UNICHECK

Doc vs Internet

91.39% Originality	8.61% Similarity	179 Sources

Web sources: 179 sources found

1. https://www.esri.ie/system/files/media/file-uploads/2016-04/RS51.pdf	1.32%
2. https://www.mdpi.com/1996-1944/11/9/1631	1.2%
3. http://www.iejme.com/makale/1241	1.2%
4. http://downloads.hindawi.com/journals/ecam/2013/560274.pdf	1.2%
5. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3140080	1.2%
6. http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1122&context=nur_facpub	1.2%
7. https://www.mdpi.com/2227-7102/8/4/189	1.2%
8. https://researchonline.jcu.edu.au/29373	1.2%
9. http://www.mdpi.com/2076-3425/7/6/66	1.2%
10. http://www.mdpi.com/1660-4601/15/4/605	1.2%
11. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4093516	1.2%
12. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3499904	1.2%
13. https://www.mdpi.com/1422-0067/19/6/1672	1.2%
14. https://www.mdpi.com/1422-0067/19/9/2736	1.2%
15. https://www.mdpi.com/1422-0067/19/3/892	1.2%
16. https://www.mdpi.com/1660-4601/13/6/601	1.2%
17. https://www.mdpi.com/1424-8220/16/6/940	1.2%
18. https://www.mdpi.com/2072-666X/6/6/684	1.2%
19. https://www.mdpi.com/2072-666X/5/4/1034	1.2%
20. https://www.mdpi.com/2079-4991/4/4/894	1.2%
21. https://cambridgeforecast.wordpress.com/2010/12	1.2%
22. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2796765	1.2%
23. https://docplayer.net/40946248-Pedagogika-psihologiya.html	1.2%
24. https://www.mdpi.com/1422-0067/19/8/2245	1.16%
25. https://www.mdpi.com/2072-6643/9/3/313	1.16%
26. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3716033	1.16%
27. http://downloads.hindawi.com/journals/jchem/2018/8394086.pdf	1.16%
28. https://www.mdpi.com/2311-5637/5/1/2	1.16%
29. https://onlinelibrary.wiley.com/doi/full/10.1111/j.1442-2018.2010.00515.x	1.12%
30. http://www.assumptionjournal.au.edu/index.php/Scholar/article/view/2454	1.08%
31. http://www.texilajournal.com/academic-research/edition/44-volume3-issue2	1.04%
32. https://www.mdpi.com/1660-4601/13/2/184	1%
33. https://www.mdpi.com/2072-6643/9/5/495	1%
34. http://www.m-hikari.com/ija/guide.html	0.92%

🟨 Similarity	🟦 Citation
🟩 Similarity from a chosen source	🟪 References
abc Possible character replacement	

35. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4861828   0.88%

36. https://www.frontiersin.org/articles/10.3389/fpsyg.2016.00690/full   0.88%

37. https://www.csbsju.edu/education/our-approach/knowledge-base/kb-iv   0.84%

38. http://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=1112&context=dissertations   0.84%

39. https://www.newdirectionsmsu.org/issue-1/bauer-music-learning-and-technology   0.84%

40. https://link.springer.com/article/10.1007/s11423-016-9487-9   0.84%

41. https://open.library.ubc.ca/handle/2429/45839   0.84%

42. https://www.idunn.no/dk/2014/04/development_of_student_teachers_digital_competence_in_teac   0.84%

43. https://internationalschoolsandict.wordpress.com/tag/research   0.84%

44. https://www.pearsoned.com/wp-content/uploads/sm-reading-rct-report1.pdf   0.84%

45. https://link.springer.com/article/10.1007/s11412-016-9237-3   0.84%

46. http://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=2040&context=dissertations   0.84%

47. http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/WW_TechnologyTools.pdf   0.84%

48. http://www.tdsb.on.ca/Portals/research/docs/reports/Teaching%20and%20Learning%20Math%20…   0.84%

49. http://www.ascd.org/publications/books/118042/chapters/References.aspx   0.84%

50. http://brianhost.blogspot.com/2014/12/does-using-technology-in-classroom.html   0.84%

51. https://www.edutopia.org/technology-integration-research-annotated-bibliography   0.84%

52. https://internationalschoolsandict.wordpress.com/tag/technology-integration   0.84%

53. http://www.eurodl.org/materials/contrib/2014/Salmon.htm   0.84%

54. http://www.journals.aiac.org.au/index.php/IJALEL/article/view/1321   0.84%

55. https://tech.ed.gov/wp-content/uploads/2014/11/Learning-Technology-Effectiveness-Brief.pdf   0.84%

56. https://internationalschoolsandict.wordpress.com/tag/computer-uses-in-education   0.84%

57. https://core.ac.uk/download/pdf/95558638.pdf   0.84%

58. https://www.mdpi.com/1422-0067/19/9/2663   0.8%

59. https://www.mdpi.com/1422-0067/18/11/2328   0.8%

60. https://journalistsresource.org/studies/society/education/moocs-online-learning-research-roundup   0.76%

61. https://vdocuments.site/teaching-reading-and-writing-mccardle-peggy-miller-brett-srg.html   0.76%

62. https://www.omicsonline.org/open-access/reducing-social-injustice-in-our-communities-building-aw.. 0.72%

63. https://www.omicsonline.org/open-access/reducing-barriers-in-our-communities-buildingawareness.   0.72%

64. https://dblp.uni-trier.de/pers/c/Chen:Tseng=Yi   0.72%

65. https://jitc.biomedcentral.com/track/pdf/10.1186/2051-1426-2-S2-P12   0.68%

66. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3157145   0.68%

67. https://dblp.uni-trier.de/db/journals/csi/csi43   0.68%

68. https://jeatdisord.biomedcentral.com/track/pdf/10.1186/2050-2974-2-S1-O61   0.68%

69. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3982331   0.68%

70. https://www.sciencedirect.com/science/article/pii/S0960982213015182   0.68%

71. http://www.woodburnsd.org/wsd-curriculum/wp-content/uploads/Final-Math-Framework-1.doc   0.64%

72. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3123518   0.64%

73. https://www.sciencedirect.com/science/article/pii/S0920548915000902   0.64%

74. https://mchb.hrsa.gov/research/project_info.asp?ID=267   0.6%

75. https://link.springer.com/chapter/10.1007/978-3-662-48978-9_26   0.6%

76. http://www.molodyvcheny.in.ua/files/conf/ped/18nov2016/18nov2016.pdf   0.56%

77. https://cyberpsychology.eu/article/view/8564/7752   0.44%

78. http://downloads.hindawi.com/journals/jp/2012/140826.pdf   0.4%

79. https://aapt.org/Conferences/sm2017/session.cfm?type=other&sort=name   0.4%

80. https://www.aapt.org/Conferences/sm2017/session.cfm?type=other&sort=date   0.4%

Similarity

Similarity from a chosen source

abc Possible character replacement

Citation

References

81. http://library.um.ac.id/ptk/index.php?mod=detail&id=44086 — 0.4%
82. http://pgsd.fip.um.ac.id/index.php/prosiding-seminar-nasional-pgsd-2016 — 0.4%
83. http://www.mdpi.com/1660-4601/15/12/2632 — 0.4%
84. http://www.xiahepublishing.com/2310-8819/ArticleFullText.aspx?sid=2&id=10.14218%2fJCTH.20… — 0.4%
85. https://www.arcjournals.org/pdfs/ijhsse/v5-i3/15.pdf — 0.4%
86. http://library.um.ac.id/ptk/index.php?mod=detail&id=80908 — 0.4%
87. http://pgsd.fip.um.ac.id/wp-content/uploads/2017/01/32.pdf — 0.4%
88. https://arcjournals.org/pdfs/ijhsse/v5-i8/10.pdf — 0.4%
89. https://docplayer.info/52223802-Buku-panduan-penggunaan-modular-object-oriented-dynamic-lear… — 0.36%
90. https://www.paperdue.com/topic/operations-management-essays — 0.36%
91. https://www.paperdue.com/topic/value-chain-essays/14 — 0.36%
92. https://www.theseus.fi/bitstream/handle/10024/104281/Vitalie%20Antoci%20-%20Transaction%2… — 0.36%
93. https://www.paperdue.com/topic/inventory-management-essays/6 — 0.36%
94. http://iosrjournals.org/iosr-jrme/papers/Vol-7%20Issue-4/Version-5/B0704050717.pdf — 0.32%
95. https://www.mdpi.com/1996-1073/8/7/6328/html — 0.32%
96. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3876303 — 0.32%
97. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3580811 — 0.32%
98. https://www.ennonline.net/fex/33/low — 0.32%
99. https://www.eoas.ubc.ca/~nchriste/PDF/83-1989%20(April%2010)%20Brocher,%20Fisher,%20Ge… — 0.32%
100. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3500805 — 0.32%
101. https://www.jpsmjournal.com/article/S0885-3924(08)00558-7/fulltext — 0.32%
102. http://archive.riksbank.se/Documents/Tal/Ekholm/2012/tal_ekholm_120330_eng.pdf — 0.32%
103. http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-42302018000600484 — 0.32%
104. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4043558 — 0.32%
105. https://www.arcjournals.org/pdfs/ijrsb/v7-i1/5.pdf — 0.32%
106. https://www.intechopen.com/books/very-large-scale-integration — 0.32%
107. https://docplayer.net/63044440-Analysis-and-mapping-of-52-ict-based-initiatives-for-caregivers.h… — 0.32%
108. https://openreview.net/pdf?id=ry_CVZhsz — 0.32%
109. http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=540&paperId=10023347 — 0.32%
110. https://cnx.org/exports/de89d3a8-6d0d-43be-9323-0694e7a51bd8@1.pdf/derived-copy-of-electro… — 0.32%
111. https://onlinelibrary.wiley.com/doi/full/10.1111/lang.12226 — 0.32%
112. http://www.ijstr.org/final-print/apr2018/Effect-Of-Human-Resources-Development-Work-Environm… — 0.32%
113. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0077463 — 0.32%
114. https://aifs.gov.au/publications/commonwealth-place-based-service-delivery-initiatives/export — 0.32%
115. https://foodandhealth.com/cpecourses/AtkinsNew.doc — 0.32%
116. http://eh.net/encyclopedia/page/6/?article=richardson.guilds%20Medieval%20guilds — 0.32%
117. http://thesportjournal.org/article/sports-2-0-a-look-at-the-future-of-sports-in-the-context-of-rfids-we… — 0.32%
118. https://www.paperdue.com/topic/gospel-essays — 0.32%
119. https://www.frontiersin.org/articles/10.3389/fpsyg.2014.00675/full — 0.32%
120. http://eh.net/page/117/?s=a+ — 0.32%
121. http://jessicasiboro.blogspot.com/2017/01/working-principle-satellite.html — 0.32%
122. http://medical.cloud-journals.com/index.php/IJANHS/article/download/Med-263/pdf — 0.32%
123. http://eh.net/page/111/?s=history — 0.32%
124. https://www.science.gov/topicpages/i/international+health+terminology.html — 0.32%
125. http://www.duncandubois.co.za/Letters_to_newspapers.htm — 0.32%
126. http://roghiemstra.com/advocacy.html — 0.32%

Similarity

Similarity from a chosen source

abc Possible character replacement

Citation

References

127. http://intranet.tdmu.edu.ua/data/kafedra/internal/distance/lectures_stud/English/1%20course/Lea…   0.32%
128. http://www.eiconsortium.org/reprints/ei_issues_and_common_misunderstandings.html   0.32%
129. https://www.paperdue.com/topic/jesus-christ-essays   0.32%
130. http://eh.net/page/4/?s=tariff   0.32%
131. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3099605   0.32%
132. http://www.eps2016-wiki2.dee.isep.ipp.pt/doku.php?id=report   0.32%
133. http://eh.net/page/27/?s=how+much+is+that   0.32%
134. http://www.foodandhealth.com/cpecourses/AtkinsNew.doc   0.32%
135. https://www.in.gov/indot/projects/i69/files/I69S6FEIS_Ch5.6_TrafficImpacts.pdf   0.32%
136. http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=328&doi=10.11648/j.ajtab.20…   0.32%
137. https://www.mdpi.com/2072-6643/10/4/457   0.32%
138. http://www.eh.net/page/11/?s=great+depression   0.32%
139. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4100862   0.32%
140. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3969247   0.32%
141. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3117608   0.32%
142. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2672221   0.32%
143. http://www.lidsen.com/journals/icm/icm-03-01-002   0.32%
144. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3298202   0.32%
145. https://www.slideshare.net/Zara_Mohammed/cape-environmental-science-ia-unit-2   0.32%
146. https://docplayer.net/81751156-The-role-of-play-in-children-s-health-and-development.html   0.32%
147. http://www.sciencepublishinggroup.com/journal/paperinfo.aspx?journalid=104&doi=10.11648/j.aj…   0.32%
148. https://www.ahajournals.org/doi/10.1161/STR.0000000000000116   0.32%
149. https://www.bmj.com/content/347/bmj.f5334   0.32%
150. https://www.paperdue.com/topic/christianity-essays/8   0.32%
151. https://www.bmj.com/content/340/bmj.c671   0.32%
152. https://www.bmj.com/content/344/bmj.e832   0.32%
153. https://www.bmj.com/content/343/bmj.d6195   0.32%
154. http://eh.net/encyclopedia/page/6/?article=adams.industry.coal.us   0.32%
155. http://eh.net/page/53/?s=economics   0.32%
156. https://www.bmj.com/content/351/bmj.h3978   0.32%
157. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3868316   0.32%
158. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4143832   0.32%
159. https://www.mdpi.com/1422-0067/18/11/2482   0.32%
160. http://www.lidsen.com/journals/geriatrics/geriatrics-02-03-010   0.32%
161. http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=253&paperId=10028149   0.32%
162. http://docshare.tips/voip-risk-analysis_574b24b1b6d87f15448b4cea.html   0.32%
163. https://www.ahajournals.org/doi/full/10.1161/01.cir.0000441966.31451.3f   0.32%
164. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3555587   0.32%
165. http://iosrjournals.org/iosr-jhss/papers/Vol.%2022%20Issue4/Version-1/K2204016169.pdf   0.32%
166. http://kw.pm.org/wiki/index.cgi?ngampusid   0.32%
167. http://eh.net/encyclopedia/page/6/?article=stead.malthus   0.32%
168. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4307722   0.32%
169. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4251217   0.32%
170. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2791723   0.32%
171. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4149015   0.32%
172. http://docshare.tips/tesolvol2_578c7616b6d87f67458b4ba6.html   0.32%

Similarity

Citation

Similarity from a chosen source

References

abc Possible character replacement

173. https://docplayer.es/9818842-Desarrollo-de-nanoparticulas-solidas-lipidicas-como-sistemas-de-a...   0.32%

174. http://article.sapub.org/10.5923.j.ijpbs.20150502.06.html   0.32%

175. https://journals.lww.com/jphmp/pages/articleviewer.aspx?year=2018&issue=03000&article=0000...   0.32%

176. https://vdocuments.mx/age-and-the-acquisition-of-english-as-a-foreign-language-second-languag...   0.32%

177. https://link.springer.com/article/10.1007%2Fs10639-018-9701-y   0.32%

178. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3555603   0.32%

179. https://www.frontiersin.org/articles/10.3389/fpsyg.2017.02210/full   0.32%

Mobile Phone-Based Invertebrates Encyclopedia for Elementary School Students

Farida Nur Kumala[1]*, Dwi Agus Setiawan[2], Edy Susilo[3], Mohammad Amin[4], Muhana Gipayana[5]

[1]*Universitas Kanjuruhan Malang, Indonesia*
[2]*Universitas Kanjuruhan Malang, Indonesia*
[3]*Universitas Kanjuruhan Malang, Indonesia*
[4]*Universitas Negeri Malang, Indonesia*
[5]*Universitas Negeri Malang, Indonesia*
*Corresponding author E-mail:faridankumala@unikama.ac.id

Abstract

Nowadays, invertebrates have not been widely discussed and included as encyclopedia that may lead to enrich students' knowledge and the available online encyclopedia language has not matched children' characteristics. The study was aimed to develop a playstore-based encyclopedia application for elementary school students. The subjects of the study were 124 fifth graders of elementary school students that were randomly chosen from 3 elementary schools in Malang Regency, 3 teachers and 3 experts in content, media, and language. The data were collected through questionnaire and observation. The process of development of mobile phone based encyclopedia was carried out through several steps including need analysis, development encyclopedia design, and result validation. It was found from the study that mobile-phone based (playstore) encyclopedia is considered as an effective, interactive, and interesting means by elementary schools students that can support their motivation and knowledge.

Keywords: *Invertebrate, mobile phone, encyclopedia, cordova and science*

1. Introduction

Nowadays, mobile-phone has been widely used by almost all segmentations due to its utmost beneficial functions to support daily life activities such as to communicate, work, play, and learn. Learning through mobile phones have been now found and applied through several application for instance moodle ([1];[2];[3];[4];[5];[6]), e book ([7];[8];[9], [10]), and Edmoodo ([11];[12]). These particular applications serve online learning and facilitate students in faster and independent way.

The development of online learning can be developed through online encyclopedia that has been previously developed such as power engineering([13]), Birth defect ([14]); Medical Image ([15]); Science Encyclopedia that are available in Britanika encyclopedia, Science Jrank, science encyclopedia, and so forth. However, there hasn't been particular online encyclopedia available in Indonesian language, specially provide elementary schools students with knowledge about invertebrates animals and use language that suits their characteristics. This is contradictive to the fact that invertebrates animals are very close to the children's daily life and the fact that the available online encyclopedia is considered incompatible with elementary schools students in terms of it language and the depth and width of the knowledge. Besides, the credibility of several online encyclopedias is now being questioned ([16]).

The facts above may lead to decrease students' motivation and literacy to read and to access knowledge and they rather use mobile phone to play games ([17]) to watch animation video ([18]), and to access social media ([19];[20]). This in an ironic situation knowing that students' literacy can be improved by 1) spatial planning concept, 3) parents' supports, and 4) learning material development that to increase students' literacy ([21][22]). Departing from this point of view, the study was aimed to develop playstore-based encyclopedia application on invertebrate animals for elementary schools student.

2. Method

The study to develop playstore-based encyclopedia application by involving 124 fifth graders consisting of 35 boys and 89 girls that were randomly chosen from 3 elementary schools in Malang Regency as subjects of the study. The schools cover SDN Karangsuko 02, MI Mambaul Ulum Tegalgondo, and SDN Gadang 3. To collect data, two instruments were employed named questionnaire and observation sheets.

2.1 Research Procedure of mobile phone based Invertebrate Encyclopedia

The development of media was carried out by following Borg and Gall developmental steps as can be seen in Figure 1. The figure above can be described as follows: In this step, need analysis was carried out on several aspects that cover Analysis on students' characteristics in terms of their learning styles and learning problems and analisys on content mapping about invertebrates animals for elementary school students and on development of evaluation.
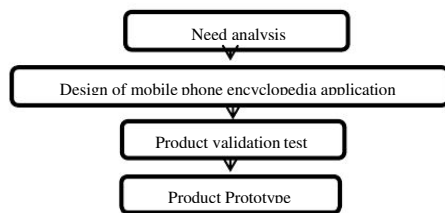
Fig.1::Steps in Developing Mobile phone based Encyclopedia Application.

Next step is Design of mobile phone encyclopedia application. Design of playstore-based encyclopedia application employed web programming language such as Css, Html5, Javascript, framewok cordova, Nodejs and Jquery Mobile. Meanwhile, *tools* used to make the application cover Command Prompt, Android Studio dan Notepad++. Last step is product Validation Test. The use of application that has been developed was tested by trying it out to the subjects of the study that cover 169 elementary school students to find their interests on the application and the effectiveness of the application when it is used in the learning process in elementary level. The instrument used in this step is observation sheet. The data of the observation was analyzed by using the following formula as in (1):

$$\bar{x} = \frac{\sum x}{N}$$
(1)

Definition 1: *calculation of average score*

Information formula (1) X= average score, $\sum x$= total score and N= number of appraisers. The result of calculation can be classified by using the guidelines for classification of playstore-based encyclopedia as presented in the table 1.

Table 1: The guidelines for classification of mobile phone encyclopedia application

Score Interval	Criterion
X > 3,4	Best
2,8 < X < 3,4	Good
2,2 < X ≤ 2,8	Enough
1,6 < X ≤ 2,2	Less
X ≤ 1,6	Very less

2.2 Research Procedure of Developing the Application

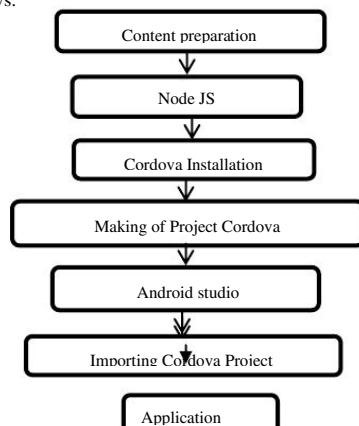The steps in developing the application is explained in Figure 2, as follows.

Fig. 2: Design of mobile phone based encyclopedia application

Further description of the figure is presented in the following description:

2.2.1 Node JS Installation

The installation of Node.js was conducted by previously downloading node.js file on its official website: https://nodejs.org/en. the display of its result is presented in Figure 3.

Fig 3:. Node JS Installation display

2.2.2 Cordova Installation

Cordova can be installed by using command line node.js, by typing instruction npm instal -g cordova as can be seen in figure 4. After installing cordova, the next step is to install JDK (Java Development Kit), install it based on windows version, as can be seen in Figure 5.
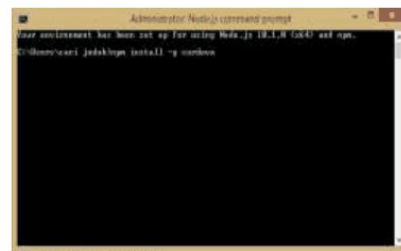

Fig. 4: Cordova installation display

Fig. 5: JDK(Java Development Kit)

2.2.3 Project Making using Cordova

After all installations, the next step was making project in cordova by using command line and typing cordova create. To make the project run well in Agar project in android platform, type instruction cordova platform add android

2.2.4. Installing Android studio

Download android studio on https://developer.android.com/studio/

2.2.5 Importing Cordova Project

After downloading and installing android studio, the next step was importing cordova project into Android studio. The first step is opening android studio. To import the file, click Open an existing Android Studio Project and choose project folder that has been made and click OK. The display of project that has been opened can be seen in Figure 6 and its structure of the android cordova project can be seen in Figure 7.
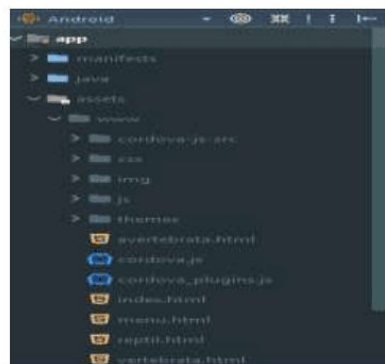

Fig 6: display Cordova project

Figure 7 : the android cordova project

Folder assets was employed to save files that are displayed in the application that cover css, js and html files. To set the file that will be called primarily is by changing the settings on file config.xml. meanwhile, to run the application that is developed for smart phone can be done by connecting the smart phone to the PC by using USB cable that allows the PC to read the smart phone through android studio.

3 Result and Discusion

3.1 Result of Developing Mobile Phone Invertebrates Based Encyclopedia

Data gained from need analysis showed that, in general, students' learning characteristics of the subject can be seen in Table 2

Table 2:. Students' Learning Style

Learning Style	Male	Female
Visual	64%	52%
Audio	10%	28%
Kinestetik	26%	20%

From the table above, it was revealed that most of students' learning style is visual. Accordingly, the content and the

development process of the application was set to serve the media that is able to improve students' visual skills.

The next step is content analysis was then used to make an evaluation test on students' learning program. The finding of the content analysis and development can be seen in the Figure 8.
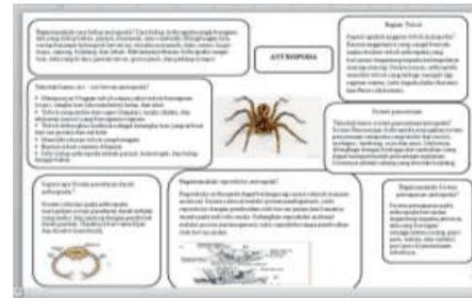

Fig 8: Design of content development

The next content was developed in the web programming language (Css, Html5, Javascript), framewok cordova, Nodejs dan Jquery Mobile and the result can be witnessed in Figure 9.
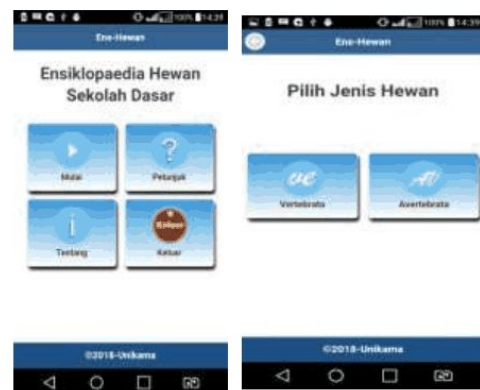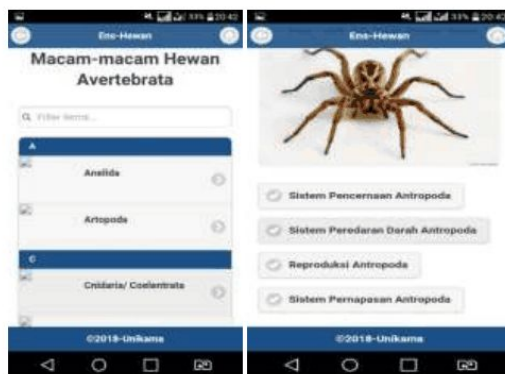

Fig 9: Front view of the application

Fig 10: invertebrata content application display

Fig 11: Content and quiz invertebrata

Further, the result of content development was then validated by having experts' judgment and the result can be seen in table 3.

Table 3:. Validation Result

Experts	Scoring	Criteria
Application	3,4	Good
Content	3,5	Good
Language	3,4	Good
Teacher	3,5	Good
Student	3,7	Good

3.2 Discussion

The result of application development was found that the development result was considered good by all experts being involved in the study. However, some suggestions were also proposed in terms of language to be that suits students' learning progress, display of the writing and media, and also the depth and width of the content. . The suggestion needs to be taken into account so as to make a good learning media, as a good media is a media that is classified as good after validation and revision ([23]).

Result of practicality test that was conducted to students has fulfilled the requirement of interesting, effective, interactive, and practical media that is considered effective to improve students' motivation and trigger their better engagement to the learning process ([24];[25] ;[26]).

4 Conclusion

The development of mobile phone encyclopedia application was carried out through several processes that cover need analysis, media design and validation design. The developmental process of the application employed web programming language such as Css, Html5, Javascript, framewok cordova, Nodejs and Jquery Mobile. Meanwhile, tools that were used to make this application is are Command Prompt, Android Studio and Notepad++ . As the result, the application was given good validation, is easy and practical to be used, and is considered good in terms of its content, media, and language by teachers and students. Students' characteristics in learning are used as a foundation to develop the learning media.

Acknowledgement

References

[1] H. Ueda and M. Nakamura, "GakuNinMoodle: Toward Robust E-Learning Services Using Moodle in Japan," Procedia Comput. Sci., vol. 96, no. September, pp. 1710–1719, 2016.

[2] C. Costa, H. Alvelos, and L. Teixeira, "The Use of Moodle e-learning Platform: A Study in a Portuguese University," Procedia Technol., vol. 5, pp. 334–343, 2012.

[3] H. Surjono, "Membangun E-Learning Dengan Moodle," pp. 1–17, 2009.

[4] A. Handayanto, R. Supandi, and L. Ariyanto, "Pembelajaran E-Learning menggunakan Moodle pada matakuliah Metode Numerik," pp. 42–48, 2013.

[5] G. C. Oproiu, "A Study about Using E-learning Platform (Moodle) in University Teaching Process," Procedia - Soc. Behav. Sci., vol. 180, no. November 2014, pp. 426–432, 2015.

[6] G. M. Amandu, J. K. Muliira, and D. C. Fronda, "Using Moodle E-learning Platform to Foster Student Self-directed Learning: Experiences with Utilization of the Software in Undergraduate Nursing Courses in a Middle Eastern University," Procedia - Soc. Behav. Sci., vol. 93, pp. 677–683, 2013.

[7] R. A. Dore et al., "The parent advantage in fostering children's e-book comprehension," Early Child. Res. Q., vol. 44, pp. 24–33, 2018.

[8] S. Y. Chen, C. H. Chang, T. C. Yang, and J. H. Wang, "An investigation of the development of an animated E-book: A gender difference approach," Comput. Human Behav., vol. 88, pp. 28–36, 2018.

[9] Y. kiliç Türel and S. Ö. Şanal, "The effects of an ARCS based e-book on student's achievement, motivation and anxiety," Comput. Educ., 2018.

[10] H. L. Yeh, T. Y. Chen, H. W. Wei, N. I. Hsu, J. S. Leu, and H. Y. Chen, "CloudBook: Implementing an E-book reader on a cloud platform by an optimized vector graphic library," Comput. Stand. Interfaces, vol. 43, pp. 68–78, 2016.

[11] Dharmawati, "Penggunaan Media e-Learning Berbasis Edmodo Dalam Pembelajaran English for Business QUERY : Jurnal Sistem Informasi," Query, vol. 1, no. April, pp. 43–49, 2017.

[12] Z. Ainiyah, "Penggunaan Edmodo Sebagai Media Pembelajaran E-Learning Pada Mata Pelajaran Otomatisasi Perkantoran Di Smkn 1 Surabaya," Unesa, 2015.

[13] V. F. Ochkov, "The development of an electronic encyclopedia of power engineering: an informational contribution to production and education processes," Therm. Eng., vol. 54, no. 7, pp. 519–524, 2007.

[14] K. N. Kaneshiro, "Birth defects encyclopedia online (bdeo): A knowledge base," Med. Ref. Serv. Q., vol. 11, no. 1, 1992.

[15] C. King, "Images.MD-The online encyclopedia of medical images," J. Electron. Resour. Med. Libr., vol. 6, no. 2, pp. 163–168, 2009.

[16] I. Kubiszewski, T. Noordewier, and R. Costanza, "Perceived credibility of Internet encyclopedias," Comput. Educ., vol. 56, no. 3, pp. 659–667, 2011.

[17] W. W. L. Goh, S. Bay, and V. H. H. Chen, "Young school children's use of digital devices and parental rules," Telemat. Informatics, vol. 32, no. 4, pp. 787–795, 2015.

[18] M. H. Al-Ayouby, "Dampak Penggunaan Gadget Pada Anak Usia Dini," Univ. Lampung, 2017.

[19] Maya Ferdiana Rozalia, "Hubungan Intensitas Pemanfaatan Gadget Dengan Prestasi Belajar Siswa Kelas V Sekolah Dasar," Profesi, vol. 5, no. September, pp. 722–731, 2017.

[20] E. Hollander, L. Haenens, and W. J. Johannes, "Children ' s media use in Indonesia," no. March 2013, pp. 37–41.

[21] M. Gipayana, "Pengembangan Model Sudut Baca, Pajangan, dan Partisipasi Orang Tua Siswa untuk Meningkatkan Mutu Pembelajaran Membaca dan Menulis di SD.," J. Sekol. dasar, 2013.

[22] D. W. Aisyah, M. Gipayana, and E. T. Djatmika, "PENGEMBANGAN BAHAN AJAR BERBASIS LITERASI BERCIRIKAN QUANTUM TEACHING UNTUK MENGOPTIMALKAN PEMBELAJARAN," J. Pendidik. Teor. Penelitian, dan Pengemb., vol. 2 Nomor 5, pp. 667–675, 2017.

[23] Sugiyono, Metode Penelitian Kuantitatif, Kualitatif dan R nD. Alfabeta, Bandung, 2015.

[24] R. M. Tamim, R. M. Bernard, E. Borokhovski, P. C. Abrami, and R. F. Schmid, "What Forty Years of Research Says About the Impact of Technology on Learning: A Second-Order Meta-Analysis and Validation Study," Rev. Educ. Res., vol. 81, no. 1, pp. 4–28, 2011.

[25] M. L. Mares, G. Sivakumar, and L. Stephenson, "From Meta to Micro: Examining the Effectiveness of Educational TV," Am. Behav. Sci., vol. 59, no. 14, pp. 1822–1846, 2015.

[26] Arsyad Azhar, Media Pembelajaran. Jakarta: PT Raja Grafindo, 2011.