



Learning application of Lampung language based on multimedia software

Tri Susilowati¹, Kamarul Shukri Mat The², Badlihisham Mohd Nasir³, Abdul Ghafar Don⁴, Miftachul Huda³, Talia Hensafitri¹, Andino Maseleno^{1,5*}, Oktafianto¹, Dedi Irawan¹

¹ STMIK Pringsewu, Lampung, Indonesia

² Universiti Sultan Zainal Abidin Malaysia, Malaysia

³ Universiti Teknologi Malaysia, Malaysia

⁴ Universiti Kebangsaan Malaysia, Malaysia

⁵ Institute of Informatics and Computing Energy, Universiti Tenaga Nasional, Malaysia

*Corresponding author E-mail: andimaseleno@gmail.com

Abstract

In the learning method of Lampung language in Junior High School 1 Pugung still using conventional method so that the learning process of Lampung language in Junior High School 1 Pugung become less interactive and less fun so that the students pay less attention to what is delivered by the teacher. Lampung language is one of the regional languages in Indonesia, the language of Lampung itself must be studied when students who are in Lampung province who sit in junior high school. So the author makes a multimedia application using Adobe Flash which is used for learning Lampung language in Junior High School 1 Pugung become more interactive and fun, thus helping students to focus in learning Lampung language.

Keywords: Application; Multimedia; Lampung; Lampung Language; Adobe Flash.

1. Introduction

1.1. Background

Nowadays Technology is growing rapidly; it can be seen from various activities that have been supported by technology [1-3]. The wide range of technology enhancement would need to access the process easily in enabling the users to utilise it wisely with assisting various activities more effectively [4-6]. The features of digital computer could be enhanced with expanding the dependable technologies of human for supporting various activities [7-9]. Through this initiative of computer technology, the benefit could be achieved to make easily towards wide range of task [10-12]. The number of such examples in adopting the computer technology is entirely the beneficial value which can help human work in the field of entertainment, economics, education and etc. [13-15]. Moreover, the extension seems look more accurate when expanding this initiative into the process itself mainly towards making an interactive learning method [16-20]. There are many which can still explore in highlighting the wise range of learning method [21-23]. It refers to an effort to assist the growing process of the interest among the students in studying Lampung language. In addition, the number of multimedia initiative with elaborating the distinctive feature to adopt it wisely refers to potentially enhance digital devices in order to expand the potency which can be achieved [24-27]. Referring to the computers initiative, the number of multimedia could be expanded in order to interpret the utilization in creating the objects such as text, graphics, audio, moving image (video and animation) to become more convenient [28][29][30] in the sense that needs to get access into links and

tools that enable the user to navigate, interact and communicate across the number of activities [31-33].

In addition, the initiative in getting multimedia instructional message needs to gather the potential value of communication with containing the number of words and images which can be enhanced to deliver such information more easily [34-36], in communicating with others. Moreover, it is necessary to look into conveying the messages from both electronic and print version.

In case of Junior High School 1 Pugung, the learning method for the language, mainly in Lampung, Indonesia, is determined to get narrow with the conventional approach in that the students get stuck due to obstacles such as boring feeling during the process. Thus, this study aims to critically expand in creating learning application through adopting multimedia with Adobe Flash at Junior High School 1 Pugung.

1.2. Problem formulation

Based on the background of problems that have been described above, this study begins with compiling the following stages:

- 1) How to create application learning program based on multimedia that can simplify and attract student's interest in learning Lampung Language.
- 2) How to help develop teaching methods used by teachers who still feel less attractive to their students.

1.3. Objectives and benefits of research

1.3.1. Research objective

The purpose of this study is to make interactive learning system to Introduction Lampung Letters, Lampung Language Material,

Lampung History, and Lampung Dictionary Based on Multimedia to help teachers in the learning process.

1.3.2. Research benefit

While the benefits of this research are supporting the learning process for teachers to be more interactive so, this application model would give insights into the learning process to be more fun and enjoy the entire process in that the knowledge understanding could be achieved more effectively.

2. Literature review

2.1. Understanding of learning

The attempts in enhancing the process of transferring knowledge and information could be achieved through Information systems with object oriented methodology [37-40]. The potential value of software within the applications should begin with standing application in order to solve the number of tasks including learning process [41-42], material content [43][44], social tasks like teaching initiative [45-46], and also business problems [47-48] and other social issues [49][50]. This distinction attempts to obtain the more appropriate process with applying the software [51-53]. As a result, there should be taken into consideration in enhancing the control process towards the functions in particular decision with the real time [54-56].

In further, the wide initiative of application system refers to expanding creating the convenient basis among the users personally and socially [57-59]. Moreover, it is necessary to look into making such goal in the way to complete the various human tasks through underlining such convenient basis [60-62].

2.2. Definition of multimedia

The model of multimedia which can be viewed refers to the number of collection of computer-based media which features the communication systems that have a role to build, store, deliver, and receive information in the form of text, graphics, audio, video, and so forth.

2.3. Multimedia components

Multimedia is using various types of media. There are five types of objects in the whole multimedia system, such as:

- 1) The text is a word and symbol in various forms, oral and written, is the most common communication system. Although there may be multimedia without text, most multimedia systems use text because a text is very effective at conveying ideas and providing guidance to users.
- 2) Submitting information that is accompanied by graphic design and interesting text, will feel empty and boring if not accompanied by a sound in it. It takes a narrative or accompanying sound and explains the information conveyed to make it easier to understand.
- 3) Graph is an object multimedia that is not less important in the form of images, photos and figure either black and white or full colour. Image can be seen with many colours with soft colours or sharp colours but also only black and white.
- 4) Video in multimedia applications can be taken from video recording, tape recorder, music sound or film. Video is an important part of multimedia that provides kind and resources for multimedia applications
- 5) Animation is the computer usage to create motion on the screen that makes something an application becomes more alive, with animated series of images in slowly changing and faster, so that it looks combined into the visual illusion of motions.

2.4. Adobe flash

Formerly known by the name of Macromedia Flash, Adobe Flash is one of the computer devices which refer to the number of superior product of adobe system. Before 2005, flash was released by macromedia. Flash 1.0 was launched in 1996 after Macromedia purchased a vector animation program called Future Splash [4][5]. The latest version launched is Macromedia Flash 8. On December 3, 2005 Adobe System acquired macromedia and all its products, so the name Macromedia Flash turned into Adobe Flash.

Learning media based on Adobe Flash is used as a tool to channel information from teacher to student. Adobe Flash is a software animation that is widely used by animators to create professional animations. Adobe Flash with its superiority can be used to create a variety of interesting animations. By using Adobe Flash-based media, the teacher can present the learning materials with writing, graphics and audio contained in the material that attracts interest so that will grow student interest in learning and can improve student achievement.

2.5. Flow chart

Flowcharts or flow charts are charts with graphic symbols that include an algorithmic flow or process that displays symbolized steps in the form of squares, along with their order by linking each step using the arrows. This diagram can provide a step-by-step solution of analysts and programmers to solve problems that exist within the process or algorithm into smaller segments.

2.6. Testing of the software regulatory system

Testing the software system is the process of running and evaluating software manually or automatically to test whether the software meets the functional requirements for a program.

3. Research methods

3.1. Data collection stage

1) Literature Review

That is, by seeking information about theories relating to research from other sources such as books or other sources [4-6].

2) Instrumental Stage

That is where the authors check what components will be used and do research to test the application developed [5-6].

3) Observation

Attempts through analysis and design of information systems refer to the direct observation on the running processes [3-4]. Based on the definition of observation, the observation is a direct observation of the object under investigation.

3.2. Application development stage

There are 3 stages in building multimedia-based learning applications, including as follows [4]:

1) Analysis

This stage is done by analysing the data that has been collected related to the process and the data used by defining the functional requirements, non-functional requirements, and the needs of hardware and software. The tool case used is UML in the form of Use Case and Use Case Narrative.

2) Design

At this stage the authors do the application design that includes the design of the flow of applications (flowchart) and the functions used, the design of the game object characters, navigation structure, screen design and storyboard.

3) Implementation and Testing

Application testing phase using the black box technique is then implemented in the installation stage of the application which has been designed to the computer provided.

3.3. Research

The study was conducted at Pugung Junior High School 1. Pugung Junior High School 1 is an intermediate school addressed at Jl. Rantau Tijing, Pugung District Tanggamus Regency 34197. In learning activities that exist in Junior High School 1 Pugung still using conventional learning methods that are not so effective. Therefore, an interactive learning method is required so that students can focus on learning Lampung language.

4. Research methods

4.1. System requirement analysis

System analysis is a process to define all the activities undertaken by each party in the business process. Multimedia-based learning application is divided into two, namely:

a) Functional Requirements

From the system built then defined the form of functional requirements as follows:

- 1) The system can present the subject matter
 - 2) The system can present the Lampung script
 - 3) System can present history of Lampung.
 - 4) System can present the meaning of word or dictionary (Indonesia language - Lampung language).
 - 5) System can present about application
- b) Non functional needs

From the system built then defined the form of non-functional needs as shown in table 1.

Table 1: Functional Requirements

Non Functional Need	
Type of Need	Explanation
Performance	Having fast respond
Information	Appeared information according to learning need
Economy	Using system can decrease learning book cost
Control	System control must be easy to use
Service	System must be easy to use

4.2. Hardware and software requirement analysis

Described below were the hardware and software used by the author in making multimedia-based learning applications as follows:

a) Hardware Requirements

In general, the built applications did not have special specifications to be run by users because it is very light. However, it is recommended to meet the following hardware:

- 1) Intel Pentium IV Processor
 - 2) 1 GB of RAM
 - 3) 1 GB hard drive
 - 4) VGA Card
 - 5) Soundcard
 - 6) Monitor, Mouse and Keyboard
- b) Software Requirements

The main application program in the design is the program Adobe Flash Professional CC 2015). Other applications that support system design were:

- 1) Adobe Photoshop CS 6
- 2) Corel Draw X7

4.3. Designing

4.3.1. Main menu design

The design of the main menu window on multimedia-based language learning applications is shown in figure 1.

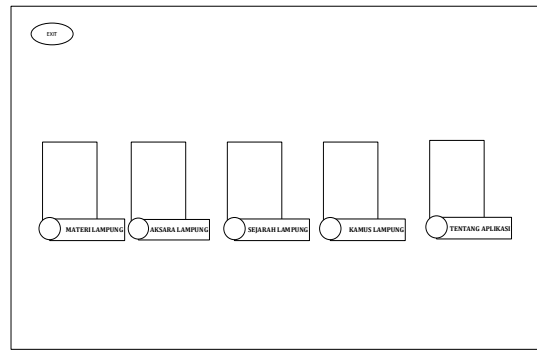


Fig. 1: Design of Main Menu.

4.3.2. Designing material window

The design of the material window on multimedia-based language learning applications is shown in figure 2.

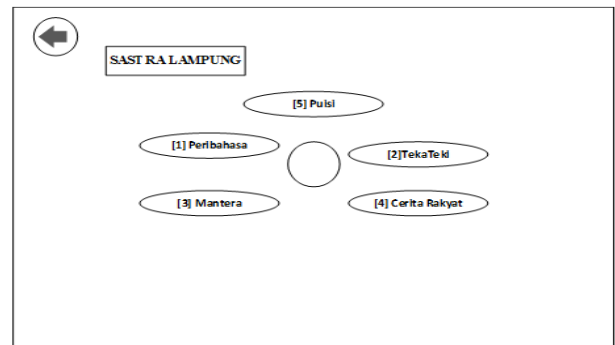


Fig. 2: Material Window Design.

4.3.3. Lampung script window design

The design of Lampung window in the application of multimedia-based Lampung language learning is shown in figure 3.

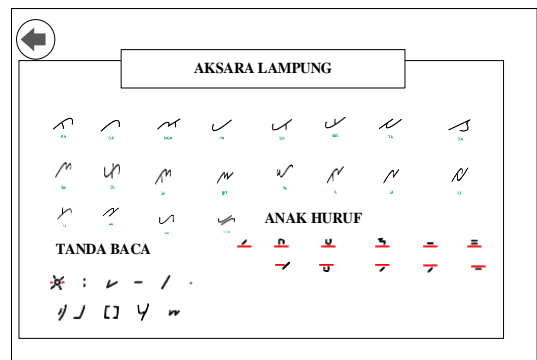


Fig. 3: Lampung Alphabet Window Design.

4.3.4. The design of Lampung history window

Lampung history window design on multimedia-based Lampung language application is shown in figure 4.

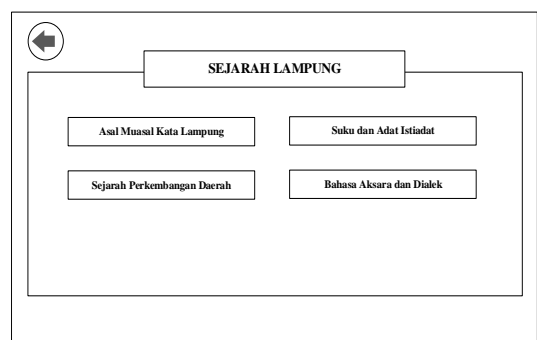


Fig. 4: Design of Lampung History Window.

4.3.5. Dictionary window design

Lampung dictionary window design in multimedia language learning application of Lampung is shown in figure 5.

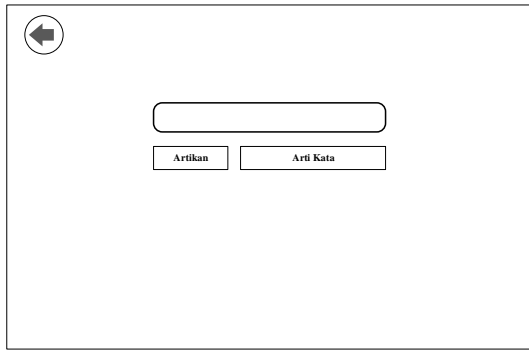


Fig. 5: Dictionary Window Design Lampung Language.

4.3.6. Draft about applications

Here is a window design of the app as shown in figure 6.

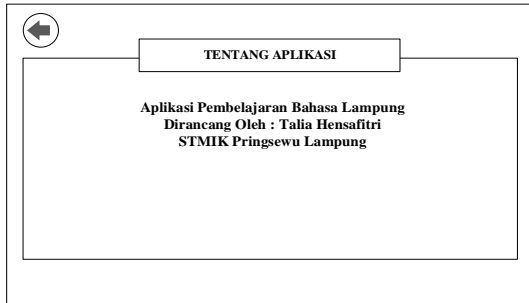


Fig. 6: Application Window Design.

5. Implementation

5.1. Main menu display

Here is the main menu display multimedia Lampung language application as shown in figure 7.



Fig. 7: Main Menu Display.

5.2. Material window view

Below is the look of the window material of the Lampung language as shown in figure 8.



Fig. 8: Lampung Language Material Window View.

5.3. Lampung letter window view

Here is the look of the Lampung letter window as shown in figure 9.



Fig. 9: Lampung Window View.

5.4. Lampung history window view

Here is a look from the windows history of Lampung as shown in figure 10.



Fig. 10: Lampung History Window View.

5.5. Dictionary window view

Here is a window display of Lampung language dictionary as shown in figure 11.

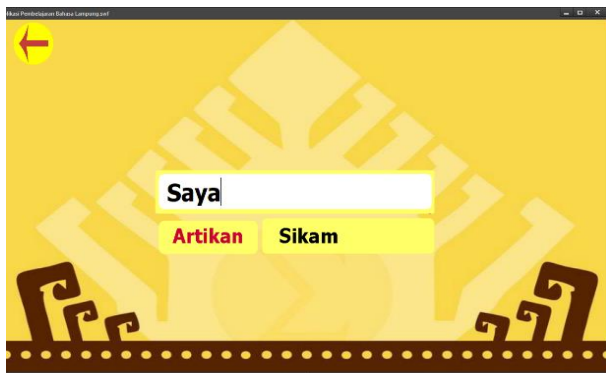


Fig. 11: Dictionary Window View.

5.6. App about windows view

Here is a window display of applications in multimedia-based learning applications as shown in figure 12.



Fig. 12: App about Windows View.

5.7. Testing

Test phase is the stage where the application that has been made is put to test as can be seen in the following table 2.

Test Case	Expected Result	Right/Wrong
User click next button at opening page	Will be continued to home page	Right
User click material menu button	Will be directed to material page	Right
User press Lampung letter menu button	Will be directed to Lampung letter page	Right
User press history button	Will be directed to Lampung history page	Right
User click Lampung dictionary button	Will be directed to dictionary page	Right
User click exit button	Will be exit from application	Right
User click Lampung letter	Will sound voice	Right
User click Lampung letter (aksara)	Will sound voice from each clicked letter	Right

6. Conclusion

With the application of multimedia-based learning it is wished that it can make learning method of Lampung language become more interactive so it can be expected to grow student interest to learn Lampung language. From the discussion that has been described above, as for suggestions as follows: 1) The graphs in the app can be changed to make them more interesting. 2) Subject material of existing Lampung language must always be updated.

References

- [1] Priyo Setyo Nugroho & Amir Fatah Sofyan (2011). *Jurnal Perancangan Media Pembelajaran Berbasis Multimedia Untuk Dasar-Dasar Pembuatan Animasi 2D Menggunakan Macromedia MX 2004*. Yogyakarta: STMIK Amikom Yogyakarta.
- [2] Mayer, Richard E. (2012). *Cognitif Theory of Multimedia Learning*. California: University Of California.
- [3] Nugroho. (2010). *Jurnal Perancangan Sistem Informasi Dengan Metodologi Berorientasi Objek*. Edisi Revisi. Informatika Bandung.
- [4] Gayersky, D.M. (1993). *Multimedia for Learning*. New Jersey: Educational Technology Publication.
- [5] Liena. (2013). *Jurnal Aplikasi Pembelajaran Interaktif Pengenalan Nama Hewan Dalam Bahasa Inggris Untuk PAUD*. Pangkal Pinang.
- [6] Ahmad Fahrurrozi Aziz dan Suparman.(2015) *Jurnal Pengembangan Media Pembelajaran Berbasis Adobe Flash Untuk Meningkatkan Minat Belajar Siswa Pada Mata Pelajaran Mekanika Teknik Jurusan Teknik Gambar Bangunan Di Smk N 1 Seyegan*. Yogyakarta : Universitas Negeri Yogyakarta
- [7] Raharjo, Suwanto. (2007). *Testing dan Implementasi Sistem*. Bandung: Lab RPL STT Telkom.
- [8] Al Fatta, H. (2007). *Analisis dan Perancangan Sistem Informasi*. Yogyakarta: Andi Publisher.
- [9] Adela, A., Jasmi, K.A., Basiron, B., Huda, M., Maselena, A. (2018). Selection of dancer member using simple additive weighting. *International Journal of Engineering & Technology*. 7(3). 1096-1107. <https://doi.org/10.14419/ijet.v7i3.11983>.
- [10] Aminin, S., Huda, M., Ninsiana, W., and Dacholfany, M.I. (2018). Sustaining civic-based moral values: Insights from language learning and literature. *International Journal of Civil Engineering and Technology*. 9(4), 157-174.
- [11] Amin, M.M., Nugratama, M.A.A., Maselena, A., Huda, M., Jasmi, K.A., (2018). Design of cigarette disposal blower and automatic freshner using mq-5 sensor based on atmega 8535 microcontroller. *International Journal of Engineering & Technology*. 7(3). 1108-1113 <https://doi.org/10.14419/ijet.v7i3.11917>.
- [12] Atmotiyoso, P. and Huda, M. (2018). Investigating Factors Influencing Work Performance on Mathematics Teaching: A Case Study. *International Journal of Instruction*. 11(3), 391-402. <https://doi.org/10.12973/iji.2018.11327a>.
- [13] Huda, M., & Teh, K. S. M. (2018). Empowering Professional and Ethical Competence on Reflective Teaching Practice in Digital Era. In Dikilitas, K., Mede, E., Atay D. (Eds). *Mentorship Strategies in Teacher Education* (pp. 136-152). Hershey, PA: IGI Global. <https://doi.org/10.4018/978-1-5225-4050-2.ch007>.
- [14] Huda, M., Teh, K.S.M., Nor, N.H.M., and nor, M.B.M. (2018a). Transmitting Leadership Based Civic Responsibility: Insights from Service Learning. *International Journal of Ethics and Systems*, 34(1), 20-31. <https://doi.org/10.1108/IJES-05-2017-0079>.
- [15] Huda, M., Maselena, A., Muhamad, N.H.N., Jasmi, K.A., Ahmad, A., Mustari, M.I., Basiron, B. (2018b). Big Data Emerging Technology: Insights into Innovative Environment for Online Learning Resources. *International Journal of Emerging Technologies in Learning* 13(1), 23-36. <https://doi.org/10.3991/ijet.v13i01.6990> ..
- [16] Huda, M., Maselena, A., Teh, K.S.M., Don, A.G., Basiron, B., Jasmi, K.A., Mustari, M.I., Nasir, B.M., and Ahmad, R. (2018c). Understanding Modern Learning Environment (MLE) in Big Data Era. *International Journal of Emerging Technologies in Learning*. 13(5), 71-85. <https://doi.org/10.3991/ijet.v13i05.8042>.
- [17] Huda, M. (2018b). Empowering Application Strategy in the Technology Adoption: Insights from Professional and Ethical Engagement. *Journal of Science and Technology Policy Management*. doi.org/10.1108/JSTPM-09-2017-0044.
- [18] Huda. M. & Sabani, N. (2018). Empowering Muslim Children's Spirituality in Malay Archipelago: Integration between National Philosophical Foundations and Tawakkul (Trust in God). *International Journal of Children's Spirituality*, 23(1), 81-94. <https://doi.org/10.1080/1364436X.2018.1431613>.
- [19] Huda, M., Qodriah, S.L., Rismayadi, B., Hananto, A., Kardiati, E.N., Ruskam, A., and Nasir, B.M. (2018). Towards Cooperative with Competitive Alliance: Insights into Performance Value in Social Entrepreneurship in Creating Business Value and Competitive Advantage with Social Entrepreneurship. (pp.294). Hershey, PA: IGI Global.
- [20] Huda, M., Hehsan, A., Basuki, S., Rismayadi, B., Jasmi, K. A., Basiron, B., & Mustari, M. I. (2019). Empowering Technology Use to Promote Virtual Violence Prevention in Higher Education Context. In *Intimacy and Developing Personal Relationships in the Vir-*

- tual World (pp. 272-291). Hershey, PA: IGI Global. <https://doi.org/10.4018/978-1-5225-4047-2.ch015>.
- [21] Huda, M., Ulfatmi, Luthfi, M.J., Jasmi, K.A., Basiron, B., Mustari, M.I., Safar, A., Embong, H.W.H., Mohamad, A.M., and Mohamed, A.K. (2019). Adaptive online learning technology: Trends in big data era in Diverse Learning Opportunities Through Technology-Based Curriculum Design. Hershey, PA: IGI Global. (In press).
- [22] Kurniasih, D., Jasmi, K.A., Basiron, B., Huda, M., Maseleno, A. (2018). The uses of fuzzy logic method for finding agriculture and livestock value of potential village. *International Journal of Engineering & Technology*, 7(3), 1091-1095. <https://doi.org/10.14419/ijet.v7i3.11984>.
- [23] Maseleno, A., Pardimin, Huda, M., Ramlan, Hehsan, A., Yusuf, Y.M., Haron, Z., Ripin, M.N., nor, N.H.M., and Junaidi, J. (2018a). Mathematical Theory of Evidence to Subject Expertise Diagnostic. *ICIC Express Letters*, 12 (4), 369 DOI: 10.24507/icicel.12.04.369
- [24] Maseleno, A., Huda, M., Jasmi, K.A., Basiron, B., Mustari, I., Don, A.G., and Ahmad, R. (2018b). Hau-Kashyap approach for student's level of expertise. *Egyptian Informatics Journal*, <https://doi.org/10.1016/j.eij.2018.04.001>.
- [25] Maseleno, A., Sabani, N., Huda, M., Ahmad, R., Jasmi, K.A., Basiron, B. (2018c). Demystifying Learning Analytics in Personalised Learning. *International Journal of Engineering & Technology*, 7(3), 1124-1129. <https://doi.org/10.14419/ijet.v7i3.9789>.
- [26] Moksin, A. I., Shahrill, M., Anshari, M., Huda, M., & Tengah, K. A. (2018b). The Learning of Integration in Calculus Using the Autograph Technology. *Advanced Science Letters*, 24(1), 550-552. <https://doi.org/10.1166/asl.2018.12067>.
- [27] Putra, D.A.D., Jasmi, K.A., Basiron, B., Huda, M., Maseleno, A., Shankar, K., Aminudin, N. (2018). Tactical Steps for E-Government Development. *International Journal of Pure and Applied Mathematics*, 119 (15), 2251-2258.
- [28] Rosli, M.R.B., Salamon, H.B., and Huda, M. (2018). Distribution Management of Zakat Fund: Recommended Proposal for Asnaf Riqab in Malaysia. *International Journal of Civil Engineering and Technology* 9(3), pp. 56-64.
- [29] Sugiyarti, E., Jasmi, K.A., Basiron, B., Huda, M., Shankar, K., Maseleno, A. (2018). Decision support system of scholarship grantee selection using data mining. *International Journal of Pure and Applied Mathematics*, 119 (15), 2239-2249.
- [30] Sundari, E., Jasmi, K.A., Basiron, B., Huda, M., and Maseleno, A. (2018). Web-Based Decision Making System for Assessment of Employee Revenue using Weighted Product. *International Journal of Engineering and Technology*.
- [31] Susilowati, T., Jasmi, K.A., Basiron, B., Huda, M., Shankar, K., Maseleno, A., Julia, A., Suptico. (2018). Determination of Scholarship Recipients Using Simple Additive Weighting Method. *International Journal of Pure and Applied Mathematics*, 119 (15), 2231-2238.
- [32] Anshari, M., Almunawar, M. N., Shahrill, M., Wicaksono, D. K., & Huda, M. (2017). Smartphones usage in the classrooms: Learning aid or interference. *Education and Information Technologies*, 22(6), 3063-3079. <https://doi.org/10.1007/s10639-017-9572-7>
- [33] Huda, M., Sabani, N., Shahrill, M., Jasmi, K. A., Basiron, B., & Mustari, M. I. (2017a). Empowering Learning Culture as Student Identity Construction in Higher Education. In A. Shahriar, & G. Syed (Eds.), *Student Culture and Identity in Higher Education* (pp. 160-179). Hershey, PA: IGI Global. <https://doi.org/10.4018/978-1-5225-2551-6.ch010>.
- [34] Jasmi, K. A., Hehsan, A., Shahrill, M., Mustari, M. I., Basiron, B., & Gassama, S. K. (2017b). Empowering Children with Adaptive Technology Skills: Careful Engagement in the Digital Information Age. *International Electronic Journal of Elementary Education*, 9(3), 693-708.
- [35] Huda, M., Shahrill, M., Maseleno, A., Jasmi, K. A., Mustari, I., & Basiron, B. (2017c). Exploring Adaptive Teaching Competencies in Big Data Era. *International Journal of Emerging Technologies in Learning*, 12(3), 68-83. <https://doi.org/10.3991/ijet.v12i03.6434>.
- [36] Huda, M., Jasmi, K. A., Basiron, B., Mustari, M. I. B., & Sabani, A. N. (2017d). Traditional Wisdom on Sustainable Learning: An Insightful View from Al-Zarnuji's Ta 'lim al-Muta 'allim. *SAGE Open*, 7(1), 1-8. <https://doi.org/10.1177/2158244017697160>.
- [37] Huda, M., Jasmi, K. A., Embong, W. H., Safar, J., Mohamad, A. M., Mohamed, A. K., Muhammad, N. H., Alas, Y., & Rahman, S. K. (2017e). Nurturing Compassion-Based Empathy: Innovative Approach in Higher Education. In M. Badae, & M. Suditu (Eds.), *Violence Prevention and Safety Promotion in Higher Education Settings* (pp. 154-173). Hershey, PA: IGI Global. doi:10.4018/978-1-5225-2960-6.ch009 <https://doi.org/10.4018/978-1-5225-2960-6.ch009>.
- [38] Huda, M., Jasmi, K. A., Alas, Y., Qodriah, S. L., Dacholfany, M. I., & Jamsari, E. A. (2017f). Empowering Civic Responsibility: Insights from Service Learning. In S. Burton (Ed.), *Engaged Scholarship and Civic Responsibility in Higher Education* (pp. 144-165). Hershey, PA: IGI Global. <https://doi.org/10.4018/978-1-5225-3649-9.ch007>.
- [39] Huda, M., Jasmi, K. A., Mustari, M. I., Basiron, B., Mohamed, A. K., Embong, W., & Safar, J. (2017g). Innovative E-Therapy Service in Higher Education: Mobile Application Design. *International Journal of Interactive Mobile Technologies*, 11(4), 83-94. <https://doi.org/10.3991/ijim.v11i4.6734>.
- [40] Huda, M., Jasmi, K. A., Mustari, M. I., & Basiron, B. (2017h). Understanding Divine Pedagogy in Teacher Education: Insights from Al-zarnuji's Ta'lim Al-Muta'allim. *The Social Sciences*, 12(4), 674-679.
- [41] Huda, M., Jasmi, K. A., Mustari, M. I. B., & Basiron, A. B. (2017i). Understanding of Wara' (Godliness) as a Feature of Character and Religious Education. *The Social Sciences*, 12(6), 1106-1111.
- [42] Huda, M., Siregar, M., Ramlan, Rahman, S.K.A., Mat Teh, K.S., Said, H., Jamsari, E.A., Yacob, J., Dacholfany, M.I., & Ninsiana, W. (2017j). From Live Interaction to Virtual Interaction: An Exposure on the Moral Engagement in the Digital Era. *Journal of Theoretical and Applied Information Technology*, 95(19), 4964-4972.
- [43] Huda, M., Maseleno, A., Jasmi, K. A., Mustari, I., & Basiron, B. (2017k). Strengthening Interaction from Direct to Virtual Basis: Insights from Ethical and Professional Empowerment. *International Journal of Applied Engineering Research*, 12(17), 6901-6909.
- [44] Huda, M., Haron, Z., Ripin, M. N., Hehsan, A., & Yaacob, A. B. C. (2017l). Exploring Innovative Learning Environment (ILE): Big Data Era. *International Journal of Applied Engineering Research*, 12(17), 6678-6685.
- [45] Maseleno, A., Huda, M., Siregar, M., Ahmad, R., Hehsan, A., Haron, Z., Ripin, M.N., Ihwani, S.S., and Jasmi, K.A. (2017). Combining the Previous Measure of Evidence to Educational Entrance Examination. *Journal of Artificial Intelligence* 10(3), 85-90. <https://doi.org/10.3923/jai.2017.85.90>.
- [46] Huda, M., Anshari, M., Almunawar, M. N., Shahrill, M., Tan, A., Jaidin, J. H., & Masri, M. (2016a). Innovative Teaching in Higher Education: The Big Data Approach. *The Turkish Online Journal of Educational Technology*, 15(Special issue), 1210-1216.
- [47] Huda, M., Yusuf, J. B., Jasmi, K. A., & Nasir, G. A. (2016b). Understanding Comprehensive Learning Requirements in the Light of al-Zarnūjī's Ta'lim al-Muta'allim. *Sage Open*, 6(4), 1-14. <https://doi.org/10.1177/2158244016670197>.
- [48] Huda, M., Yusuf, J. B., Jasmi, K. A., & Zakaria, G. N. (2016c). Al-Zarnūjī's Concept of Knowledge ('ilm). *SAGE Open*, 6(3), 1-13. <https://doi.org/10.1177/2158244016666885>.
- [49] Huda, M., Jasmi, K. A., Mohamed, A. K., Wan Embong, W. H., & Safar, J. (2016d). Philosophical Investigation of Al-Zarnuji's Ta'lim al-Muta'allim: Strengthening Ethical Engagement into Teaching and Learning. *Social Science*, 11(22), 5516-551.
- [50] Kartanegara, M., & Huda, M. (2016). Constructing Civil Society: An Islamic Cultural Perspective. *Mediterranean Journal of Social Science*, 7(1), 126-135.
- [51] Othman, R., Shahrill, M., Mundia, L., Tan, A., & Huda, M. (2016). Investigating the Relationship between the Student's Ability and Learning Preferences: Evidence from Year 7 Mathematics Students. *The New Educational Review*, 44(2), 125-138.
- [52] Wulandari, Aminin, S., Dacholfany, M.I., Mujib, A., Huda, M., Nasir, B.M., Maseleno, A., Sundari, E., Fauzi, Masrur, M., Design of Library Information Systems. *International Journal of Engineering and Technology (UAE)* (In Press).
- [53] Abadi, S., Teh, K.S.M., Nasir, B.M., Huda, M., Ivanova, N.L., Sari, T.I., Maseleno, A., Satria, F., Muslihudin, M. Application Model of K-Means Clustering Insights into Promotion Strategy of Vocational High School. *International Journal of Engineering and Technology (UAE)* (In Press).
- [54] Susilowati, T., Dacholfany, M.I., Aminin, S., Ikhwan, A., Nasir, B.M., Miftachul Huda³, Prasetyo, A., Maseleno, A., Satria, F., Hartati, S., Wulandari. Getting Parents Involved in Child's School: Using Attendance Application System Based on SMS Gateway. *International Journal of Engineering and Technology (UAE)* (In Press).
- [55] Aminudin, N., Huda, M., Ihwani, S.S., Noor, S.S.M., Basiron, B., Jasmi, K.A., Safar, J., Mohamed, A.K., Embong, W.H.W., Mohamad, A.M., Maseleno, A., Masrur, M., Trisnawati, Rohmadi, D. The Family Hope Program using AHP Method. *International Journal of Engineering and Technology (UAE)* (In Press).

- [56] Aminudin, N., Fauzi, Huda, M., Hehsan, A., Ripin, M.N., Haron, Z., Junaidi, J., Rita Irviani¹, R., Muslihudin, M., Hidayat, S., Maseleno, A., Gumanti, M., Fauzi, A. Application Program Learning Based on Android for Students' Experiences. *International Journal of Engineering and Technology (UAE)* (In Press).
- [57] Abadi, S., Teh, K.S.M., Huda, M., Hehsan, A., Ripin, M.N., Haron, Z., Muhamad, N.H.N., Rianto, R., Maseleno, A., Renaldo, R., Syarifudin, A. Design of student score application for assessing the most outstanding student at vocational high school. *International Journal of Engineering and Technology (UAE)* (In Press).
- [58] Aminudin, N., Huda, M., Kilani, A., Embong, W.H.W., Mohamed, A.M., Basiron, B., Ihwani, S.S., Noor, S.S.M., Jasmi, K.A., Safar, J., Ivanova, N.L., Maseleno, A., Triono, A., Nungsiati. Higher Education Selection using Simple Additive Weighting. *International Journal of Engineering and Technology (UAE)* (In Press).
- [59] Anggraeni, E.Y., Huda, M., Maseleno, A., Safar, J., Jasmi, K.A., Mohamed, A.K., Hehsan, A., Basiron, B., Ihwani, S.S., Embong, W.H.W., Mohamad, A.M., Noor, S.S.M., Fauzi, A., Wijaya, D.A., Masrur, M. Poverty Level Grouping using SAW Method. *International Journal of Engineering and Technology (UAE)* (In Press).
- [60] Abadi, S., Huda, M., Jasmi, K.A., Noor, S.S.M., Safar, J., Mohamed, A.K., Embong, W.H.W., Mohamad, A.M., Hehsan, A., Basiron, B., Ihwani, S.S., Maseleno, A., Muslihudin, M., Satria, F., Irawan, D., Hartati, S. Determination of the Best Quail Eggs using Simple Additive Weighting. *International Journal of Engineering and Technology (UAE)* (In Press).
- [61] Abadi, S., Huda, M., Hehsan, A., Mohamad, A.M., Basiron, B., Ihwani, S.S., Jasmi, K.A., Safar, J., Mohamed, A.K., Embong, W.H.W., Noor, S.S.M., Brahmono, B., Maseleno, A., Fauzi, A., Aminudin, N., Gumanti, M. Design of online transaction model on traditional industry in order to increase turnover and benefits. *International Journal of Engineering and Technology (UAE)* (In Press).
- [62] Abadi, S., Huda, M., Basiron, B., Ihwani, S.S., Jasmi, K.A., Hehsan, A., Safar, J., Mohamed, A.K., Embong, W.H.W., Mohamad, A.M., Noor, S.S.M., Novita, D., Maseleno, A., Irviani, R., Idris, M., Muslihudin, M. Implementation of Fuzzy Analytical Hierarchy Process on Notebook Selection. *International Journal of Engineering and Technology (UAE)* (In Press).