial Engineering Department of Parahyangan Catholic University (UNPAR).

The theme “Connect ~ Connecting academics and professionals in the UX world” was chosen to reflect our passion to gather and engage HCI practitioners from academia and industries to exchange knowledge and share their portfolio relevant to HCI and UX, as well as to build a common ground to advance HCI and UX collaboration in the region. HCI is not a completely new discipline in Indonesia, yet HCI practice has recently become a new “trend” in the industry. More universities have started to offer HCI courses as a part of their programs, while industries start to practice HCI and UX to improve their product and service delivery.

UX Indonesia – Malaysia 2014 Conference conducted in April 2014 was the first HCI and UX event ever conducted in Indonesia. This event laid a cornerstone for building a strong HCI and UX community of practice in Indonesia and gave birth to Indonesia ACM SIGCHI Chapter (CHI UX Indonesia). As people started to get together and engage in this new community, we realised a big gap of knowledge and interpretation among the community members.

CHIuXiD 2015 aims to engage academics and professional in a number of interactive activities, i.e. keynote sessions, participative sessions, position paper and poster presentations, workshops, design challenge activities, and industry tracks. This event provides a venue for its participants to learn the state-of-the-art of HCI and UX in Indonesia, discuss and exchange knowledge, address the challenges and exhibit the works being done related to HCI.

We currently receive the works of more than 70 contributors from Indonesia, Malaysia, Singapore, Australia, United States, Netherland, Belgium, Japan, Taiwan and United States through forty-two submissions. Out of twenty-four technical papers submitted, we selected twelve papers (four short
papers and eight full papers) through a rigorous double-blind-review process done by a board of international reviewers. These papers features a number of great and insightful articles related to usability testing and evaluation, HCI and Online Learning, HCI Education, Healthcare Experience Design and Applied User Experience.

Proceedings of CHIuXiD 2015 consist of the above technical papers and other submissions that were submitted under the following categories: workshop proposals, position papers and design challenge proposals, which were reviewed by their respective track chairs. Eight teams were selected to participate in the Round 2 of the Competition (24-hour design challenge) to present their proposals. Eight position papers were selected for poster and position paper presentation. Four hands-on workshops will be conducted as part of the conference programme.

Organizing the first International ACM In-Coop Conference on Human-Computer Interaction and User Experience is a great challenge. We knew that the field is currently growing in Indonesia. We extend our gratitude to our strong and dedicated program committee members, international board of reviewers, and also the co-organizer, Industrial Engineering Department UNPAR.

Last but not least, we do hope that you enjoy the conference and your stay in Bandung. We also wish our international participants a memorable experience during your stay in Indonesia.

Eunice Sari and Johanna Hariandja (Conference Chairs)

On behalf of CHI UX Indonesia 2015 Organizing Committee
CHI UX Indonesia (Indonesia ACM SIGCHI Chapter) adalah sebuah komunitas dan katalisator di Indonesia untuk pengadaan, pengembangan, kerjasama dan konstruksi ilmu pengetahuan dan penerapan terbaik dalam bidang interaksi antara manusia dengan teknologi digital atau teknologi berbasis komputer (HCI).

HCI mencakup segala aspek multidisiplin dari interaksi pengguna atau konsumen dengan layanan dan produk digital yang juga dikenal dengan nama User Experience (UX) atau Customer Experience (CX). Bidang yang terkait, antara lain: psikologi, pendidikan, sains, teknologi, desain, manajemen, ekonomi, komunikasi, sosial dan budaya.

Visi
Menjadi sebuah komunitas terkemuka dan katalisator di Indonesia untuk pengadaan, pengembangan, kerjasama dan konstruksi ilmu pengetahuan dan penerapan terbaik dalam bidang interaksi antara manusia dengan teknologi digital atau teknologi berbasis komputer (HCI).

Misi
• Menyediakan sistem dan sarana kerjasama yang kuat dan saling mengisi antara profesional, akademisi, dan industri.
• Meningkatkan ilmu pengetahuan, keterampilan dan minat profesional, akademisi, dan industri.
• Menyediakan forum komunikasi dinamis antara profesional, akademisi, dan industri untuk segala aspek IMK, dari segi analisa, desain, evaluasi dan implementasi.
• Menyediakan sistem dan sarana publikasi berkualitas tinggi bagi para peneliti dan praktisi.
• Menyediakan fasilitas mentoring dan pelatihan berkualitas tinggi bagi para akademisi, profesional, dan industri untuk pengembangan sumber daya manusia yang dibutuhkan.
• Menyediakan fasilitas pustaka online yang memadai dan berkualitas tinggi untuk dimanfaatkan pada penelitian dan pengembangan.

Kami menunggu partisipasi Anda di Indonesia ACM SIGCHI Chapter (CHI UX Indonesia)

Salam CHI UX Indonesia!

Dr Eunice Sari
Chair of Indonesia ACM SIGCHI Chapter (CHI UX Indonesia)
Web. chiuxindo.uxindo.com | Facebook Group: CHI UX Indonesia
# International Boards of Reviewers

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution/University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adi Tedjasaputra</td>
<td>UX Indonesia, Australia/Indonesia</td>
</tr>
<tr>
<td>Alan Dix</td>
<td>University of Birmingham, United Kingdom</td>
</tr>
<tr>
<td>Andrea Judice</td>
<td>University of Brasilia, Brazil</td>
</tr>
<tr>
<td>Antti Raike</td>
<td>Aalto University, Finland</td>
</tr>
<tr>
<td>Bimlesh Wadhwa</td>
<td>National University of Singapore, Singapore</td>
</tr>
<tr>
<td>Christopher Kueh</td>
<td>Edith Cowan University, Australia</td>
</tr>
<tr>
<td>Claire Timpany</td>
<td>University of Waikato, New Zealand</td>
</tr>
<tr>
<td>Eunice Sari</td>
<td>UX Indonesia &amp; The University of Western Australia, Australia/Indonesia</td>
</tr>
<tr>
<td>Emil R. Kaburuan</td>
<td>SICS Swedish ICT, Sweden</td>
</tr>
<tr>
<td>Harry Santoso</td>
<td>University of Indonesia, Indonesia</td>
</tr>
<tr>
<td>Hanadi Haddad</td>
<td>Edith Cowan University, Australia</td>
</tr>
<tr>
<td>Idyawati Hussein</td>
<td>MIMOS Berhad, Malaysia</td>
</tr>
<tr>
<td>Jessica Tsimeris</td>
<td>Australian National University, Australia</td>
</tr>
<tr>
<td>Johanna Hariandja</td>
<td>Parahyangan Catholic University, Indonesia</td>
</tr>
<tr>
<td>John Thomas</td>
<td>Problem Solving International, United States</td>
</tr>
<tr>
<td>Jo Jung</td>
<td>Edith Cowan University, Australia</td>
</tr>
<tr>
<td>Kinshuk</td>
<td>Athabasca University, Canada</td>
</tr>
<tr>
<td>Lene Nielsen</td>
<td>IT University of Copenhagen, Denmark</td>
</tr>
<tr>
<td>Masitah Ghazali</td>
<td>Universiti Teknologi Malaysia, Malaysia</td>
</tr>
<tr>
<td>Mark Billinghurst,</td>
<td>HITLabNZ, New Zealand</td>
</tr>
<tr>
<td>Murni Mahmud</td>
<td>International Islamic University, Malaysia</td>
</tr>
<tr>
<td>Nor Laila Md Noor</td>
<td>Universiti Teknologi MARA, Malaysia</td>
</tr>
<tr>
<td>Paulus Insap Santosa</td>
<td>Universitas Gadjah Mada, Indonesia</td>
</tr>
<tr>
<td>Paulina Pannen</td>
<td>Directorate General of Higher Education, Indonesia</td>
</tr>
<tr>
<td>Surya Sumpeno</td>
<td>Institut Teknologi Sepuluh November, Indonesia</td>
</tr>
<tr>
<td>Sevenpri Candra</td>
<td>Bina Nusantara University, Indonesia</td>
</tr>
<tr>
<td>Spit Warnars Hendric</td>
<td>Surya University, Indonesia</td>
</tr>
<tr>
<td>Stuart Medley</td>
<td>Edith Cowan University, Australia</td>
</tr>
<tr>
<td>Thedy Yogasara</td>
<td>Parahyangan Catholic University, Indonesia</td>
</tr>
<tr>
<td>Torkil Clemensen</td>
<td>Copenhagen Business School, Denmark</td>
</tr>
<tr>
<td>Yohannes Kurniawan</td>
<td>Bina Nusantara University, Indonesia</td>
</tr>
</tbody>
</table>
Organising Committee

Conference Chairs: Eunice Sari
Johanna Hariandja

Secretary: Dade Nurdjanah

Treasurer: Ceicalia Tesavrita

Paper Chairs: Adi Tedjasaputra
Harry Santoso

Publication Chairs: Paulus Insap Santosa
Emil Kaburuan

Workshop Chairs: Thedy Yogasara
Ellya Zulaikha

Design Challenge Chairs: Ratna Wardhani
Vitri Tundjungsari
Lia Sadita

Industry and Sponsorship Chairs: Sartika Kurniali
Adi Arriansyah

Registration Chair: Yohannes Kurniawan

Web Chairs: Adi Tedjasaputra
Dani Dee

Local Arrangement Chair Kristiana Asih Damayanti

Media Chair: Spit Warnars Harco Leslie
Pinkie Anggia

Student Volunteer Chairs: Sendy Alfandy Budiman
Ricky Stevanus
Keynotes

Margot Brereton

Biography
Margot Brereton is Professor of Engineering & Interaction Design at the Science and Engineering Faculty, Electrical Engineering, Computer Science, Computer Human Interaction at Queensland University of Technology, Queensland, Australia. Margot researches the participatory interaction design of ubiquitous computing technologies and their interfaces. She develops innovative designs, methods, and theoretical understandings by designing to support real user communities in selected challenging contexts. Her approach is highly iterative and often involves growing user communities as the design evolves, by understanding and responding to socio-cultural factors. Her broad areas of research include Human-Computer Interaction, Participatory Design, Interaction Design, Computer Supported Cooperative Work, Design Methods, and Ubiquitous Computing.

Keynote Title: Designing within networks of relations for new forms of connection, collaboration and custodianship.

Technologies are only as useful as the networks of human relations that make their use possible. In this talk I will explore the idea of designing within networks of relations in order to make technologies that better suit them. I will discuss how new forms of connection, collaboration and custodianship can be created by paying careful attention to understanding networks of relations and using co-design to engage the complimentary motivations, skills and capabilities of people within these networks. I will draw upon examples in the domains of ageing, inclusive design, creative industry and environmental monitoring.

In the domain of ageing of the population in the West, I will describe how collaborative investigation with older people and their adult children has led to design of a new way of keeping in touch through connected kitchen appliances. I will describe ways of designing with people with cognitive and sensory impairments and their teachers and careers in order to better empower them to participate and communicate.

In domain of creative industry, I will describe collaborations between academics, students and craftspeople in Indonesia who combined their skills in order to improve their design and business skills and self-determination.

In the domain of environmental monitoring, I will describe an ongoing project to build a bio-acoustic observatory that monitors the health of the environment by listening to birdsong. The project involves engaging cooperatively the skills and motivations of birdwatchers, ecologists and computer scientists with the aim of leading to more effective, collaborative custodianship of the environment.

Designing within networks of relations demands new approaches and methods for CHI and UX, which I hope to discuss with conference participants.
Masaaki Kurosu

Biography

Masaaki Kurosu is a professor at the Open University of Japan since 2008. Before working for the Open University, he was a professor at the R&D Division of National Institute of Multimedia Education (NIME) of MEXT, the ministry of education, since September of 2001. At the same time, he worked for the Graduate University of Advanced Studies and was the head of department of Cyber Society and Culture and the dean of School of Cultural and Social Studies. Before coming to NIME, he was a professor at the Faculty of Information of Shizuoka University from April of 1994 where he taught the HCI and the usability engineering. Until then, he was working for Hitachi Ltd. at the Design Center from 1988 to 1994 and at the Central Research Laboratory from 1978 to 1988. He was engaged in the usability engineering activities, the methodological development of interaction design, the development of LISP programming system, and the development of Japanese word processor. He studied the experimental psychology and the psychological measurement at the Ph.D. course and the master course of graduate school of Waseda University in Tokyo. He graduated from Waseda University in 1971.

Keynote Title: UX and quality characteristics

Although the UX approach stemmed out from the usability approach, it differs from the latter in following aspects: (1) while the usability is a part of product qualities, the UX is related to the quality in use, (2) the UX concept is wider than the usability as to include the subjective quality characteristics and (3) the UX approach watches longer temporal process than the usability approach. Although there are misunderstandings as to the nature of the UX, these core aspects should not be forgotten. Furthermore, as the marketing people and more designers have come into the UX area, sometimes it is interpreted as the inside-out approach. But the nature of the UX is outside-in from its origin. This keynote presentation aims to alert those who are involved in the UX approach to understand the true nature of the concept.
Henry Duh

Biography

Henry Duh is Professor and Head of Discipline of ICT, Director of Human Interface Technology Laboratory Australia (a joint research centre between University of Washington and University of Tasmania) and also a joint faculty member in the School of Engineering and ICT. He received his degrees in psychology, industrial design and engineering respectively. After finishing his PhD, he went to NASA-Johnson Space Centre as a postdoctoral fellow involving in virtual reality project. Henry is a Fellow of FIET, Fellow of FBCS, a Senior Member of both ACM and IEEE (SMACM, SMIEEE); the Australian national representative of the International Federation of Information Processing Technical Committee on Human-Computer Interaction (IFIP TC13) and Entertainment Computing (TC14); Steering committee member of Asia Pacific CHI and ChineseCHI conference. He has published more than 100 conference and journal papers in HCI area. He actively engages with local communities, which include his involvement as a Board Director of Tourism Northern Tasmania, a steering committee member of Launceston Digital Media Hub project and many more.

Keynote Title: User Experiences Design for IoTs

Internet of Things is recently mentioned as one of the disruptive technologies to change our daily life. For the economical development in regional areas, how IoTs can be applied to agriculture, aquaculture, mining and forest industries to increase productivity and sustainability is an emerging research challenge. Engineers and scientists are looking into the development of technologies in sensors, standards, protocols and devices. However, it is critical to understand users’ behaviours, how people to experience the service provided and how to utilise and interact the data generated and collected in such environments. Sense-T program is one of the Australian government initiatives to address such issues. The first part of the talk will cover the presenter's ongoing work involved in Sense-T program for food producers, consumers and tourism industries. The second part of the talk will introduce the current research efforts in HITLab Australia.
Elise van den Hoven

Biography

Elise van den Hoven is an associate professor in the School of Design in the Design, Architecture & Building faculty of the University of Technology, Sydney in Australia. In addition, she works as a part-time associate professor in the User-Centered Engineering group in the Industrial Design department of the University of Technology in The Netherlands. Elise’s research interests are in (user-centered) designing and evaluating interactive products, with a specific focus on the approach of tangible interaction and the application area of supporting personal remembering. She leads the international research programme Materialising Memories, which studies designing for improved reliving of personal memories. Elise has more than 75 peer-reviewed journal and conference papers in the HCI area. Her organizational experience includes being on the TEI-steering committee (chair per TEI’13, together with a/prof Ali Mazalek), organizing conferences (a.o. TEI08, TEI07 and Persuasive06) and being on program or reviewing committees (a.o. PUC, IJHCS, HCI, CHI, TEI and Interact).

Keynote Title: Connecting people through interaction design

In her keynote "Connecting people through interaction design", which was inspired by the "Connect" conference theme, associate professor Elise van den Hoven (UTS, TU/e & ARC CCD) will talk about her trans disciplinary research into designing for remembering, which combines design, psychology and a pinch of technology. The focus of the talk will be on HCI and interaction design from a research perspective and with a user- (or people-) centred design approach, including the deployment of interactive prototypes. Elise van den Hoven will introduce design research, interaction design, tangible interaction and will explain what remembering is and what it has to do with making connections with other people. All of this will be demonstrated through case studies of interactive designs supporting communication in everyday life.

In case you would like to learn more about Elise van den Hoven's work, feel free to visit her personal webpage (www.elisevandenhoven.com) or the website of her international research programme (www.materialisingmemories.com).
Industry Talks

**Title: GE Innovation Leader**

**Hao Dinh**

Born in Vietnam and currently residing in the United States, Hao is an experience junkie. He has worked across the United States, Europe and Southeast Asia in the financial services sector, energy segment, extreme sports arena and entertainment industry performing various roles such as a financial auditor, IT manager, product development leader and his favorite job, as a professional skateboarder. Currently Hao is passionate about nurturing his creative confidence and utilizing innovation to solve complex issues. He is spearheading an initiative to transform a traditional Fortune 10 organization into an innovation powerhouse. Additionally, Hao started a non-profit called Grow by Design ([www.growbydesign.info](http://www.growbydesign.info)) that is focused on helping K-12 students nurture their creative skills and spark their innovative fire!

**Abstract:** Impactful innovation and design occurs when you truly connect with the target audience or end user. Engage in a conversation about connecting for impact after watching a short video on my experiences using certain tools and methods to effectively bond with people.

**Title: The Mobile E-commerce Playbook**

**Pradeep Singh**

Backed with experience in working on design projects for high profile clients in the fields of entertainment, media and advertising industry, Pradeep leads design projects with a focus on user testing and data driven iteration. His role as a UX Designer at Netizen Testing sees him working on information architecture design, interaction design and front end development. He is passionate about creating experiences that are delightful and at same time usable for the users. He holds a degree in User Interface Design, in which he specializes in software and hardware interface design.

**Abstract:** In the past 6 months, Lippo Group put US$500 million into Indonesia’s Matahari Mall online store, Alibaba invested US$249million into Singpost, Indonesia’s Tokopedia getting funding of $100million, while Lazada raised another US$250million; Southeast Asia has seen some of the biggest cash injection for the emerging e-commerce sector. This trend will continue to grow as many more businesses in Southeast Asia get onto the bandwagon.

Although Southeast Asian has one of the highest mobile penetration rates in the world, mobile e-commerce is still crippled by poor UX. Through sharing of case study, our speaker will illustrate on how to strike a balance between the desktop and mobile experience. He will also share strategies for delivering good UX on mobile in practice.
Workshops

Margot Brereton and Ellya Zulaikha
Title: Internet of Things

The Internet of Things is the notion of equipping all objects such as yoghurt pots, shoes and fire hydrants with internet accessible identification and data sharing capabilities. It has been conceived from a distinctly utilitarian view, with many applications relating to business efficiency in supply chain management and home automation. Yet, it offers the opportunity for many new kinds of interface and interaction.

To date, there has been little research into how people can connect, interact with and interrelate through networks of Internet enabled objects. How can smart interconnected object can be designed so as to reveal, amplify and inspire the capacities of people? Connecting with and through things could be purely social or about monitoring the environment, sharing about health, resource consumption etc.

Rather than exploring smart objects for social connectedness from a technological perspective, this workshop will bring together researchers and practitioners from design, ICT and social sciences to imagine and design the Internet of things. We are particularly interested in Indonesian and Asian perspectives on the Internet of Things.

Masaaki Kurosu
Title: Measuring the UX by UX Graph

For the purpose of dynamically grasping the satisfaction among students, the UX curve and its variation, the UX graph, were applied. One of the main feature of the UX curve is that it can measure the level change of some characteristics including the satisfaction along with the time. For applying the UX curve to the student satisfaction issue, the starting point was set at the entrance. By analyzing the obtained data, such general tendency was found that the curve grows up in accordance to the involvement in the research activity and the participation to the circle activity. As a temporal hypothesis, it was assumed that these two factors should be more facilitated and further approach adopting the individual interview should be conducted.

Idyawati Hussein
Title: Qualitative User Research in User Experience Design Practice: Problems and Potential Solutions

This workshop provides a hands-on experience on how to conduct a qualitative user research in the early stage of user experience design (UXD) process. Early analysis phase required UXD practitioner to elicit requirements from stakeholders or clients to understand the vision and business requirements. In this workshop, a mockup activities on gathering requirements using “posts it notes” as an excerpt code from subjects of study will be conducted. Discussions on obstacles to incorporate UXD in the current development process will be included as an example of
understanding the user’s need. Data gathered from participants of the workshop will be coded and categorised into a theme reflecting how user needs can be analysed in a rapid environment in practice. The ‘coding’ approach will be applied in the workshop. The next activity will be collapsing and categorising the post-its notes and mapping them into a concept. This activity will reflect the use of open, axial and selective coding in Grounded Theory. The analyzed qualitative data will be used to develop user scenarios, tasks and user profiles of a chosen context. Two types of cultural development practices based on the presenter’s experience are Proof of Concept (POC) and a contract bidding projects. The results of analysis phase will be transformed into a concept design and developed into screen flow and navigation task. Information visualization is found to be the most effective method in presenting the results of qualitative analysis in practice. Therefore, a ‘pencil and paper’ conceptual design will be implemented during the workshop. A cognitive walkthrough evaluation will be conducted following the concept design as to validate the low-fidelity prototypes. In summary, Human-Computer Interaction (HCI) methods need to be refined following the clients’ values, knowledge, management’s and stakeholders’ requirements as well as cultural practices. A proposed calculation to measure the obstacles based on behavioral model and Net Positive Value (NPV) in order to identify the return of investment (ROI) and control project schedule will be discussed.

Ceicalia Tesavrita and Kristiana Damayanti

Title: Eye-Tracker

Eye tracking is the process to follow the eye movement of a respondent/user/customer. By doing this, we can get more understanding about how their brain process the information. Eye tracking analysis has been widely used in marketing, human-computer interaction, psychology, etc. An eye tracker is a device that can be used to track eye position and gaze direction or eye movement.

This demonstration will give an introduction to eye tracking analysis and its application in many fields, especially in website usability testing. It will covers from designing the test, how to conduct the test, and analyze the output.
ACM Paper Abstract

The following papers are available in the Proceedings of CHI UX Indonesia 2015 (CHIuXiD 2015) Part I.
The proceeding is published at ACM Digital Library with the following ISBN: 978-1-4503-3334-4
Additional copies are available at the ACM Digital Library (http://portal.acm.org/dl.cfm).
ACM Paper Abstract

Development of Gamification-Enriched Pedagogical Agent for e-Learning System-based on Community of Inquiry

Andika Yudha Utomo, Harry Budi Santoso
Faculty of Computer Science
Universitas Indonesia
Depok, Indonesia
andika.yudha01@ui.ac.id, harrybs@cs.ui.ac.id

ABSTRACT
Researchers have recognized that the success impact of e-Learning is not only affected by technical aspect but also pedagogical one. Facilitators in online learning class should be able to motivate their students to be active learners. One of the ways to do so is by giving personalized feedback. However, this is quite difficult to be applied. Therefore, the idea of developing a pedagogical agent arose to help the facilitators in providing automatic feedback to the students based on their behavior in e-Learning system. The pedagogical agent in the current study was built based on Community of Inquiry (CoI) model and enriched with gamification concept to be more attractive. The proposed design of pedagogical agent was evaluated by one-week online learning simulation, feedback form filling, and focus group discussion. The pedagogical agent is hoped to be able to boost students’ motivation to use e-Learning system optimally, so that the learning objectives could be accomplished.

nRoom: An Immersive Virtual Environment for Collaborative Spatial Design

Cagri Hakan Zaman
Massachusetts Institute of Technology
20 Ames St. E15-320
Cambridge, MA, USA
zaman@mit.edu

Asiya Yakhina
Wellesley College
Central Street 02481
Wellesley, MA, USA
ayakhina@wellesley.edu

Federico Casalegno
Massachusetts Institute of Technology
20 Ames St. E15-320
Cambridge, MA, USA
casalegno@mit.edu

ABSTRACT
In this paper, we present the results of an experimental study aiming to explore the collaborative user experience in an immersive virtual environment. We designed and implemented an application that enables users to collaboratively design a spatial layout using head-mounted VR displays and hand tracking devices. With a strong emphasis on the relationship between spatial interaction and communication, we assert that a shared-view virtual environment allows collaborative articulation of spatial design problems and improves communication between designers. Our study combines qualitative and quantitative methods to test the usability of the proposed system, and to determine the aspects of spatial communication in virtual environments.
The Evaluation of the Usability and Effectiveness of TELERECS E-Collaboration System

Wan Fatimah Wan Ahmad¹  Alimatu-Saadia Yussif²  Emy Elyanee Mustapha³

Computer & Information Sciences
Universiti Teknologi PETRONAS, Perak, Malaysia
¹fatimhd@petronas.com.my; ²alimasaf@yahoo.co.uk; ³emy.elyanee@petronas.com.my

ABSTRACT
Electronic Collaboration environments can be used to facilitate collaborative teaching, learning and research environment. However, the current e-learning in higher educational institutions is not facilitating these activities. Hence the proposed e-collaborative system entitled Teach, learn and Research Collaboration System (TELERECS). A total of 30 undergraduate students undertaking introduction to business information system course participated in this study for two months. The objectives of the study were to evaluate the feasibility of the instruments and to evaluate students’ perceptions regarding the usability and effectiveness of the system. The methodology employed multiple methods of data collection, including individual and team assessment through activities logs, instructor’s personal observation as well as experimental and control group survey using pre-test and post-test. The findings show that the system is a usable and effective environment for e-collaboration. The results of the pre-test and post-test also indicated that there are significant difference between the mean scores of the experimental and control groups.

User Experience on Numerical Application Between Children with Down Syndrome and Autism

Naziatul Shima Abdul Aziz¹  Wan Fatimah Wan Ahmad²  Nurul Jannah binti Zulkifli

Computer & Information Sciences
Universiti Teknologi PETRONAS, Perak, Malaysia
fatimhd@petronas.com.my, nshima_g02448@utp.edu.my

ABSTRACT
The use of information technology in special education can enhance the ability in learning process. The purpose of this study is to compare the experience of children with Down Syndrome (DS) and children with autism in using a mobile numerical application named MathDS. Five children with DS and six children with autism involved in this study. The results indicate that the students with autism are more confident and satisfied with the application compared to the children with DS. Furthermore the analysis shows that the children with autism can easily understand on how to use the application and can get familiar with the product easily compared to children with DS. This might be because of the characteristics and also the behavior of the children.
Designing Knowledge Management System Prototype for Mental Health Practitioners

Khafidlotun Muslikhah
E-Government Lab
Faculty of Computer Science,
University of Indonesia, Depok
khafidlotun.muslikhah@gmail.com

ABSTRACT

Quality of health services can be improved by improving quality of human resources. Knowledge management system provides some functionalities which can support human activities in order to improve knowledge. Unfortunately, in Indonesia, knowledge management in hospital, especially in mental health hospital has not been explored yet. Besides, mental health knowledge is getting rare and needed to overcome the larger number of mental disorder case. Moreover, only few people who know about benefit of knowledge management implementation. This research provides some analysis about the situation related with knowledge management in one of mental health hospital in Indonesia. This research proposed the use of soft system methodology as an approach to help analyzing the knowledge management system requirements. Prototype was developed to depict the requirement in a system. Some mental health practitioners were also asked to evaluate the prototype.

Supporting Social and Adaptive Interaction in Collaborative Rehabilitation Training

Johanna Renny Octavia
Industrial Engineering Department – Parahyangan Catholic University
Ciumbuleuit 94, Bandung 40141, Indonesia
johanna@unpar.ac.id

Karin Coninx
Hasselt University – Expertise Centre for Digital Media – tUL – iMinds
Wetenschapspark 2, 3590 Diepenbeek, Belgium
karin.coninx@uhasselt.be

ABSTRACT

Collaborative training can be considered as a way to support social interaction and enhance training motivation of patients during their rehabilitation. When performing collaborative training exercises as part of the rehabilitation program, a patient collaborates with his/her training partner with the hope that social interaction develops between them. However, different physical abilities which bring a performance gap between a patient and the training partner may impair the course of collaborative rehabilitation training. This issue can be solved by providing adaptivity. The focus of our work is the investigation of social interaction and integration of adaptivity in collaborative rehabilitation training. We have implemented the automatic adaptation of interaction difficulty in a collaborative training exercise developed to support upper arm rehabilitation for Multiple Sclerosis patients. A user study was carried out to investigate the social interaction and the adaptation outcome. With adaptation, we found that a better progress of performance was shown, a better quality of interaction was perceived and the training sessions were more enjoyable. The development of social interaction was also observed during the collaborative rehabilitation training.
Measuring User Experience of a Potential Shipment Tracking Application

Nova Eka Diana, Ocky Aditia Saputra
Faculty of Information Technology, Universitas YARSI
YARSI Tower 5th Fl., Letjen Suprapto Street, Cempaka Putih, Jakarta 10510
nova.diana@yarsi.ac.id

ABSTRACT
The existence of an application for monitoring the current position of product shipment can build user trust for the agency. Here, we have an application which simulates the status of travelling position. We assume that this application can be applied in shipment tracking problem. User experience describes the significance of the application on the end-user. Additional questionnaire items were given to participants for examining the merit of current application with shipment position monitoring. User Experience Questionnaire (UEQ) is employed to support a quick assessment of user experience for the product. Cronbach’s Alpha value was measured to see the consistency of items of the scales and the relevancy of questionnaire items to the context.

Investigating Social Media Potential for Teacher Learning in Aceh, Indonesia

Christine Pheeney
Universitas Pendidikan Indonesia
Bandung, Indonesia
christineida@ozemail.com.au

Helen Klieve
Griffith University
Queensland, Australia
h.klieve@griffith.edu.au

ABSTRACT
This study was designed to provide an initial descriptive analysis to investigate the potential of social media to support teacher professional learning for local content studies in Aceh, Indonesia. This paper explores the data that was collected from 381 primary school teachers from both urban and rural teaching locations. This data provides a means to explore the teachers’ experiences, preferences and views on support for their learning and use of social media technology. Davis’ technology acceptance model was consulted in initial development of constructs along with consequent research discussions on technology acceptance which emphasised the need to gather data relating to the community being studied. Thus the survey and focus group discussion questions were developed to provide knowledge about teachers’ experiences and perceptions. In this mixed method research, teacher responses were analysed through the constructs of current practice, social media readiness, and support preferences. The results show that social media has the potential to support teachers in undertaking professional learning for local content studies. These results promote that harnessing social media to the traditional culture value of ‘goyong royong’ (loosely translated as cooperation and mentoring values), will facilitate teachers’ abilities to professionally interact, collaborate and learn with one another and other stakeholders. However this potential must be activated. Doing so could assist in people-centred support for teachers’ learning and the teaching of local content.
Developing Deaf or Hard of Hearing Children's Social and Emotional Skills Through Interactive Experiences

Tan Ching Ying Michelle
Edith Cowan University
Perth, Australia
mtan12@our.ecu.edu.au

ABSTRACT
Deaf or hard of hearing (DHH) individuals experience decreased awareness and ability to regulate emotions, which negatively affect their overall wellbeing. Digital media can positively influence personal growth. Existing research into educational interactive media for DHH individuals focus on pedagogy, literacy and numeracy. The void of understanding how interaction design can enhance the development of their social and emotional skills as well as overall wellbeing must be filled. This paper contemplates the findings of the author’s previous research that will contribute to the foundations of Can You Hear Me: Exploring designs of interactive experiences that enhance the emotional and social development of deaf and hard of hearing children, an exploratory research that aims to fill that void.

Understanding HCI Education Across Asia-Pacific

Eunice Sari
The University of Western Australia
UX Indonesia
Australia
eunice.sari@acm.org

Bimlesh Wadhwa
School of Computing
National University of Singapore
Singapore
dcsbw@nus.edu.au

ABSTRACT
The emergence of Internet of Things, social media, mobile, ubiquitous, and wearable computing has brought human-computer interaction (HCI) body of knowledge to the fore and has rooted it as an established field of teaching and research. Due to its unique and diverse characteristics, there is a lack of awareness and understanding on the importance of HCI education. The unique characteristics, interdisciplinary nature and rapid evolution of HCI bring not only challenges but also innovations in teaching and designing HCI curriculum in this region. In this paper, we present the key findings from our first attempt to bring together HCI educators in Asia-Pacific and sharing the experiences and challenges in HCI Education.
An Eye Tracking Study: Exploration Customer Behavior on Web Design

Juni Nurma Sari¹,², Ridi Ferdiana², Paulus Insap Santosa², Lukito Edi Nugroho²
¹Computer Department, Polytechnic Caltex Riau, Pekanbaru
²Electrical Engineering and Information Technology Department, University of Gadjah Mada, Yogyakarta
juni.s3te14@mail.ugm.ac.id¹,², {ridi,insap,lukito}@ugm.ac.id

ABSTRACT
With the growth of the Internet, more and more sites are available. In terms of e-commerce, more and more companies have started making use of the e-commerce to market their products. In order to attract customers, the products are made attractive. The interestability of a product can be analyzed using eye tracking. This paper discusses some measurements used to analyze customers' behavior on web design or to identify their interest in a certain product offered on an e-commerce website using the eye tracking method that has been discussed in the previous researches. Those researches will be classified based on Bojko's taxonomy for eye tracking measurement in order to analyze the implementation of eye tracking measures for user experience. The result of this paper is the measurements of eye tracking that are often used to analyze customer behavior, including Area Interest Measures (to identify user’s interest), Cognitive Processing Measures (to explain the cognitive process of web exploration), and Target Recognizability Measures (to determine target’s efficiency in web design). All metrics in eye tracking measures are used throughout the research, except for the pupil dilation.

A Preliminary Study to Determine Criteria for Personalized E-Commerce

Rianto¹, Lukito Edi Nugroho, Paulus Insap Santosa
Electrical Engineering and Information Technology Department, University of Gadjah Mada, Yogyakarta
rianto@mti.ugm.ac.id¹, {lukito,insap }@ugm.ac.id

ABSTRACT
Web design is one of several critical factors for the acceptance and success of an e-commerce website. A good web design influences user’s satisfaction and intention to use the website. The purpose of the study was to determine criteria for personalized e-commerce with a method recommended by users in using an e-commerce. This study used a qualitative method to analyze three components of web design i.e. information, navigation, and visual designs. Data collection was performed using in-depth interview technique on participants who have been familiar with online transactions. Data showed that participants preferred navigation and information designs rather than visual design.
POSITION PAPERS
Lecturer Decision Support System (DSS) based on Indonesian Lecturer Academic Position rank

Spits Warnars
Database, Datawarehouse and Data Mining Research Center
Human Computer Interaction department, Surya University
Jl. Boulevard Gading Serpong Blok O/1 Summarecon Serpong, Tangerang 15810, Indonesia
Spits.warnars@surya.ac.id

ABSTRACT
Lecturer Decision Support System (DSS) is proposed in order to help internal higher education stakeholder such as lecturer, admin, head of study program, dean faculty and rector in order to monitor and increase their lecturer academic position rank. This Lecturer DSS is built based on Indonesian lecturer academic position rank as implementation of Indonesian national standard of lecturer and educational personnel which is used as implementation of quality assurance of Indonesian higher education. The increasing of lecturer academic position rank will increase the implementation of quality assurance in higher education. Lecturer DSS as intelligent application is built with Data Warehouse and Data Mining technology in order to increase the intelligent of DSS. Data Warehouse increase the intelligent of Lecturer DSS by using roll up and drill down technology and using unnormalized database. Meanwhile, Data Mining will increase the intelligent of Lecturer DSS by finding interesting patterns with any data mining technique.

Author Keywords
Decision Support System; Lecturer DSS; Quality assurance of Indonesian higher education; Indonesian national standard of higher education; Indonesian national standard of lecturer and educational personnel; Indonesian lecturer academic position rank;

INTRODUCTION
Lecturer as a higher education transfer knowledge is a precious human capital for both public and private higher education. Experienced lecturer is one indicator for higher education to create excellent higher education atmosphere and at the end will create excellent students. Experienced lecture does not have excellent lecture skill, more than that they should be able to create excellent higher education atmosphere. Excellent higher education should give big attention for their teaching human resources in order to run excellent higher education atmosphere.

Moreover, Indonesian lecturer is regulated by Directorate General of Higher Education (DIKTI) which has responsibility to regulate higher education in Indonesia. Since 27 October 2014, under the new elected the President of the Republic of Indonesia, Jokowi Widodo, DIKTI is under controlled of the Ministry of Research, Technology and Higher education, where in previous government was under controlled of the Ministry of education and culture.

<table>
<thead>
<tr>
<th>No</th>
<th>Lecturer Academic Position</th>
<th>Category</th>
<th>Credit Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Asisten Ahli</td>
<td>III/b</td>
<td>150</td>
</tr>
<tr>
<td>2</td>
<td>Lektor</td>
<td>III/c</td>
<td>200</td>
</tr>
<tr>
<td>3</td>
<td>Lektor Kepala</td>
<td>IV/a</td>
<td>400</td>
</tr>
<tr>
<td>4</td>
<td>Guru Besar</td>
<td>IV/d</td>
<td>850</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IV/e</td>
<td>1050</td>
</tr>
</tbody>
</table>

Table 1: Category and Credit score of lecturer academic position rank

INDONESIAN LECTURER REGULATIONS
The Indonesian government by DIKTI regulate that Indonesian lecturer must have academic qualification, competency, lecture certificate, physically and mentally healthy (article 2)|[1]. These are some regulations about Indonesian lecturer:

1. The lecturer should have minimum academic qualification master and doctorate degrees for lecture bachelor and master degrees respectively (article 46)|[3].
2. There are 2 types of lectures and they are full and part time lecturers (article 48, clause 1)|[3] (article 28, clause 1)|[5].
3. There are 4 types Indonesian lecturer functional position (jabatan fungsional dosen) or called Indonesian national academic position rank (jenjang jabatan akademik) for full time lecture and they are asisten ahli, lektor, lektor kepala and Guru Besar (article 48, clause 2)|[3] (article 72 clause 1)|[4] as shown in table 1. They are recognized in English as
Instructor, Assistant Professor, Associate Professor and Professor, respectively [7]. As shown in table 1, instructor is category III/b with credit score 150, Assistant professor is category III/c with credit score 200 and category III/d with credit score 300. The same for associate professor which have 3 categories, they are category IV/a with credit score 400, category IV/b with credit score 550 and category IV/c with credit score 700. Finally, professor has 2 categories such as category IV/d with credit score 850 and category IV/e with credit score 1050.

Furthermore, Indonesian lecturer both from public and private higher education (article 3, clause 2)[2] should meet the requirements and may have right for government lecturer allowance if they have:

1. Lecture certificate which is acknowledged with national lecturer identification number (NIDN) from DIKTI (article 8, clause 1, sub clause a)[1] (article 8)[2] (article 47)[3] (article 2)[6].
2. Implement 3 duties (tridharma) higher education which consist of lecture, research and community service, with workload between 12 and 16 semester credit units (SKS) (article 72, clause 2)[3], where lecture and community service should applied with minimum workload 9 SKS (article 8, clause 1)[1].
3. Registered as full time lecturer at higher education department (article 8, clause 1, sub clause d)[1].
4. Maximum ages 65 years or 70 years for lecture with national academic rank professor (guru besar) (article 8, clause 1, sub clause e)[1].

**QUALITY ASSURANCE OF INDONESIAN HIGHER EDUCATION**

Higher education has responsibility to assure their quality education activities, which is met the quality standard of higher education. Every Indonesia higher education should submit to government regulations regarding quality assurance of higher education which is controlled by Directorate General of Higher Education (DIKTI). The community will be assured and secured when quality of Indonesian higher education are controlled and assured by government and there is goodwill from higher education high level management to run and improve their quality education activities.

Indonesian higher education should implement quality assurance in order to assure and improve the quality which is planned and sustainable. Quality assurance is applied within national standard of higher education which has total 24 national standards, grouped into 3 national standards such as national standard of education, national standard of research and national standard of community service(article 2, clause 1)[5], where each of national standard has 8 standards as shown in figure 1.

**Figure 1. National standard of Indonesian higher education**

The 8 National Standards of education are :

1. Standard of graduate competence.
2. Standard of learning contents.
5. Standard of lecturer and educational personnel.
7. Standard of learning management.
8. Standard of learning funding.

The 8 National Standards of research are :

1. Standard of research product.
2. Standard of research content.
3. Standard of research process.
4. Standard of research assessment.
5. Standard of researcher.
7. Standard of research management.
8. Standard of research funding and budgeting.

The 8 National Standards of community services are :

1. Standard of community services product.
2. Standard of community services content.
3. Standard of community services process.
5. Standard of community services implementor.
7. Standard of community services management.
8. Standard of community services funding and budgeting.

**LECTURER DECISION SUPPORT SYSTEM**

There are some problems which lecturer faced in order to monitor their current performance with composition of their credit score in term of their academic position rank. It is difficult and wasting time when all the lecturers should learn all government regulation. Usually, they need someone from department which has full knowledge about lecturer government regulations. They need someone who can tell them how many credit score should be needed,
what kind of activities to be done in order to get the next level academic position.

Based on these problems, the lecturer should be helped by a computer application which can guide and help them in order to apply for next level academic position. These are some questions which are should be raised by lecturer when apply or extend their academic position rank. The questions are:

1. How many required credit score?
2. What kind of required credit score to be done?
3. What other requirements should be done?
4. Is it possible to extend now?

![Diagram of internal stakeholder confusion]

**Figure 2. Internal stakeholder confusion**

Meanwhile, head of study program, dean faculty and rector have the same problems in order to monitor their lecturer performances as shown in figure 2. It is difficult to get current lecturer performances and sometimes they need admin team to help them and at the end of the day, the admin team should run lecturers for their current credit score. It is important for head of study program, dean faculty and rector to monitor and increase their lecturer performance which at the end will increase the quality of lecturer itself, study program, faculty and university. It is important for study program, faculty and university to have highest academic position rank such as Professor which at the end will increase study program, faculty and university accreditation.

The same like lecturer, they need a computer application which can help them to monitor their lecturer performances. A computer application which can help them with current lecturer performances and can make some decisions based on reports. They need information such as who are lecturers should need to increase their academic position, who are lecturers which delay their academic position enhancement? What the weaknesses for each lecturer and what the management should do in order to help each of lecturers to get highest academic position rank in good manner?

Definitely, a computer application should be operated in order to help lecturer when make decisions for their academic position rank. Obviously, Decision Support System (DSS) should be built in order to help lecturer sharpen their academic position rank decisions. This Lecturer DSS is not only using by lecturer but will be used by internal stakeholder such as admin, head of study program, dean faculty and rector in order to monitor and help the lecturer to extend their academic position rank. Furthermore, this Lecturer DSS can give information to student, parents, government, national and international communities. External stakeholder such as parents, government, national and international communities can have real time and current information about lecturer performance.

This Lecturer DSS should be suitable if implemented as web application which built with open source Server Programming such as Personal Home Pages (PHP) and using open source database such as MySQL. Using open source for implementation will cut cost of implementation since this Lecturer DSS is built for higher education and for nonprofit purposes.

This Lecturer DSS should be designed based on Indonesian lecturer academic position rank as implementation of Indonesian national standard of lecturer and educational personnel. This Lecturer DSS can be extended not just only used in one higher education but can implement for all Indonesian higher education under control of Directorate General of Higher Education (DIKTI) and can be called Indonesian Lecturer DSS. Moreover, this Lecturer DSS can be joined with other implementation of Indonesian national standard of higher education such as Student DSS, Indonesian Higher Education Learning DSS, Higher Education Research DSS, Community Service of Higher Education DSS and etc. At the end will create the combination of these DSS which should be called Indonesian Higher Education DSS or Executive Information System (EIS) for university [9] and obviously it will be a long term research project, need a lot of money and people.

![Diagram of Lecturer DSS architecture]

**Figure 3. Lecturer DSS architecture**

Figure 3 shows that Lecture DSS can be used by lecturer to enter or update their higher education activities to database lecturer DSS and verify by admin. Database Lecture DSS will consist of all items of scoring credit of lecturer
academic position rank such as principal and supporting elements where principal element include 4 sub elements such as education, lecture, research and community services. Database Lecturer DSS retrieve data from database Online Transactional Processing (OLTP) higher education such as lecturer teaching activities. Database OLTP higher education is used by higher education in order to support day to day higher education activities. Meanwhile, Data Warehouse Lecturer DSS will transform with Extraction, Transformation and Loading (ETL) algorithm both from database OLTP higher education and database Lecturer DSS. At the end all the stakeholders such as admin, lecturer, head of study program, dean, rector, parents, government, community, government and etc will have information either or both from database Lecturer DSS or/and Data Warehouse Lecturer DSS in form of reports, graphics and multidimensional views.

Decision Support System (DSS) as intelligent application will give intelligent information to any level management. The intelligent of DSS can be implemented by using Data Warehouse technology with star or snowflake or fact constellation schemas. Data Warehouse will increase the intelligent of DSS with roll up and drill down process as multidimensional view, where roll up will summarize the data and drill down will give specific data. Moreover, using Data Warehouse for creating reports will give best performance reports delivery, where using unnormalized database will involve fewer tables in Structured Query Languages (SQL) query execution. Furthermore, implementation data mining in this Lecturer DSS will increase the intelligent of DSS by finding interesting patterns such as similar pattern, frequent pattern, association rules, characteristic rules, discriminant rules, classification rules and etc.

![Figure 4. Graphic of personal lecturer performance based on elements of lecturer academic position rank](image)

Figure 4 shows example of bar chart for one of lecturer personal performance with master degree certificate and apply for first lecturer academic position rank. The blue bar shows the counted credit scores, whilst he red bar shows the needed credit score. This lecturer has sub element education, lecture, research, community service and supporting with 150, 15, 10, 2 and 1 credit score respectively. Totally, this lecturer has 178 credit score and he/she needs total 22 credit score scattered in sub element education, lecture, research, community service and supporting with 0, 10, 8, 2 and 2 credit score respectively.

**CONCLUSION**

Implementation of Lecturer Decision Support System (DSS) will help lecturer to increase their lecturer academic position rank including increasing of quality implementation as quality assurance of Indonesian higher education in study program, faculty and particularly in higher education. In the future, implementation this Lecturer DSS can be extended to other Directorate general of higher education (DIKTI) regulations such as lecturer workload (Beban Kerja Dosen – BKD). This lecture workload should fill up each semester as reporting of semester lecturer workload to DIKTI.

**REFERENCES**

2. Yudhoyono, S.B. Allowance of Teacher and Lecturer, Special allowance of Teacher and Lecturer including honor allowance of Professor. Regulation of Government of the Republic of Indonesia, Number 41 (2009).
Interaction Design of Mobile Game-Based Learning for Letter Learning

Herika Hayurani, Nurmaya, Muhammad A. Ziqri, Maulana Shiddiq, Dian A.W. Harbyantinna
Universitas YARSI
Jl. Letjen. Suprapto, Cempaka Putih, Jakarta Pusat, 10510, Indonesia
{herika.hayurani, nurmaya}@yarsi.ac.id

ABSTRACT
Game-based learning is used by educators to attract and motivate children in learning letters. Mobile devices are used as a medium to convey the knowledge. The development of mobile game-based learning to learn letter for young children also increases. However, the study about defining the appropriate interaction design for building mobile learning letter game is quite less. Hence, the quality of the games that have existed is being questioned. In this study, we applied six components design collected based on literature study to our mobile game for Indonesian letter learning. Cognitive children development, stimulus that can capture visual attention and articulatory gesture effect, become our references in defining suitable interaction design of mobile game-based learning for young children. They are utilized in our prototype of mobile learning letter game. This interaction design may help the mobile game-based learning developer in developing the appropriate mobile game-based learning for young children.

Author Keywords
Mobile game-based learning; cognitive; articulatory; visual attention

INTRODUCTION
Having the ability to recognize letters is a must for young children, as a starting point to develop their reading skill. Game-based learning is used to attract and engage them during the learning process of recognizing and memorizing letters. Furio et al. explained [7] that according to Prensky [15], game-based learning may potentially give children easier, more effective and engaging in learning. Thus, it can increase children interest to involve in learning activities.

The growing trend of the development mobile devices which adapt surface computing, such as tablet computers and smartphones, affects the increasing of the total of mobile game-based learning being develop. Mobile game-based learning for learning letter is no exception. The trend also shows that children used these devices for entertainment or learning [17]. Mobile devices have been proved for more being able to engage and motivate young children in active learning [1, 11, 12]. Enable to exploit natural interaction modalities such as touch directly to the devices fulfill young children curiosity in learning something new. Young children learn from their experience in manipulating the objects directly and used them to predict the result of their planning action [14]. Thus, mobile devices can hold their attention during the learning process. In addition, getting feedback immediately from their interaction with the devices, increase their motivation to do repetition actions in learning. They may construct a new knowledge during the learning process [7].

Increasing young children motivation in learning letters is important to achieve long-term learning purpose. Their long term purpose is being able to read the word based on the letter recognition. In order to maintain their motivation, mobile learning letter game application must be able to keep them to participate in learning activities throughout the study hours. For this purpose, applying the appropriate interaction design to the game application is needed.

Ronimus et al. [16] proposed level of challenge and reward system in a digital game-based learning of reading to hold children attention for long period learning. However, the evaluation result of their suggestion did not show any change. It did not give big impact in keeping young children’s motivation to learn reading for long period.

Different with Ronimus et al., Both-de Vries et al. [2] adapted the inappropriate interaction design in alphabet book. This inappropriate design led young children to the inaccurate learning goal. They combined anthropomorphic and object figures to illustrate the letters to attract young children’s visual attention. Yet, it distracted their attention to the letters. They were more attracted to anthropomorphics figure than the letter itself. It made there is no improvement of young children’s ability in recognizing letters.

So, applying inappropriate interaction design can create
young children’s motivation does not rise, and also mislead learning purpose. Hence, building appropriate interaction design of mobile game for letter learning is important. By defining the interaction design for letters’ application game, it may keep and increase young children’s motivation to learn in recognizing and memorizing the letters.

However, studies about defining the interaction design rules for building children’s mobile game-based learning is still rare. Therefore, our study tries to define an interaction design to build mobile game-based learning for letter learning. The users of our game are young children. They are in the pre-alphabetic phase based on their reading skill. Cognitive development, stimulus for attracting visual attention and articulatory gesture become our reference in defining our interaction design for building mobile learning letter game. Then, we make prototype of mobile learning letter game that adapt our interaction design contains six components design, to build mobile games for young children.

In this paper, first, we present about cognitive development of pre-alphabetic children, then our design overview continued with our mobile game-based learning’s prototype. Last is our conclusion and future works.

COGNITIVE DEVELOPMENT OF PRE-ALPHABETIC CHILDREN

Pre-alphabetic children are the children who are in the pre-alphabetic phase based on their reading ability [4]. The average of children age in this phase is between three until five years old. Children in this age depend on their visualization to learn since their visual cognitive development more dominant than others. They show poor performance in recognizing the letters when they use their hearing sense. Hence, they can only identify the letters based on the letters visual shape [3]. Treiman showed one of children describing a letter of “t” not as a letter but as a cross object [18]. Therefore, they cannot read the words from a series of letters since they do not have the ability to recognize the letters. Relying on their visual cognitive ability for learning, we try to catch their visual attention more to the letters than objects.

DESIGN OVERVIEW

There are six components design that we apply to our mobile-game based learning such as highlighting each letter at one-time play, moving each letter using motion, representing the letters with objects, showing video to show mouth movement in spelling the letters, applying plain background, picture and simple font, and limiting each game section using time.

Highlighting each letter at one-time play
Young children like to do repetition actions. They tend to choose the same action when they know the result by recalling their memory [3]. For broadening their ability in remembering many letters, we try to avoid their repetitive action behaviour by highlighting each letter at one-time play. They remember gesture action more rather than the object itself [23]. By highlighting each letter can attract their visual attention and prevent them to utilize the same action.

Moving each letter using motion
Strong local luminance-based transient (e.g motion and looming) may capture visual attention [9]. Several motions such as oscillation, looming and nearby moving contours can capture attention by increasing the salience of the moving object [10]. Therefore, by moving each letter using motion may keep their visual attention. Moving each letter randomly may produced new perceptual object representations. New perceptual object representations can attract visual attention [8,10, 21].

Representing the letters with objects
Young children remember word faster when it is represented into an object since it can capture their attention quickly [19,20]. However, the objects must not attract the children more than the letters shape visualization. Both-de Vries and Bus’s experiment show that young children pay the same level attention between objects and letters, when the objects did not produce elicit story-like associations [2].

Showing video to show mouth movement in spelling the letters
To show how to spell the letters, we put a video of mouth movement when spelling a letter. By seeing the mouth position, the children can easily recognizing the letter by knowing how to spell it. By articulating the words can improve children’s learning ability [3, 13]. Ehri et al. said many studies have shown that teaching children phonemic awareness enhance their word reading and spelling [5]. Phonemic awareness can be achieved by doing articulatory gesture or acoustic features. However, articulatory gesture more represents phonemes in brain rather than acoustic features [13]. As soon as the sounds are heard, they will disappear. Compare to mouth, mouth positions are concrete, can be felt and viewed in mirror that makes easier for learners to analyze [3].

Applying plain background, picture and simple font
Obtaining young children’s attention with colourful items has certainly succeeded. However, it can be a hindrance for them when learning letters. They pay more attention to the colourful ones rather than the letter itself [2]. In fact, plain picture may interfere with children’s learning of letter name. So, we propose plain items to our mobile games.

Limiting each game section using time
We utilize time limitation for each game section in order to keep the young children’s concentration on remembering the letter. By reducing other steps that are not the main purpose of our mobile game-based learning, may easily for them to recall their memory in recognizing the letter.
Young children faster to learn by remembering the gesture rather than object [23]. Hence, by reducing the unnecessary gesture action may lead the children to remember the letters more. In addition, managing the play time can control children addiction when playing mobile games. Many pros and cons come, some believe that introducing the children to technology may often bring damage to their cognitive and social development but the others think different [22]. However, most of them agree that children must be supervised when they are interacting with the technology [22]. Therefore, adjusting the time of each game section can be a good way to supervise them in playing mobile game.

**PROTOTYPE**

Our mobile game-based learning is built in android platform. We use Android – 4.3 Jelly Bean. Our game is only for learning Indonesian letters.

![Figure 1. Front Page of The Learning Letter Game](image)

Figure 1 shows the front page of the games application. We use white color for the background and bubble image for each letter to emphasize the letters.

Figure 2 shows the page when children choose “B” letter. Since we used Indonesian Language as a sample, we put an object that has a first letter of B which is Bebek (Duck) and Becak (Pedicab).

Figure 3 shows the video of how to read the word of each object.

**CONCLUSION AND FUTURE WORKS**

The development of mobile devices is followed by the increment of mobile game based-learning. However, the study about what kind of interaction design that can build appropriate mobile game based-learning for young children is still rare.

We develop an interaction design contains six components design for building the mobile game based-learning for learning letter based on the theories and previous studies. By building this interaction design, we can develop mobile game based-learning that can achieve letter learning purpose. It may also help developers of game-based learning in building the games that appropriate for the young children.

However, this interaction design needs to be evaluated to
the young children, in order to prove its effectiveness for learning purpose. Therefore, for the future works, we will do the usability and user experience testing to the young children.

REFERENCES
Interaction of Self-Concept and Online Identity among Children, Teenagers and Early Adults in Indonesia

Lidia Sandra
Psychology Faculty
Krida Wacana Christian University
Jakarta, Indonesia
lidia.sandra@ukrida.ac.id

ABSTRACT
This paper aims to understand the interaction of self-concept and online identity among children, teenagers and early adults in Indonesia. This research is using a mixed method to answer the research questions “How is the interaction of self-concept and online identity among children, teenager and early adults in Indonesia?”

Quantitative data was collected using questionnaires and scales, while qualitative data was collected through observation, interviews and focus group discussions. Analysis for the quantitative data involved cross tabulation, exploratory factor, anova, discriminant, multidimensional scaling while qualitative analysis theme analysis. This research was conducted toward internet users in Indonesia from late childhood, teenagers and young adults in three big cities in Indonesia, i.e: Jakarta, Yogyakarta and Denpasar.

Research found that psychological factors of interaction among late childhood, adolescents and young adult demonstrated significant difference in the choice of interaction, interaction consideration, self-exploration and self-exposure. Child see this interaction just like "playing"; identity exploration was conducted for being "fresh" and to be able to "fit in" with the desired social environment. Boys tend to play online games while girls loves doing the socialization in social networking sites, surfing her idol activities.

Teens see this interaction mainly for social use and exploring identity to find the best suited identity. Adolescences do social communication activities. Early adulthood focuses on social activities as well using internet as instrumental communication tool. Adult performed interaction with consideration of costs and benefits as well as social status. Adolescences also perform identity exploration in order to find the best suited identity. Adults using identity exploration for particular interests; activities mostly related to careers, jobs as well as exploration of relationships with the opposite sex. This research is useful as a guidance theory for parents, teachers and education/psychology practitioners and government to take preventive and curative actions and or policy for the healthy Internet use in Indonesia.

Author Keywords
Psychological dynamics, interaction of self-concept and online identity

INTRODUCTION
Internet users in Indonesia reached 50 million in 2011. This means at least 21% of Indonesian population of Indonesia has been using the internet [1]. MarkPlusInsight recorded even 55 million or 23% of Indonesia's population has been using the internet in 2011 [2]. The use of social networking in Indonesia has also grown tremendously since 2009. Number of Facebook users in Indonesia reached more than 41 million users in 2011 mainly occupied by adolescence and early adulthood. Interaction with internet is continually increasing as a result of growth of internet usage in Indonesia. This interaction of self and online self tends to converge in the future [3].

Interaction of self and online identity can be defined as interaction between selves in the real world with selves in cyberspace. This interaction performs both negative and positive impact on human. Indonesian media highlighted the increasing victims due to the use of Facebook in early February 2010. New modes of crime allegedly occurred such as identity fraud, defamation, phishing for bank customers. Other negative impacts of Internet interaction might include addiction of online games, cybersex, fantasy role-playing. Identity confusion and aggressiveness was highlighted as adverse negative use of the Internet [4,5,6].

Anonymity, multiplicity and invisibility in internet are considered to be factors triggering psychopathology behaviors in cyberspace [7,8,9]. Self in virtual world is represented by online identity. Online identity is one way of distinguishing one self from others when connected to the
Internet; it might comprise of any combination that allow the differentiation of users [10].

Despite these negative impacts of the internet, other studies show many positive impacts might also occur due to this interaction. Analysis of girls’ personal websites performed by Stern found that internet provides excellent opportunity for children to express themselves and develop a sense of social and sexual knowledge. Self-expression through online identity found to be consistent with theories of social formation. Online identities can be used as a tool for exploring aspects of selves, facilitating greater self-awareness and becoming a catalyst for positive change [11,12].

Turkle [13] found that online identities would facilitate flexible selves, a natural adaptation and realization of self-exploration. The virtual world also facilitates emotional openness in the virtual space where individuals can express themselves. It gives the opportunity of a therapeutic relation-ship and forming meaningful relationships. Cyberspace provides natural space for people exposing themselves more intimately with the mediation of the screen and a pseudonym.

This study aims to understand the psychological dynamics of the interaction of self-concept and online identity among children, teenagers and early adulthood.

METHOD
This study uses inclusion criteria as follows: subjects are internet users in Indonesia from three developmental groups, i.e late childhood (9-11 years), adolescence (12-20 years) and early adulthood (21-40 years). The selection of these three groups based on the fact that biggest percentage of social networking users are from these groups. Subjects were chosen from three major cities using internet, i.e. Jakarta, Denpasar and Yogyakarta. Sampling is using the purposive sampling method.

RESULTS
Descriptive analysis showed that on the factor of impression management, adult group showed the highest value and more an evaluation based on environmental feedback and therefore it is important for them to conduct identity impression management.

Children showed the highest value on the factors of self-exploration in the cyberspace. Children love self exploration because they gained lots of friends from this interaction. Children have a higher self exposure than teens and early adulthood in the virtual world, children feel more open in cyberspace. This is in contrast to the qualitative findings that adolescents are getting the highest group in self exposure. The high self exposure in children group imply the need for parents to assist children in their virtual interaction.

MDS analysis showed that the type of use is more suitable to classify embeddedness and interaction, rather than on group development. The above conclusion is supported by a discriminant analysis which shows that the types use generates 70% accuracy compared with developments group which resulted in 50% accuracy.

Discriminant factor in the interaction of self-concept and online identity obtained from the results of discriminant analysis on the developmental group are perceived needs / dependence on the internet on a group of teenagers and adults, the use of the Internet only if required (consideration interaction) is the discriminant factor between groups of children and adults. Adolescents and adults also differ in the factor productivity of internet usage and also satisfaction of internet usage. The differences in self-concept and identity interaction online three groups of these developments are as follows:

1. Children saw interaction as "play" and can "fit in" social environment that is worth for him, the largest percentage of the boys are playing online games while for girls is socialization in social networking and browsing to find out what is being done or used by idol / her favorite friends. Teens focuses on the communication of social activity. Young adults focuses on communication and social activities as well using it as instrumental interaction with cost-benefit considerations and efficiency as well as social status. Teens perceive this interaction as a social activity, while the child perceives this interaction "fun", as one of the activities of play and entertainment.

2. Adolescents and adults see the paradoxical character of this interaction, liberating but also reduce their freedom; provide intelligence but also reduces their ability. Adult group elaborated this paradoxical character in more depth by identifying various elements themselves as self-presentation, impression management, goals and motivation as well as the structures themselves as the id, ego and superego. Adult group with a more complex understanding of cognitive able to see the connection and causality in it. Teenagers see the environment as an alternative element to construct identity, BirGing can be one way of presenting himself in the virtual world, such as the band or idol figures. Adult group saw the presence of environmental elements in this virtual world interactions cause certain pressure which then facilitated by technology. Adult group can analyze and evaluate and reflect on activities and interaction process itself in the virtual world.

3. Children see exploration of identity as an activity for the purpose of being "fresh" and can "fit in", to be "cool". Group of young adults indicated the use of identity exploration in the interests of certain and activities that lead to career exploration and job and relationships with the opposite sex.
4. The findings indicate a person's understanding of the technology gradually develops in accordance with the development of the cognitive abilities. Children understand technology as means of games and entertainment focused on play, teenagers use to show affection, socialize; while adults use them as tools of his cognition, which continues to look for growth.

5. Teenagers are in transition between playing and instrumental function that has not been followed by the development of adequate cognition. The reduced attachment with parents replaced with peers who provide exploration of identity, online gaming, which cause some teens to be addicted.

In addition, the data showed that 65.5% of respondents use the Internet for social purposes communication followed by 23.2% and 11.3% entertainment use instrumental use. It was also found that the percentage of women leading the social use of communication was slightly higher at 68.5% compared to 62.5% males; On the other hand men instrumental larger users is 13.5% compared to the instrumental female users by 9.1%. However, cross tabulation analysis conducted to examine the relationship of sex and the use did not show any significant relationship. Use of the Internet for instrumental and entertainment in Indonesia cannot be separated from the use of social communication. With this connection, the perceived satisfaction, happiness and mastery of a better environment are achieved. In individuals in the community with a high degree of collectivity, connectedness becomes fundamental motivation behavior choices and life orientation [14].

CONCLUSION

This research shows that dynamics of psychological factors in this interaction was found different in children late teens and adults. This is related to aspects of cognitive development, socio-emotional at each stage of development. Groups of children showed the highest value of self-exploration and self-exposure. Children also shows the behavior of exposure through cyberspace Adult group had the highest score on the factor of impression management compared to the other two groups. Group of young adults do more self-presentation settings based evaluation feedback to her environment. Young adults and teenagers shows the higher scores on interactions consideration factor compared with groups of children. This is related to the aspects of cognitive development.

This study found that psychological factors of interaction among late childhood, adolescents and young adult demonstrated significant difference in the choice of interaction, interaction consideration, self-exploration and self-exposure. Child see this interaction just like "playing"; identity exploration was conducted for being "fresh" and to be able to "fit in" with the desired social environment. Teens see this interaction maily for social affair and exploring identity to find the best suited identity. Young adults puts more instrumental consideration on the interaction especially related to career and relationship with the opposite sex.

This is related to aspects of cognitive development, socio-emotional at each stage of development. Groups of children showed the highest value of self-exploration and self-exposure. Children also shows the behavior of exposure through cyberspace Adult group had the highest score on the factor of impression management compared to the other two groups. Group of young adults do more self-presentation settings based evaluation feedback to her environment. Young adults and teenagers shows the higher scores on interactions consideration factor compared with groups of children. This is related to the aspects of cognitive development.

This study found that psychological factors of interaction among late childhood, adolescents and young adult demonstrated significant difference in the choice of interaction, interaction consideration, self-exploration and self-exposure. Child see this interaction just like "playing"; identity exploration was conducted for being "fresh" and to be able to "fit in" with the desired social environment. Teens see this interaction maily for social affair and exploring identity to find the best suited identity. Young adults puts more instrumental consideration on the interaction especially related to career and relationship with the opposite sex.

REFERENCES


Evaluation and Measurement of User Experience for a Learning Management System

Dadang Syarif Sihabudin Sahid\textsuperscript{1,2} \\
\textsuperscript{1} Department of Electrical Engineering and Information Technology \\
Universitas Gadjah Mada Yogyakarta, Indonesia \\
\textsuperscript{2} Department of Computer Politeknik Caltex Riau Pekanbaru, Indonesia \\
dadang@pcr.ac.id

P. Insap Santosa, Ridi Ferdiana, Lukito Edi N. \\
Department of Electrical Engineering and Information Technology \\
Universitas Gadjah Mada Yogyakarta, Indonesia \\
ingap@ugm.ac.id, ridi@ugm.ac.id, \\
lukito@ugm.ac.id

ABSTRACT
Learning Management System (LMS) becomes more popular to provide a virtual learning environment. The growth of pervasive and ubiquitous computing promotes development and improvement LMS rapidly. Shifting paradigm in designing LMS from technology-centered to user-centered design drives the developer to consider user experience as main concern to improve LMS. Therefore, evaluation and measurement of user experience for LMS become crucial. There were some studies have been conducted to evaluate and measure an LMS product in order to gain feedback from the user. However, the studies implement a partial view about LMS product. They were conducted research that limited to comparing LMS and getting perception rather than observing the quality of the LMS. This paper proposed an evaluation and measurement of user experience for an LMS by implementing user experience questionnaire tools. Schoology, as an LMS product is evaluated due to the LMS included in the top five LMS by total customers (elearningindustry.com). As the results, the LMS got a positive impression in user perception and achieved as a good product in relative quality. Generally, evaluation and measurement LMS using a user experience questionnaire not only provide a comprehensive user perception, but also provide a relative quality level about the product.

Author Keywords
LMS; user experience questionnaire; pragmatic quality; hedonic quality;

INTRODUCTION
The rapid growth of Internet technology has provided facilities and opportunities in a variety of things as well as being an integral part of human life. In education sector, it has provided a virtual learning environment through a Learning Management System (LMS). One of the main concerns of developing an LMS is how to evaluate and design that can give satisfaction for the learner. Recently, user experience (UX) has become the most important to design an LMS product. Point of view in designing LMS has transformed from technology-centered design to user-centered design.

Some research in LMS evaluations have been conducted in order to give feedback, compare LMS, or to measure the user experience. UX can be obtained from user behavior through a process based on user activity. Activity-centered design (ACD) provides an overview how a user has behavior during interacting with LMS [1]. Learning from experience and user behavior is a strategic and a tactical adaptation in developing an LMS. Evaluation of user behavior based on ACD is conducted by recording user activity in a log that is stored either on the server or on the client side [2]. Generating adaptive and personalized LMS can be effective if an evaluation of the ACD is done in each phase of design [3]. Evaluation UX by monitoring and recording user activity and behavior is an implicit evaluation. This unconscious action gave real information regarding the experience of the user.

An explicit evaluation such as conducting a series of survey also is common in getting UX. The information gained by explicit user experience can provide UX patterns and measure the reputation of LMS. Evaluation UX by comparing Moodle and Blackboard LMS was carried out through student perception [4]. This research delivered five general questions to students who have experience using both of LMS. The results showed students’ perception leveled and analyzed by Likert-scale. Observing several open source LMS also was done by comparing some features and functionalities check listed based on technical specification tools, learner tools, and support tools. Some researches often using Moodle to be evaluated and compared with other open source LMS [5-8].

Questionnaires as an explicit evaluation and measurement tools is commonly used to assess usability and quality LMS product. They allow an efficient measurement quantitative of LMS features and functionalities as mentioned before.
They also provide a qualitative approach to measure perception and general impressions of user experience. UX describes the subjective impressions of users towards an LMS product before, during and after the use. Different user or different group user may assess the same LMS, but quite differently concerning their experience. Usability related to quality aspects such as efficiency, effectiveness, learnability, perspicuity, and controllability. In the last couple of years there is a clear tendency to extend the concept of usability to a more holistic view on the interaction between humans and systems, which is often referred as user experience.

The studies that have been mentioned previously, has shown how important UX as a reference basis for evaluation and measurement a LMS. However, the studies addressed a partial view of LMS usability. Questionnaires user experience as the tools represented limited general perceptions about the UX. Most of the studies just evaluate some LMS’s by comparing features and functionalities rather than investigating the quality of LMS product. This paper proposed and focused to a user experience questionnaire aims to evaluate and measure an LMS. The user experience questionnaire not only described about user perceptions and usability, but also provided a benchmark about the quality level of an LMS relative to other product.

**USER EXPERIENCE MEASUREMENT FOR LMS**

**The User Experience Questionnaire**

The user experience questionnaire is performed as the method to evaluate and measure an LMS in this paper. The user experience questionnaire was developed for such scenarios and the evaluation of usability and user experience. The scales of the questionnaire are designed to cover a comprehensive impression of user experience. The format of the questionnaire supports the immediate user response to express feelings, impressions and attitudes that arise when they use a product. In addition, the questionnaire is short enough to be applied as an online form. A group user in a few minutes can fill it out even if the demographic question is added at the beginning or end of the questionnaire [9].

The questionnaire distinguishes between perceived ergonomic quality, perceived hedonic quality and perceived attractiveness of an LMS. The questionnaire assumes that perceived ergonomic quality and perceived hedonic quality describe independent dimensions of the user experience. Ergonomic quality and hedonic quality are categories that summarize different quality aspects. The focus of ergonomic quality is on the goal oriented or task oriented aspects of product design. High ergonomic quality enables the user to reach his or her goals with efficiency and effectiveness. The focus of hedonic quality is on the non-task oriented quality aspects of a software product, for example the originality of the design or the beauty of the user interface.

The user experience questionnaire consisted six categories with 26 assessment items. Figure 1 showed the categorical structure of the questionnaire [10].

**Data Processing Techniques**

Three main techniques are proposed to conduct data processing in this paper. They are means scales, Cronbachs Alfa-coefficient, and the benchmark that the scale means are set in relation to existing values from a benchmark data set. In the means scales, the items are scaled from -3 to +3. Thus, -3 represents the most negative answer, 0 a neutral answer, and +3 the most positive answer.
The Alpha-Coefficient is a measure for the consistence of a scale. There is no generally accepted rule how big the value of the coefficient. Some authors assume that a scale should show an alpha value > 0.7 to be considered as sufficiently consistent [9].

The benchmark describes the degree of relative quality a product. In this paper, the data set contains data from 4818 persons from 163 studies concerning different products (business software, web pages, web shops, social networks). The benchmark presented five scales relative qualities: excellent, good, above average, below average, and bad.

Data Collection
In this paper, the user questionnaire is implemented to evaluate and measure Schoology as an LMS product. Schoology is an LMS for primary and secondary (K-12) schools and higher education institutions focused on collaboration, that allows users to create, manage, and share academic content. Also known as a course management system (CMS), the cloud-based platform provides tools needed to manage an online classroom. As visually and functionally similar to social media, the service includes attendance records, online grade book, tests and quizzes, and homework drop boxes. The LMS builds out interactive content that teachers can use to support course materials and provide more access to parents [11]. The data are collected from 25 higher education students who have experience and use the LMS during taking management project course in 3 weeks.

RESULTS AND DISCUSSION
The results figured out summary of data that are represented in three types: means scale, cronbachs alfa-coefficient and benchmark graph.

Means Scale
The mean scale showed the average value for each item and category. As mentioned above that the questionnaire has 26 items and six categories. Based on the data, all the items got positive impression. The 12th item, good vs bad score is 2 with standard deviation 1 that is the highest score. As a part of attractiveness category, the item contributed in giving a general impression about the LMS. The 10th and 6th items are the lowest mean score. Both of the items are part of a novelty and stimulation category. These categories represented the hedonic quality of the LMS. The 13th item (complicated to easy) has the highest variance. It drew a relatively wide range perception the students about the LMS. It is common for the students have three weeks to use and explore the new LMS. Students who have extra experience using other LMS in the previous are different with other students who limited experience.

Figure 2 showed the means scale of category. Based on the figure, attractiveness as the general impression and efficiency as a part of pragmatic quality have relative the highest score compared to other category (score=1.6). Perspicuity (score=1.5) and dependability (score=1.3) are parts of pragmatic quality also indicating a relatively good score. These facts are logic that the purposes of students accessing to the LMS are to learn in a virtual environment. Since they got the comfortable situation, they did not think to other purpose.

Cronbachs Alfa-Coefficient
The Cronbach Alfa-Coefficient is used to indicate whether a scale is consistent or not. This tool are useful to support an interpretation that is gained from the means scale.

Table 1 showed cronbachs alfa-coefficient value of each category from the data. The cronbach alfa-coefficient showed that attractiveness, perspicuity, and stimulation have more than 0.7 in value. It represented that the scale of these categories is consistent. On the other hand, efficiency has 0.69 in value that is near to 0.7. It indicated that the category little bit consistent. Based on the data, mostly showed that the pragmatic quality tends to consistent in scale. It depicted the logic condition that the students focused using an LMS to learn rather than exploring LMS for other purpose.

Benchmark Graph
Figure 3 showed position quality level of LMS relative to other product. The graph is graded by five levels include excellent, good, above average, below average and bad. The indication came from the data set benchmark from 4818 persons from 163 studies concerning different products as be presented before. The figure is the benchmark graph that describes the relative quality of the LMS. As shown in the graph, three categories of the LMS, attractiveness, perspicuity, and efficiency have a good quality relative to other product.
The tools were chosen as the methods because it is simple, efficient and give rough information to describe a product comprehensively. Indeed, the tools provide maps of relative quality a product compared to other products. It is useful for further evaluation analysis, especially in conducting competitor analysis. The Schoology LMS is observed as evaluated product. As the results, the LMS got a good level in pragmatic and general impressions relative to other products. Even though for some hedonics quality got above average quality level, it is sufficient to confirm that the LMS gives learning satisfaction to the learner.

REFERENCES


Hidden Modern Health Problems and Crouching Traditional Exercise Solutions for Computer Users

Laurentius Noer Andoyo
Lecturer
STIKI - Malang
andoyo@stiki.ac.id

Lidia Sandra
Lecturer
UKRIDA - Jakarta
lidia.sandra@ukrida.ac.id

ABSTRACT
As the rapid progress of ICT (Information and Communications Technology), the number of computer users is also escalating sharply. These computer users are very susceptible to RSI (Repetitive Strain Injuries) which may be in the form of physical disorder, such as MSD (Musculoskeletal Disorders) or CVS (Computer Vision Syndromes), and various mental disorders. These disruptions are mainly due to people’s ignorance to ergonomic positions and incorrect attitudes in using the computer for years. The biggest enemy of modern people is called ‘Disease of Civilization’, caused by the changes in behavior due to the advancement of technology and bad life style. “There is nothing new under the sun” - The Book of Ecclesiastes 1:9. To overcome the impact of modernization, the solution is thinking “backward” to old concepts of the ancestors. Traditional exercises, which at first used for defense mechanism against the nature and enemies, are now applied in the work life. In particular, the authors intend to invite Indonesian computer users to cultivate “Aman dan Sehat ber-Komputer” (="Safe and Healthy Computing") by integrating exercises as a their daily life-style. There are many hidden health problems for modern computer user, but there are also many traditional exercises that crouch against the problems.

Author Keywords
Safe and Healthy Computing, modern life-style, traditional exercises, RSI, MSD, CVS, ergonomic

INTRODUCTION
Of the total of 7.2 billion of world population, 3 billion of them are internet users. During 2013, the numbers of internet users in Indonesia had reached 74.75 million, including 31.7 million ‘Netizens’ (Internet users with ‘work-hours’ at least 3 hours per day) [1]. The numbers of computer users are more than the number of internet users.

The health of computer users (hereinafter referred to as users) who perform their work continuously and repeatedly for a long time in front of computers, exacerbated by conditions of ignorance about ergonomics and wrong behavior in doing his job, resulting in a physical disorder known as RSI (Repetitive Strain Injuries). RSI may manifest as: 1. MSD (Musculo Skeletal Disorders), injury or pain in muscles and joints, and 2. CVS (Computer Vision Syndromes), eye irritation by looked at a computer screen for too long. In addition, users may also experience a mental disorder, such as frequent headaches, insomnia, loss of appetite (anorexia), impaired digestion (dyspepsia), depression, high blood pressure, heart disease, and many other diseases.

Solution, inexpensive, quick but effective way to overcome the health problems is socializing the ASK (“Aman dan Sehat berKomputer”) (="Safe and Healthy Computing") program. This program initially explains the potential health hazards of the users. Explanation is done through the website and social-media or direct presentation, the campaign, and especially through the implementation of Olah Diri Tradisional (hereinafter referred to as ODT) training. Activities undertaken by ODT’s trainees are a set of exercises, relaxations and self-massages (acupressure) at certain acupoint. All those practical and simple exercises can then be performed routinely every day or inserted in the break-time of daily activities. ODT’s material selected mainly from the wealth of Chinese Traditional Exercise that has been widely recognized and trusted internationally, such as: Taiji Quan, Wu Qin Zi, Ba Duan Jin, Zhineng Qigong and many others.

History
In the 21st century, one of the greatest accomplishments we can celebrate is our continuous pursuit of fitness since the beginning of humankind [3]. Throughout prehistoric time, the quest for fitness was driven by a need to survive through the arduous tasks of hunting and gathering. Today, humans also need to maintain their health in daily work in the modern world that has greatly influenced by technology. History records as follows: Primitive Man (pre-10.000 BC), The Neolithics Agricultural Revolution (10.000 – 8.000 BC), The Near East (4.000 – 250 BC), Ancient Chinese and Indian Civilizations (2.500 – 250 BC), Ancient Greek Civilization (2.500 – 200 BC), Roman Civilization (500 BC – 476 AD), The Dark Ages (476 – 1000 AD) and Middle Ages (900 – 1400 AD), The
Renaissance (1.400 - 1.700 AD). In the 21st Century we also need a kind of exercise that suitable for computer users. Importance to note, the best exercise is a proven, reliable, efficient, effective, does not require a long time but has a lot of benefits.

Why TCM ?
The exercise that have the most libraries and recommended are developed based on Traditional Chinese Medicine (=TCM), which is based on Chinese philosophy, including the theory of Yin-Yang, the Five Elements (Wu-xing), the Meridian system of the human body (Jingluo) and many others. TCM believes that all processes in the human body are related to and interacted with the nature. The onset of the disease is caused by disharmony between the environment inside and outside the body. Symptoms of imbalance are used in the understanding, treatment, and prevention of disease. TCM practices include herbal medicine, acupuncture, Tui Na massage, diet therapy, exercise (Qigong and Taiji), and also astrology (Fengshui). TCM concepts known as Eastern medicine is often at odds with Western medicine, but the practitioners combine both of them based on the evidence. Traditional medicine in Indonesa, including TCM, was stipulated in the Decree of the Minister of Health of the Republic of Indonesia Number 1076 / Menkes / SK / VII / 2003 on the Implementation of Traditional medicine. Surat Izin Pengobatan Tradisional (SIPPT) (=Permit of Traditional Medicine) is given by the Chief Medical Officer of the District / Municipality to practitioners whose methods have met the requirements of research and testing and proven to be safe and beneficial for health [8].

East meets West
In doing your daily work, there are three stages of you get suffering on the part of certain muscle or bone parts of the body. The stages are starting from Discomfort, Pain and eventually Injury (=DPI). Suffering can affect health significantly, both during and outside your working hours. Suffering delimitates what you do, how you interact with other people and how you respond to the situation.

Your body are designed to be used [9]. Blood brings nutrients and oxygen to the tissues and removes waste products. To assist the heart in moving blood around the body, the muscles need to contract and relax, thereby ‘pumping’ it along. Your bodies also need to move to keep your joints healthy. Joint movement keeps the joint lubricated and nutrients move around, and this is what allows the joint to operate properly. If there is no movement in the joint, the fluids and gases within the joint gather in one place, increasing the pressure in part of the joint and causing discomfort. The more rarely used, a joint is increasingly difficult to move. That is, the joints which are slightly used will be ‘stiff’ in the short term and in the long term may lose part of the range to be moved. Making sure you regularly stretch and move joints through their full range of movement will ensure you keep their full range of movement.

Think of your joints as operating much like a door hinge. Kept lubricated and regularly moved through their full range, your joints will keep their proper function. If not used in part of the range, a joint will become stiff and may break down. Lack of movement also affects your tendons and connective tissues, by: decreasing their strength, and de-creasing the range through which they can move.

Apart from the brain and spinal cord, nerves are either ‘motor’ – providing action – or ‘sensory’ – providing feeling. Damage to motor nerves causes weakness or paralysis; they may easily fatigue or give way. Damage to sensory nerves causes numbness, tingling or altered sensations, and pain.

In TCM, the network known as Qi Meridian (Jingluo) spread throughout the body, which are mapped to acupoints (see Figure 1). If the qi (energy) go in then the meridian is smoothly, it will create harmony in the body, and thus your body is able to fight again the disease. Otherwise in case of obstacles on the meridian, it will be displayed as a health disorder. To pave the way of qi, it is required exercises known as Qigong and Taiji.

![ACUPUNTS OF TRADITIONAL CHINESE MEDICINE](image)

**Figure 1:** Qi Meridian

Beyond the exercises, there are a number of contributory factors, which may lead to the onset of DPI. We have grouped these factors into seven categories: (see Figure 2).

**Individual factors:** Things a person can and can’t change about the way he is.

**Psychosocial factors:** The way a person interacts with his social environment and the influences on his behaviour.

**Work organization:** How work is arranged, delegated and carried out.

**Workplace layout/awkward postures:** The way the workplace is set up and the working positions workers adopt.

**Load/forceful movements:** What objects a person handles and the forces he has to apply to use them.

**Task invariability:** How much a task changes over time.

**Environmental issues:** Where the work takes place and the conditions a person works in.
Socialization of the ODT training is done by organizing and developing a program called "Aman dan Sehat berKomputer" (ASK) conducted in accordance with the steps that can be seen in Figure 3.

Preparation is done in a company by establishing a maximum of 50 user-membered group. This kind of training is divided into two phases. The first phase begins with filling out KUESIONER-1 forms for the purposes of analysis user health problems which contains questions about the state of ergonomics and behavioral habits of their work. Questions of KUESIONER-1 in addition to the standard question also obtained from observations typically found in each company. A PRESENTATION on the explanation of the potential hazard to the user's health threats through the materials will follow the evaluation of KUESIONER-1. Instead of downloading the presentation materials from the website, the users can attend on-site presentation. This phase concludes with TESTING, where participants will be evaluated the level of their understanding.

Phase two is the main activity ODT training conducted for 3 days. Ultimately done with filling out KUESIONER-2 that its evaluation results are used to measure the effectiveness of the whole training.

Finally, the expectation of ASK program is that computer users will have additional new habit i.e routine ODT daily practice. ODT practitioner will always preserve and maintain a healthy body and soul into a ‘Seger-Waras’ human who has a excellent health, reliable, not easy to get sick, able to be ready at any times and always stay motivated, so he could be more beneficial for the community. Research shows a strong relationship between the level of Public health with Strength competitiveness (Competitiveness rating). Countries with high levels of Public health appeared to have a higher competitiveness ratio (ILO, 2003).

Efforts to encourage the user to follow the ASK program through ODT training is in line with the declaration of “Indonesia Berbudaya Keselamatan dan Kesehatan Kerja (K3) Tahun 2015” (“Culturing Indonesia in Occupational Safety and Health 2015”) based on Decision of Menakertrans Kep.372 / MEN / XI / 2009 [6]. Speech of Menakertrans on ‘‘Upacara Hari K3 Nasional & Pernyataan Dimulainya Bulan K3 Nasional tahun 2014’’ at Jakarta, 12 January 2014 [5], urges implementation of the K3 is not only a government responsibility, but also the responsibility of all parties, especially Industrial society.

Thus, all relevant parties are obliged to take an active role according to their functions and authorities to make efforts in the K3 continuously and sustainably, and to make the K3 as a part of work culture, so as to prevent cases of occupational accidents and diseases. This will certainly affect the stability in the business, and can indirectly increase economic growth nationally [6].
worldwide, who we encountered in ‘face to face’ meeting, as well as in the virtual world through various social media. As a lecturer of Human Computer Interaction, we are ‘called’ to be a ‘bridge’ to collect ancient art materials of traditional exercises and bring it back in a simple, efficient and effective way in order to be useful to modern society.

To our fellow computer users, we also would like to thank for the warm welcome in a variety of the introduction of Safe and Healthy Computing programs (ASK) and trainings. Your attention and enthusiasm are a great trigger to our passion to work better. Sincerely our gratitude also goes to our friends who involved in the ASK program activities.

REFERENCES
Conceptual Integrity of Dialog Boxes: Installing Oracle DBMS and Setting-up Oracle Service

Bernaridho I. Hutabarat  
Universitas Persada Indonesia  
Jln Salemba #6  
Jakarta 10330  
bernaridho.i.hutabarat@ieee.org  
+62-812-8245770

Maria Lucia Luciana  
Universitas Ma Chung  
Jln Villa Puncak Tidar N-1  
Malang 65151  
maria.lucia@machung.ac.id  
+62-813-3470223

Bistok D. Lelono  
Formulatrix Indonesia  
Jln Soekarno-Hatta 121, Salatiga 50771  
bistok@gmail.com  
+62-817-2389933

ABSTRACT

The dialog boxes of software constitute one form of HCI (Human Computer Interaction). Conceptual Integrity for HCI means that concepts presented to the users are non-redundant. This paper argues the dialog boxes for installing Oracle DBMS and creating the services overwhelm the users, and suggests that the simplification proposed in this paper solves the problem. Two triangulations are to used to suggest the merit of our approach: theory and data. Three theories are used: communication theory, information theory, and conceptual integrity. Three data are used: the first and third authors, the participants, and second author.

Author Keywords

Oracle DBMS; Conceptual Integrity; Information Theory; dialog boxes; Database; Oracle Service.

INTRODUCTION

Psychologists have researched about human’s short term memory in performing some jobs. One classic result that stands the test of time is the work done by George Armitage Miller [1] (hereafter referred to as Miller). Reference [1] implies that in most cases a human can process 7 ± 2 items of information at a time. Another widely cited result about short term memory is [2] that implies the number of items in average is 4 [3]. In the context of HCI, it is important to keep the number of information item low.

A HCI guideline from Apple [6] names one principle Aesthetic Integrity, meaning information is well organized and consistent. Similarly, Conceptual Integrity [7-8] implies the consistent usage of terms. Conceptual Integrity in [7] started from [8]. References [7-8] consistently use the term type. By contrast, ref [9] exemplifies Conceptual Disintegrity. It wrote that the concept of type and class are fundamentally different. Yet it said that the two concepts are interchangeable. The Conceptual Integrity for database management that was started from [9] has attracted scientists; the website www.thethirdmanifesto.com has all the projects and products as proof of its usefulness. Essentially, Aesthetic Integrity is Conceptual Integrity (and vice versa). We use the term Conceptual Integrity to stress the relationship with concepts. Apple products’ success proved the merit of Conceptual Integrity.

From the perspective of cognitive load, it is important to remove redundant terms to make up the unique, irreducible ones. Reducing the redundancy comes naturally to humans [10]. Reference [7] reduces the redundant terms class and type in [9] into type only. Technologically, Information Theory [11] is the formal basis for compressing information that has the redundancy, used in compression software. The vast use of various compression software validates the use of Information Theory to measure the merit of reducing the redundancy, including the redundancy of terms or concepts.

This paper is organized as follows. Sec 1 informs the validity of theories. Sec 2 presents the problem and research methods. Sec 3 describes the solution. Sec 4 discusses the solution and its limitations. Sec 5 concludes the paper.

PROBLEM DETAIL, AND RESEARCH METHOD

Oracle uses redundant terms: service, net service, SID, in their dialog boxes. We observe that they (the dialog boxes and terms) overwhelm users. Some confusions are listed in [7], but the result search of ‘What is ORACLE_SID’ will confirm our claim. Our trainees and readers of ref [12] report the similar thing.

Reference [12] is our initial solution. Published years ago, it is also used in the training class. This paper is formalization of [12] (and so is [6]). Our solution comprises reducing the terms in dialog boxes, relabeling the text boxes, simplifying the sentences, and tabulating the concepts (Table 1).

Our trainees decline to participate filling the forms as part of the experiments, and our readers refuse to do so for their own reasons. However, some trainees and readers allow us to mention their name and organization: Joseph McKellen from Petrosea (Clough Engineering), Wiyono from PLN (State Owned Enterprise in Electricity), Muslim (Custom), and Khulung (Neviim Magen Inovasi). Khulung still does technical job until present while the rest do not, it is their subordinates who perform technical jobs. Khulung and the subordinates of the three have read [12]. In the triangulation

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Copyright is held by the owner/author(s).

CHIuXiD ‘15, 08-10 April, 2015, Bandung, Indonesia
of data, the perceived merit of the solution comes from the author of this paper as the first source; McKellen, Wiyono, Muslim as users and second source; Khulung and technical personnel as the third source. The altered textboxes represent imaginary textboxes as the solution used in the training. Oracle DBMS does not provide them.

**SOLUTION: SIX MAIN CONCEPTS**

Our solution uses six main concepts: Database, Instance, Service, Listener, Server-process, and Client-process, see Table 1 [6,12]. They are at the bottom level of concepts.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database</td>
<td>A collection of data, control (db-config), and transaction-log files</td>
</tr>
<tr>
<td>Instance</td>
<td>A background-process, or a collection of background-processes</td>
</tr>
<tr>
<td>Service</td>
<td>Combination of Database and Instance. Service is the third parameter in connecting.</td>
</tr>
<tr>
<td>Listener</td>
<td>Host-wide background-process, one per DBMS; to serve connection-request</td>
</tr>
<tr>
<td>Server-process</td>
<td>Server-side process, resides in server-host.</td>
</tr>
<tr>
<td>Client-process</td>
<td>Client-side process, usually in client-host.</td>
</tr>
</tbody>
</table>

Table 1. The six main concepts with their meaning

In the altered textboxes some words and paragraphs are improved. The textboxes are presented gradually through pairs of figures (or dialog boxes), the left for the original, the right for the altered text. With each pair we explain the differences between the two individual textboxes.

**The first pair (fig 1)**

The net service name is confusing at best and redundant at worst. There is no mathematical formula given in Oracle documentation [13] to differentiate net service name from service name. Net service name is redundant with service name. Replacing it with instance name to set at the beginning is better. Hence in fig 1(b) we use the ‘Instance Name:’ in our simulated dialog box.

The texts in fig 1(b) is shorter than fig 1(a). In the original texts, the text ‘Oracle database, or other service’ are confusing. Is it about database or service? Similar remarks apply for “to access the database or service”. If database equals service, the or is not needed. If database is not equivalent to service, it is unclear which one the user accesses, and on what condition.

**Figure 1: The first step in creating Oracle Service (a) Original (b) Altered**

**The second pair (fig 2)**

The original texts in fig 2(a) state that a database has a service name. While it is true, the dialog box does not put the service name inside the database’s metadata. Hence, the dialog box is incorrect. It does nothing to the database. We greatly simplify the text into ‘Enter the service name:’ in fig 2(b).

**The third pair (fig 3)**

Fig 3(a) shows there is no label of net service name. It indicates the redundancy of that term. By contrast, the unique terms ‘Service’ and ‘Instance’ are present in fig 3(b). Furthermore, a service is related to listener, something that is clear in fig 3(b) through the sentence ‘Listener decides’ in Connection Type – and proven in [6,12] – but unclear in fig 3(a).
DISCUSSIONS

The number of terms and size of texts
The original texts use eight terms: Net, Global Database, Database, Net Service, Service, Server, SID, and Listener (three redundant terms: net service, global database, net); with 1,648 bytes in size. The altered texts use five unique terms: Database, Service, Instance, Listener, and Server-process; with 1,320 bytes in size. We compute only the texts for creating a service.

Information Theory
The compression rate of altered texts in Table 3 is lower than the same rate of the original texts in Table 2. The low rate indicates the information is ‘already compressed’ in terms of variation of concepts. The small variation implies the predictability of information [14]. In communication, the predictability reduces the cognitive loads.

Compression ratio pictured as function in fig 4 follow the similar figures in [4]. ‘Oracle Corp’ and ‘Authors of this paper’ represent transmitter, and ‘User’ represents receiver [4]. Redundant concepts represent noise between receiver (user) and transmitter (Oracle), adopting a model in [14].

<table>
<thead>
<tr>
<th>Content</th>
<th>Original</th>
<th>Bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>database</td>
<td>Uncompressed</td>
<td>75</td>
</tr>
<tr>
<td>net</td>
<td>Compressed</td>
<td>138</td>
</tr>
<tr>
<td>global database</td>
<td>Compressed</td>
<td>138</td>
</tr>
<tr>
<td>service</td>
<td>Compression-rate</td>
<td>1.84</td>
</tr>
<tr>
<td>net service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>server</td>
<td></td>
<td></td>
</tr>
<tr>
<td>database</td>
<td></td>
<td></td>
</tr>
<tr>
<td>service</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Original text; with Conceptual Disintegrity.
Authors of this paper:

O Corp

Oracle function

function

We have improved on brevity and clarity. The 'service' as the names. Hence, instance denotes the name of instance as produced by database are long and excluded in this paper. The scripts produced by database are long and excluded in this paper. The script

is

cluster

service and

service

instance

server-process

listener

Table 3. Altered Text; with Conceptual Integrity.

<table>
<thead>
<tr>
<th>Content</th>
<th>Altered</th>
<th>Bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>service</td>
<td>Compression-rate</td>
<td>1.55</td>
</tr>
<tr>
<td>service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>instance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>server-process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>listener</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Original text; with Conceptual Disintegrity.

<table>
<thead>
<tr>
<th>Original (real)</th>
<th>Imaginary:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>tnsnames.ora</td>
<td>services.conig</td>
<td></td>
</tr>
<tr>
<td>service = (DESCRIPTION = (CONNECT_DATA = (SERVICE_NAME = service)) )</td>
<td>service := (DESCRIPTION := (CONNECT_DATA := (INSTANCE := instance)) )</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4: Modeling the Compression ratio

Results: configuration files

The scripts produced by HCI to install DBMS and create database are long and excluded in this paper. The script produced by dialog boxes to create service is short (Table 4). We use uppercase for concepts, and lowercase letter for names. Hence, instance denotes the name of instance as depicted in fig 1-3, while INSTANCE denotes a concept. The ‘service’ as the service and net service name (left part) is confusing. Such confusion does not arise in the right part.

CONCLUSION, LIMITATIONS, AND FUTURE WORKS

We have shown the benefit of Conceptual Integrity using Information Theory. Several Oracle dialog boxes can be improved on brevity and clarity. Understanding and practicing the Conceptual Integrity for HCI can reduce the number of terms, which in turn reduce the complexity of HCI as witnessed by our trainees and readers. We hope this paper paves the way to handle overwhelming HCI in huge software using Conceptual Integrity. This research lacks filled questionnaires. Our future works are planned to overcome that problem and cover more configuration files.

REFERENCES


7. Darwen, Hugh., Date, C. J. The Third Manifesto. ACM SIGMOD (Special Interest Group for Management of Data) Record, March 1995 pp 039-049.


Playability Evaluation in Mobile Games Using Playability Heuristic Technique

Mira Kania Sabariah¹, Bimo Eka Putra², Bayu Munajat³
Informatics Faculty
Telkom University
mirakania@telkomuniversity.ac.id¹, bimoputra1994@gmail.com², bayu.munajat@tass.telkomuniversity.ac.id³

ABSTRACT
An increase of mobile games player, makes the development process of mobile games must meet the criteria of mobile device users. It required an evaluation, which evaluates games using playability heuristic technique. Generally, games are different with software. It is because games were made to entertain people and makes people happy. In order to identify problems in mobile games earlier, the evaluation can be executed when the games still running in alpha version. Alpha version is a phase that suitable for evaluation to be done, because in this phase, the functionalities haven’t fully implemented. This research found that playability heuristics for puzzle games consists of 9 heuristics, which can be divided into: i) 3 heuristics related to gameplay, ii) 4 heuristics related to usability, and iii) 2 heuristics related to mobility. Then for casual game heuristics consists of 8 heuristics, which can be divided into: i) 2 heuristics related to gameplay, ii) 4 heuristics related to mobility, and iii) 2 heuristics related to mobility. From the evaluation, it is expected that playability heuristic can help developers and game designer to identify the problems in mobile games early.

Author Keyword
Playability heuristic, game, mobile game, evaluation, identification, usability.

INTRODUCTION
The rapid development of mobile phone gives an enormous impact in academic, commercial purposes, and also becomes primary element of other technologies, such as games technology [2]. There are a lot of game genres that can be played such as action, action-adventure, role-playing, simulation, strategy, sports, puzzle, board, educational, etc. [1]. People always have a reason for playing games, such as: to get satisfied, for learning purposes, or to get entertained [3]. Therefore, a game must be interesting, it is not too complicated to be played and can make player satisfied. According to ESA demographic [4], 58% American playing games, the average of age were 30 years old and 43% play in mobile devices. The fact that many players playing their games on mobile devices and also a consumptive lifestyle in our society, it becomes primary factors why mobile games are good markets for game developers [2]. These facts, engage game developers to always making innovation in mobile games development and also make games become more interesting so that it can make player to become satisfied [2]. In order to produce an interesting game, it needs an evaluation related to games that were made [11]. The evaluation is done by playability heuristic approach, which established to evaluate game from gameplay side, usability side, and mobility side. The games which will be evaluated are puzzle games and casual games. Both genres were used to be evaluated because they are the most frequently games genres that played in mobile phone [4]. This evaluation was established so that game developers can identify the problems before games releases on the market or can be played in public.

LITERATURE REVIEW
A. Casual Games & Puzzle Games
The casual game is a game that can be easily played [1]. The terms-easily played-does not mean that the gameplay is easy, but casual game is a game that can be played anytime and anywhere without give much effort to understand and learn how to play it. Mostly, casual games were played only by single-player [12]. Puzzle game is a game that needs player effort to solving the problem or puzzle, which consist solving logical problems, memory test, pattern matching, reaction time, etc. [10]. Mostly, puzzle games were made for single-player because puzzle games there is interaction between a player with the game system [7].

B. Playtesting
Playtesting is a simple and important activity when a game designer also participates in that activity [6]. Playtesting is an activity which is done by game designer along the design process to get an insight whether the game that they made is already fulfill the experiences that the player wanted [6]. Playtesting is an evaluation method for a game which
frequently used, and also it was described as main evaluation method in the game design literature [6].

C. Playability Heuristics

On previous research, there are many documents that discussing about playability heuristic was published. Such as heuristic that made by Federoff, Desurvire et al., Koivisto and Korhonen, also Soomro, Ahmad, and Sulaiman 2012 [11]. Soomro, Ahmad and Sulaiman have done a research about heuristic for video games on mobile devices [11]. This research was executed to find and identify problems that related to playability for video games in mobile devices further which previously heuristic has not identified. Lists of heuristics that were made is less than previously heuristic that made by Koivisto and Korhonen. With these lists of heuristics, it was expected to help game designer and also a game developer while developing video games [11].

D. Alpha Version

The standard of alpha, beta, and final versions are varied in each industry [5]. Alpha version is a version in software development which functionalities and features were not fully implemented [13]. The features can be revised based on testing and feedback results, so that the features that previously was planned to be implemented might be added to the software. In the other words, a game which done in alpha version is already can be played by the player [5].

E. Single-Player and Multi-Player Games

Single-player games is a video game which played by one player [14]. Aside from single-player games, there are multiplayer games which can be played simultaneously by one or more player so they can compete to each other [2]. There is also a limitation when we want to make multi-player games, mostly they relate to network performances [9].

RESULTS DISCUSSION

A. Initial Testing

Initial testing involves 12 participants to conducting playtesting by playing two games, one game from casual genre and the other game from puzzle genre. The participants were taken from Telkom University students. There are two types of participants, first one is participants whose just a mobile game player and the second one is participants whose also a game developer. Playtesting was conducted by playing Subways Surfer for casual games and Cut the rope for a puzzle game. The table that showing relation between the questions inside questionnaire with modules of a game which is shown in table 1.

B. Tester Profile

From the pre-game questionnaires, it showed that 66.67% tester playing games in smartphone devices, next 16.67% tester user tablet devices for playing games, and 16.67% use both smartphone and tablet devices for playing games. Next from the questionnaires it showed that 50% tester have played mobile games for 1-2 years, 16.67% tester have played mobile games for both 3-5 years and more than 5 years, 8.33% tester has played mobile games in both 1-6 months and 7-12 months. From the questionnaires also showed the time frequencies of tester playing mobile games in a week. The data showed 50% tester played mobile game for more 4 hours in a week, then 16.67% tester played for both 30 – 60 minutes and 3 - 4 hours in a week, 8.33% tester played for both 1 – 2 hours and under 30 minutes in a week.

C. Playtesting Casual Game

The overview of casual game initial testing is shown in the figure 1 below.
Figure 1. Overview of casual game initial testing.

From the initial testing we conclude that casual games should have these features which are:

1. **Game can perform save anytime**
On casual games, systems must perform auto-save toward the progress of a player within the game. Especially, if games were calculate high scores and have features that related to the characters of a player.

2. **Items, obstacles and achievement are balanced**
Casual games must be balanced in its game design, it means that the items were convenience with the obstacles that found by players. The term “balanced” does mean that a game is not too easy or too hard for a player to achieve the objectives.

3. **Player can perform skip introduction section**
Casual games allow player to skip all introduction section, such as background story section, splash screen, etc., because mostly player who plays casual games tend to directly go to gameplay section.

4. **Game was played on full-screen mode**
Casual games were made on full-screen mode so that player is not interrupted by battery bar, signal bar which defaulted showed on mobile devices.

5. **Main input mechanism must be flexible**
Casual games need the main input mechanism was built to be flexible on gameplay section. So that player can be easily played casual games without giving too much effort to discover the input mechanism.

6. **There is an alternative input mechanism**
Casual games have an alternative input mechanism beside main input mechanism on gameplay section. But the alternatives one must be different from the main input mechanism and not ambiguous from the main input mechanism.

7. **Game can handle internal interrupt**
Casual games can stop automatically to handle internal interrupt such as if there is SMS, a phone coming or player got out from the game accidentally.

8. **Player can perform pause game anytime**
Player can perform pause game anytime while they were in gameplay section in casual games.

From the casual game testing, it shows that game that still in alpha version suitable and to be as expected by participant according to casual game genre generally. From the testing also can identify the fault inside the game which have possibility to become a problem related to playability in next development stages.

D. **Playtesting Puzzle Game**
The overview of puzzle game initial testing is shown in the figure 2 below:

Figure 2. Overview of puzzle game initial testing.

From the initial testing we conclude that puzzle games should have these features which are:

1. **Game can perform save anytime**
On puzzle games, systems must perform auto-save toward the progress of player within the game. Especially, if games were calculate high scores and have features that related to the characters of a player.

2. **Difficulties of puzzles are balanced**
Puzzle games must be balanced in its design. The term “balanced” does mean that a game is not too easy or too hard for player to get the solutions of the problems and achievements.

3. **The puzzles problems and solutions which must be found must be explained earlier**
Puzzle games give explanations about the problems and solutions that must be done by player before they get into gameplay section.

4. **Player can perform skip introduction section**
Puzzle games allowing player to perform skip introduction section such as background story section, splash screen, etc.

5. **There is another gameplay mode**
Puzzle games are not just having one gameplay mode in the game section. Puzzle games have an alternative gameplay mode beside main gameplay mode.
6. There is help feature
Puzzle games have a help feature so players can know about the procedure of game and what problems that must be solved in gameplay section.

7. Game was played on full-screen mode
Puzzle games were made on full-screen mode so that player is not interrupted by battery bar, signal bar which defaulted showed on mobile devices.

8. Game can handle internal interrupt
Puzzle games can stop automatically to handle internal interrupt such as if there is SMS, there is a phone coming or player out from the game accidentally.

9. Game can perform pause anytime
Player can perform pause game anytime inside gameplay section of puzzle games.

From the puzzle game testing, the results shows that game that still in alpha version suitable and to be as expected by participant according to puzzle game genre generally. From the testing, the research also can identify the fault inside the game which have possibility to become a problem related to playability in next development stages.

CONCLUSION
According to the implementation and analytical results, it can conclude that the problems that related to playability in casual and puzzle game can be evaluated in alpha version, so the developer can identify the problems that related to playability earlier. After conducting playtesting in alpha version stage by using smartphone device, it can conclude that playability heuristic for single-player puzzle game has 9 heuristic, which can be divided into: i) 3 heuristic can help to identify problems that related to gameplay, ii) 4 heuristic can help to identify problems that related to usability, and iii) 2 heuristic can help to identify problems that related to mobility. And for single-player casual game there are 8 heuristic which can be divided into: i) 2 heuristic can help to identify problems that related to gameplay, ii) 4 heuristic can help to identify problems that related to usability, and iii) 2 heuristic can help to identify problems that related to mobility. For the next research, it might be done by using tablet devices which have a bigger screen than smartphones. And also it should perform a playability heuristic research on mobile games which made from different genres beside casual and puzzle genres.

REFERENCES
An Evaluation of Mobile Quran Apps

Murni Mahmud  
Department of Information Systems  
International Islamic University Malaysia  
murni@iium.edu.my

Adamu I. Abubakar  
Department of Information Systems  
International Islamic University Malaysia  
adamu@iium.edu.my

ABSTRACT
The fact that mobile Quran apps are widely available for almost all smartphone platforms justifies the need for this particular study, which seeks to investigate the current design and content features of mobile Quran. The study was undertaken by content analysis through single-user evaluation. The reason for using this research methodology is that it is objective, systematic and quantitative and tends to emphasize procedure rather than being only a critical examination of data. A sample of ten mobile Quran apps were extracted randomly from the Internet and evaluated. The result expresses the credit given by users through Google Plus, such as rating, the effect of the design and the features of each, together with the validation status.

Author Keywords
Mobile Quran, Features, Design, Content

INTRODUCTION
A mobile Quran app is a reconstructed digital form of the Quran as a software application. It could be in any digital format, and developers ensure that the content remains intact and preserved, regardless of the nature of the rebuilding. Different platforms, ranging from desktop to mobile applications, maintain the state of the original content. This could serve the needs of most people using the Quran regularly, making it available on their computers or mobile devices such as smartphones and tablets. There are many applications for a variety of religions; however, the most available ones are for Christianity and Islam. For example, Christianity applications at the time of writing include: Bible Analyzer, and Islamic apps include Al Misbah Quran Learning Software, Pocket Quran Pdf for Mobile or PC, Quran with Translation for Java Mobile Phones, Quran with Urdu Translation for Java Mobile Phones, Quran with French Translation for Java Mobile Phones, and Quran with Farsi for Java Mobile Phones.

Currently, there is onward integration of technology and spirituality in human endeavour, described as technospiritual, where advances in information and communication technology (ICT) assist in human spirituality (Ahmad and Abdul Razak, 2013). This integration could lead to the generation of huge amounts of data, referred to as “Big Data”, which is the next frontier for innovation, competition and productivity (Manyika et al., 2011). The technospirituality which is supported by ICT has the potential to enhance Islamic values and teaching. This is obvious when it comes to the recent provision of Quranic applications for mobile devices. This means technology makes it easier for the Quran to be delivered on mobile devices and used for listening to different Qira’at and learning from it. This will eventually improve the user’s spiritual strength.

The design interface for mobile commerce was evaluated by Lee and Benbasat (2003), who suggested that a suitable customer interface in e-commerce on a mobile platform, should be evaluated using the following attributes: context, content, community, customization, communication, connection and commerce. Similarly, six design guidelines were suggested by Lari and Laarni (2002) for general applications on mobile devices. Unfortunately, there is a lack of research on issues regarding evaluation of mobile Quran design and features, as well as the challenges and concerns about the procedure before rebuilding the Quran into an application. In addition, the nature of the design of the digital form of the Quran should be evaluated to see if it conforms to Islamic procedure, or has been validated by an Islamic body. There is also a lack of research on monitoring and endorsement of most mobile Quran apps, and this research argues that it should be undertaken by a special Islamic body. Monitoring might result in scepticism about the adoption and use of mobile Quran apps, but research into their evaluation will certainly address any disadvantages that might arise, and will outline recommendations for further enhancement. The objective of this paper is to undertake a general observation of mobile Quran design features, by conducting a survey of selected apps.

This paper is organized in five sections. Following this Introduction, it covers related work, methodology and results, and finally offers a conclusion.

RELATED WORK
There are very few publications on the evaluation of mobile Quran apps, but one significant study was carried out at the NOOR Research Centre, Taibah University in Madinah, Saudi Arabia, a comparison of Al-Al-Quran Mobile Apps for iPhone or iPad devices only. Nevertheless, there has been much recent research on the
Quran in general, which has had a huge impact on developing a Quranic science; for example, ontological models for representing the Quranic word (Al-Khalifa et al., 2010), an ontological model for representing semantic lexicons for the holy Quran (Al-Yahya et al., 2010) and a model for semantic searching in the holy Quran (Shoab et al., 2009). These studies have a wide scope, but the evaluation that relates directly to our willingness for software evaluation (Fitzsimmons, and Tom, 1978). It is believed that the developers should evaluate the apps before releasing them to the public. However, in our study we focus on design and features, not the functional logic of other research. Previous studies for this kind of evaluation are found in Boehm et al. (1976), Basili and Victor (1978), Eckhardt et al. (1991) and Gülçin and Ruan (2008). We will apply this related work to a comparative evaluation of Quran apps for all mobile device platforms.

METHODOLOGY
The evaluation focused on mobile Quran apps selected from Google Plus. The key evaluation elements are: cost (either free or for sale) number of people rating the app, number of people recommending the app on Google Plus, app compatibility with my phone app size features provided by the app (such as index, search engine, tafsir and translation) reviews written by other users. These elements where evaluated based on a single user approach. The researcher is an expert with substantial knowledge of software evaluation.

Materials
Given that all the mobile Quran apps are found on the Internet, the study was conducted using a PC connected to a reliable Internet source. All the apps were downloaded from a single source, official Google Plus, and installed on mobile devices.

Evaluation Procedure
The evaluation procedure was carried out in three different phases, as shown in Figure 1. The first phase involved an examination of the evaluation criteria and planning for extracting elements of the mobile Quran app. Those elements deemed to represent the state of mobile Quran functions as well as usage were defined. The next phase involved browsing and exploring every mobile Quran app found. At this stage, several online Qurans were found, although the focus for this study is on mobile apps, all and were evaluated. Finally, selected mobile Quran apps were downloaded for evaluation and installed on mobile devices; thorough comparisons of the designers’ claims for the sources with the apps themselves were made. Given the fact that this evaluation considers genuine sources of mobile apps, those apps which indicated discrepancies between the claims and the reality as discerned by the researcher were excluded from the evaluation, as coming from unreliable sources.

The evaluations included observations of: the user interface design, such as color, font and sound, the Quran audio, tafsir, and languages the download requirements for each app navigation from home throughout the app, that is the ability to go backwards and forwards easily, as well as how easy it is to find required features content validation by ulama (legal scholars), or at least the developer’s explanation of content the version of the tafsir, Quran, and translation the provision of options, e.g. an “uninstall” facility searching by keywords of the Quran translations. The researcher carried out two rounds of inspections.

![Figure 1. Evaluation Process](image)

RESULTS
Findings from evaluation of the ten sample apps suggest that, in general, many people are using mobile Quran. However, based on “Google Plus likes” and “rating”, huge significant differences were observed in terms of people’s perceptions of the various apps. Quran Android had the highest Google Plus likes and rating of the ten evaluated apps (see Figure 2). The gap with the remaining nine is huge, indicating that many people preferred it over the rest. The following details of each mobile Quran evaluated explain why this is the case.

Quran Android is a free app developed by the Language Research Group, University of Leeds, with a 5-star rating from 183,497 users and 111,153 Google Plus likes. It has been validated by Arabic language experts and comes with complete verses/juz, two tafsir books and 18 reciters, and is translated in 20 languages. It offers keyword searching by verse, juz, ayat, tafsir and translation. Selected reciter, tafsir, and translation can be downloaded. There is provision for support and a community forum. It requires a fast Internet connection and huge phone memory.

Al-Quran al-Hadi is a free app developed by Pusat Kajian Hadis, Jakarta, with a 5-star rating from 1,311 users and 1,149 Google Plus likes. It is validated by
Dr Ahmad Luthfi Fathullah, and comes with two complete reciter/murottal, translated into the Indonesian language. It offers keyword searching, categorized into several topics. There is provision for downloading selected reciter, tafsir, translation. It is only available in Bahasa Indonesian, and requires a huge amount of network resources for downloading, and a large phone memory. The app is good but has limited information on its index tematik and searching.

Al Quran Al Karim is a free app developed by Mohamed Dahroug with a 5-star rating from 11,394 users and 11,207 Google Plus likes. There is no information on validation by any individual or body. It comes with complete verses/juz. It is a small, simple app, suitable for people who only want to read the Quran using a smartphone. In appearance it looks like a real hardcopy Quran, but in addition to audio, index, etc. are available. If I neededanapps only to read the Quran, then I would use this one, as it is straightforward and feels like reading a hardcopy Quran. It can be searched by verse, juz or Quran page.

MP3 Quran is a free app developed by Ultimate Vision, SP-Apps.com with a 5-star rating from 49,221 users and 31,014 Google Plus likes. It comes with complete verses/juz, but there is no information on validation by any individual or body. There is incomplete audio recitation; users can choose arecitation and also select which verse they want. There is provision of a playlist. There are some annoying advertisements, and the interface colour is a striking yellow. Users need to download the audio for each reciter before using it; it needs fast Internet connection and a huge phone memory. In general, the navigation is confusing, the graphical user interface is uninteresting, and the choice of colour is very striking.

Al Quran is a free/subscription app developed by Islamic Apps, with a 4-star rating from 5,745 users and 5,269 likes. It comes with complete verses/juz; there is no information on validation by any individual or body. It has English translation capabilities and searching by ayat. It comes in a simple design with all features on one page, and can be downloaded in audio format for selected surah bya givenreciter only. There is no provision for downloading the whole work. Unfortunately, there are extremely annoying advertisements in pop-up windows, and frequent reminders to purchase the paid version.

Complete Quran (Indonesia) is a free app developed by Badr Interactive with a 5-star rating from 3,677 users and 4,734 likes. It comes with complete verses/juz and tafsir book, Tafsir Ibu Katsir, in English. There is no information on validation by any individual or body. It has an Indonesian translation and searching by verse, ayat, page and juz, although search tafsir is not working. Guidelines for using the app are provided, e.g., how to switch on/off, and there is no need for an additional download process. Navigation and the menu are confusing. Overall, it is hard to use and it is necessary to read and understand the guidelines.

Mushaf - Quran Kareem is a free app developed by Wail Busaied with a 4/5-star rating from 10,533 users and 13,449 likes. It comes with complete verses/juz, three tafsir books and 13 reciters. There is no information about validation, but it does mention which versions of the Quran, tafsir, translation and audio recitation are used. It provides searching by English and Arabic words. The Quran pages look like real hardcopy and therefore familiar, although the app does not come with all the pages of the Quran. Pages and audio have to be downloaded separately through Google Play. Installing audio involves manual downloading from a website, unzipping it, etc. Unlike the previous apps, this one has limitations in to the complexity of downloading required pages and audio.

Quran off line Mushaf is a free app developed by 3DDESIGNLLC with a 4/5-star rating from 6,682 users and 5,318 likes. It comes with complete verses/juz; there
is no information about validation. It's in Arabic, as are the menu and tafsir, sonon-Arabic speakers will find it difficult to use. The Quran pages look like a real hardcopy Quran, but the Arabic font is not onethat is commonly used. The screen resolution for the tafsir is so high that the app is not suitable for a smartphone screen.

Al-Quran 30 Juz free copies is a free app developed by AndroidRich with a 4/5-star rating from 1,875 users and 2,362 likes. It comes with complete verses/juz, but there is no information on any validation. It has annoying advertisements. The layout of the Quran pages is badly designed and difficult to read. The picture resolution is just not appropriate for a smartphone screen, either too wide or too small. It has no features other than the Quran pages and a very limited index showing only the page number for each verse.

Holy Quran is a free app developed by Hamdy Ghanem; it has a 4-star rating from 2,897 users and 5,566 likes. It comes with complete verses/juz, but there is no information on any validation. It has English and Arabic translation with search capabilities. The menu is in Arabic, making it hard for non-Arabic speakers to explore. The pages look like a real book, but the app comes with annoying advertisements. Users need to download the audio, tafsir, and translation before using it. It has the same design and resolution faults as the previous app.

CONCLUSIONS
This study investigated the state of mobile Quran software apps and evaluated their design and content. Ten Quran apps which are widely available for almost all smartphone platforms were sampled and content analysis evaluations performed. The result shows credit is given by users through Google Plus, mostly 5-star ratings. The design of more than 80% of the evaluated mobile Quran apps was acceptable and found to be suitable for mobile platforms. However, most of the apps were not validated by any individual or body.

REFERENCES


DESIGN CHALLENGE PROPOSALS
Design Challenge Proposals

Prototype Pengukur Ketinggian Air dan Pengaturan Buka-Tutup ada Pintu Air Berbasis Website

Alexander Samuel, Marcela Astrid
Universitas Multimedia Nusantara
alexander.samuel@student.umn.ac.id, marcella.astrid@student.umn.ac.id

Abstract

Floodout - Aplikasi Statistik Data Pelanggaran Pembuangan Sampah Sembarangan

Dayuanti, Inayati Makrifah, Mochammad Noor Syamsu
Universitas Negeri Yogyakarta
dayualen@gmail.com, inay678@gmail.com, frozenn@gmail.com

Abstract
FVS System

Deni Kurnianto Nugroho, Fahmi Tyastomo, Azhim Rosyed Ibrahim
Emagine Labs @ Universitas Negeri Yogyakarta
omdenoz@gmail.com, denikn@outlook.de, azhim.ariya@live.com

Abstract

JFIS - Jakarta Flood Information System

Ocky Aditia Saputra, Ahmad Fahrizal, Taufik Hidayat Raharjo
Universitas YARSI
ocky.aditia@gmail.com, ahmadfahrizal39@gmail.com, taufik.hidayat.raharjo@gmail.com

Abstract
Indonesia is a country that tends to flooding, especially during the rainy season. A common cause of flooding is the lack of water absorption, ineffectiveness of the existing water lines and a lack of public awareness of environmental concerns. Because of the flood problem, many people cannot perform activities as usual and loses both material and non-material. Jakarta is one of the cities in Indonesia with a high frequency of flooding happen during rainy season. To prevent and overcome it, we make a web-based information system with the purpose that the public can easily gather information about the flood. In this system people can share about flood and traffic in Jakarta. Not only that, in this system people also get an information about the height of a dam, weather prediction, and emergency call numbers that can be contacted. Moreover, people also can share information to help and donate the flood victim. By providing these features, we believe that we can help people who live in Jakarta to do their activities comfortably and also reduce the loss caused by flood.
**Multiplying Sensor-Based Automatic Sluice for Preventing Flood in Indonesia**

Dian Ayu Wulandari Harbyantinna, Maulana Shiddig, Muhammad Al Ziqri  
Universitas YARSI  
dawharbyantinna@gmail.com, maulanashiddiq29@gmail.com, muhammadalziqri@gmail.com

**Abstract**  
Indonesia sering kali landa musibah banjir, khususnya pada saat curah hujan yang sangat tinggi. Salah satu penyebabnya adalah tidak mampunya lagi aliran sungai untuk menampung debit air. Karena permasalahan tersebut kami membuat desain pintu air yang menggunakan sensor sehingga pintu air akan terbuka atau tertutup secara otomatis tergantung pada ketinggian debit air yang sudah ditentukan. Pintu air otomatis ini juga mengatur arus air supaya air dapat mengalir dengan teratur sehingga tidak menyebabkan banjir.

---

**Infloodmation Application to Ease Flood Problems**

Nigel Chrisman Santoso, Martin Wibowo, Hilda Satyadi  
Universitas Katolik Parahyangan  
nigelsantosa@yahoo.com, martinwibowo@hotmail.com, hildablue_cherry@hotmail.com

**Abstract**  
Infloodmation is an application which enabled user to interact with flood easier. There are two types of user in this application, which are the Refugee Camp manager and the contributor themselves.

---

**Floody**

August Viera, Khoerintus, Stephen Porsalino  
Bina Nusantara University  
taufik.hidayat.raharjo@gmail.com, khoerintus@yahoo.com, porsalinostephen@yahoo.co.id

**Abstract**  
Floody adalah program berbasis Android yang menyediakan fasilitas kepada masyarakat yang mengalami musibah banjir maupun masyarakat yang ingin membantu memberikan informasi terkait banjir yang melanda di Jakarta. Tujuan dari Floody adalah sebagai wadah informasi tentang lokasi – lokasi banjir, posko – posko banjir, pihak – pihak yang dapat membantu evakuasi, dan masyarakat yang tidak terkena musibah banjir dapat memberikan informasi terkait banjir. Fitur – fitur dari Floody: Maps, Help, Givormation, Tips and Tricks
Proceedings of CHI UX Indonesia 2015 (CHluXiD 2015)
The International HCI and UX Conference in Indonesia

In cooperation with ACM SIGCHI

Bandung - Indonesia, 08-10 April 2015

CHluXiD 2015 Conference is organised by Indonesia ACM SIGCHI Chapter in collaboration with Universitas Katolik Parahyangan (UNPAR)