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Utilization of e-book 3-dimensions information systems based on google analytics

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ABSTRACT

The use of information and communication technology has become a necessity for people to search for information and information published in e-book 3-dimensions media, which has been widely used in information retrieval. This paper aims to determine the use of 3-dimensional e-Books produced by the Directorate of Repository, Multimedia, and Scientific Publishing-National Information Research Agency. The method used in this research is the Google Analytics method, an application that provides information on data collection results (data mining) using the web using page tag techniques. With Google Analytics, the collected data related to acquisition and user behavior on the web can be analyzed as a goal, reference, and reliable data. The results showed 304 titles of 3-dimensional E-Books produced, which were grouped into 12 categories. Users of 3-dimensional E-Books are spread across 12 countries. The two countries that use the most are Indonesia, with 2,718 users (94.05%), followed by America with 72 users (2.49%). Meanwhile, the two most widely used 3-dimensional e-book categories were the tourism category with 625 (31.2%) and animal husbandry and agriculture 421 (21.0%). Considering that users of this 3-dimensional e-book are scattered in various countries, it is recommended that the production of this 3-dimensional e-book can be continued.

Keywords: e-books 3 dimensions; Library; Collection utilization.

ABSTRAK

Penggunaan teknologi informasi dan komunikasi menjadi kebutuhan orang untuk mencari informasi, begitu pula informasi yang terbit dalam media e-book 3 dimensi, sudah sangat banyak digunakan dalam pencarian informasi. Tulisan ini bertujuan untuk mengetahui pemanfaatan e-Books 3 dimensi yang dipoduksi oleh Direktorat Repositori, Multimedia, dan Penerbitan Ilmiah-Badan Riset Informasi Nasional. Metode yang digunakan dalam penelitian ini adalah metode Google Analytics yaitu aplikasi yang memberikan informasi hasil pengumpulan data (*data mining*) penggunaan web menggunakan teknik tag halaman. Dengan google analytic data yang terkumpul terkait akuisisi dan perilaku pengguna terhadap web dapat dianalisis sehingga dapat dijadikan sebuah tujuan, acuan dan data yang dapat dipercaya. Hasil penelitian diketahui bahwa terdapat E-Books 3 dimensi yang telah diproduksi berjumlah 304 judul yang dikelompokkan menjadi 12 kategori. Pengguna E-Books 3 dimensi tersebar di 12 negara, dua negara yang paling banyak menggunakan adalah Indonesia sebanyak 2.718 pengguna (94,05%) berikutnya Amerika sebanyak 72 pengguna (2,49%). Sedangkan dua kategori e-book 3 dimensi yang paling banyak digunakan adalah kategori pariwisata sebanyak 625 (31.2%) dan peternakan dan pertanian 421 (21,0%). Mengingat pengguna e-book 3 dimensi ini tersebar di berbagai negara, maka disarankan kegiatan produksi e-book 3 dimensi ini dapat terus dilanjutkan.

Kata Kunci: e-books 3 dimensi; Perpustakaan; Penggunaan koleksi.

A.   INTRODUCTION

The impact of technological developments for the world of education is the emergence of various types of learning media that are increasingly diverse and varied in type, and this, of course, provides convenience for people who are involved in the field of education, be it teachers, or people who are interested in the field of training to develop better education and innovation. One of the developments that can be done is with E-Books, but the E-books that have been developed so far have been growing monotonously, and most of them are just PDF-based, so E-Books are needed that can appear interactively and can be used on multiple devices. One of these multi-devices is mobile (Alwan, 2018).

E-books are digital information that can be accessed using the internet. E-books are needed because most people are too lazy to look for books in conventional libraries to get the information. They prefer to use information obtained from the internet(Rivera, 2021).To develop students' ability, there needs to be innovation and creativity, especially from a teacher to create the latest version of teaching materials, for example, according to the times and existing technology. Today's technology is like an electronic book or better known as an e-book (Sari et al., 2021).

Accessibility of knowledge materials should not only focus on printed books but should also be in the form of multimedia materials, local journals, e-books, magazines, and unpublished undergraduate, master, and doctoral research. We have various sources of information, and making regional libraries the center will increase student's academic growth and produce better academic output. The internet is a good source of information, but not all of it is true or can be considered valuable information(Rivera, 2021).

Mobile Learning-based e-book 3 dimensions multimedia was developed to help deliver material easier, more interesting for independent study, and limited space and time (Alwan, 2018). To increase awareness of the information resources available in libraries support people in gaining more access to literacy materials, librarians can help compile high-interest books at different reading levels and enable access to audiobooks, e-books, and texts in multiple languages (Mahoney et al., 2022).

Since 2015 *Kepustakaan BRIN Multi Satker Bandung*-Directorate of Repository, Multimedia, and Scientific Publishing-National Research and Innovation Agency/BRIN (formerly: Center for Scientific Data and Documentation-Indonesian Institute of Sciences/LIPI) has produced e-books 3 dimensions to serve the information needs of users. The development of a website for information technology services based on e-books 3-dimensions aims to disseminate information in the field of

technology to internet users from both the community and industry in the form of e-books 3 dimensions that were practical, interactive, and easy to read through the website. To access technology information in the form of any book 3 dimension, apart from a computer connected via the internet, it can also be via Tablets, iPads, iPhones, and Android-based devices. The development of this website uses a software development life cycle methodology which consists of system requirements analysis, design, coding (programming), testing, implementation, and maintenance. The results of the development of this technology information service website are in the form of a website that is used to disseminate technical information with practical-book 3 dimensions media and is easily accessible via the internet so that users can take advantage of the existing collection of technical information without being limited by space and time.

B.   PROBLEM STATEMENT

This study aims to determine the utilization of e-Books in 3 dimensions produced by the Directorate of Repository, Multimedia, and Scientific Publishing-BRIN. The research problem to be studied is how to use e-books 3 dimensions created by the *Kepustakaan BRIN Multi Satker Bandung-* Directorate of Repository, Multimedia, and Scientific Publishing-BRIN, while the research questions include: a.How many categories of e-books 3 dimensionsare produced? b.Which countries use it? Furthermore, c.What is the most used category?

This research continuesfrom the research that had been done entitled *Development of Information System 3D Ebook of LIPI Research Results* (Nugroho et al. 2018). In previous studies, more emphasis was placed on system development from e-books 3 dimensions, while in the current study, the emphasis was on the utilization of these e-book 3 dimensions systems.

C.   LITERATURE REVIEW

There is no universally accepted definition of an e-book. An e-book is an electronic version of a printed book that can be read on a computer or handheld device designed specifically for this purpose. An e-book or electronic book is a form of electronic text published digitally. This new digital literacy is becoming more accessible as people use e-book applications with various portable devices, such as tablets, i-pads and other e-book readers (Karakoç Öztürk, 2021). E-Book 3 dimensions were developed to help convey information more efficiently, interestingly, and limited in space and time (Alwan, 2018). An E-book is displayed on a computer screen or an electronic device held in hand, not printed on paper (Oxford, 2022).

E-books are different despite the similarities that shape reading culture. The reading experience is a unique experience for everyone – children or adults. This is not limited to the deciphering of texts, literacy, or the content of reading material: it is the sum of all of these and all the sights, smells, emotions, thoughts, and actions that occur before, during and after reading. (Schreurs, 2013).

Technology is overgrowing and is widely used to develop learning media, such as interactive multimedia. Interactive multimedia presents material effectively, efficiently, and more interestingly to help students achieve learning outcomes. Interactive multimedia can be used to improve good understanding to improve the ability of students to solve problems in science, especially about the structure of the earth and rocks. Interactive multimedia development can be done using smartphones (Syawaludin et al., 2019).

The main idea of the creators is to develop a 3D visualization application that will be exhibited at the museum to teach the main concepts of geology, hydrogeology, and geography, using augmented reality to explain some of the terms in this discipline. This is also an excellent way to teach students to read topographic maps from a cartographic perspective. The results of applying this tool are very interesting for disaster simulations that offer countless scenarios of emergency cases not only for floods but even for landslides(Cahyono et al., 2021).

Interactive fiction and critical annotation are two essential activities in teaching philology. The first activity aims to make readers active in reading electronic books. For that, various gadgets and techniques have been used which force the readers to make decisions in the reading process. Concerning annotations, it is an activity that aims to enrich literary texts with meta-information that allows to explain or expand the information that appears in the contents of a book (Sanmartin et al., 2020).

Embodiment is very relevant for studying anatomy because the knowledge to be gained is related to the body itself. Several tools using three-dimensional (3D) anatomical structures and avatars (e.g., augmented reality; virtual reality; immersive anatomy; 3D animation) were developed to enrich the student experience by incorporating gestures and body movements into anatomy learning. Authors developed new interactive 3D tools that enable personalized body experiences and enhance the spatial representation of functional musculoskeletal anatomy. Students can analyze and recreate a series of movements in a real-time 3D interactive setting(Chaker et al., 2021).

Considering that the interactive e-books developed in this study have many positive effects on students, it is necessary to develop interactive e-books for other units in science education and

introduce them to teachers. It is thought that the focus should be primarily on subjects in which students have problems or on subjects that contain alternative concepts. This study shows that in animation on interactive e-books (websites), processes related to an event or concept are processed with sound or silence. The notion that animation has to add to the sound/description of what happen in animation should be added to the page after animation. Also in terms of animation, it can be suggested that some animations in the literature can be attributed to three-dimensional animation, in particular (Ormancı & Çepni, 2020).

D.   RESEARCH METHOD

Google Analytics is a free service provided by the search engine Google; Google Analytics provides information regarding visitors from a website. Google Analytics is an application that provides information on the results of web usage mining using the page tags technique (Hendriadi & Dedih, 2015)

From the features available in Google analytics, the features that show the use of e-books 3 dimensions produced by PDDI-LIPI (currently RMPI-BRIN) are:

1. Features about the number of web visitors at a particular time and can be adjusted based on the authors need
2. Features of popular pages or books that visitors read and grouped by category
3. Features of visitors from abroad who access the 3-dimensional e-book web

The steps taken to find out all visitors to connect to Google Analytics are as follows:

1. Register a web e-book 3 dimensions when the web is first released to Google analytics and link each page you want to track by adding the google tracking script source code (gtag.js) as in the following example:

```
<!-- Global site tag (gtag.js) - Google Analytics -->
<script   async   src="https://www.googletagmanager.com/gtag/js?id=UA-123334444-
1"></script>
<script>
  window.dataLayer = window.dataLayer || [];
  function gtag(){dataLayer.push(arguments);}
  gtag('js', new Date());

  gtag('config', 'UA-123334444-1');
</script>
```

2. Set the period of the data that we want to make a visitor visit report for as an example as follows:
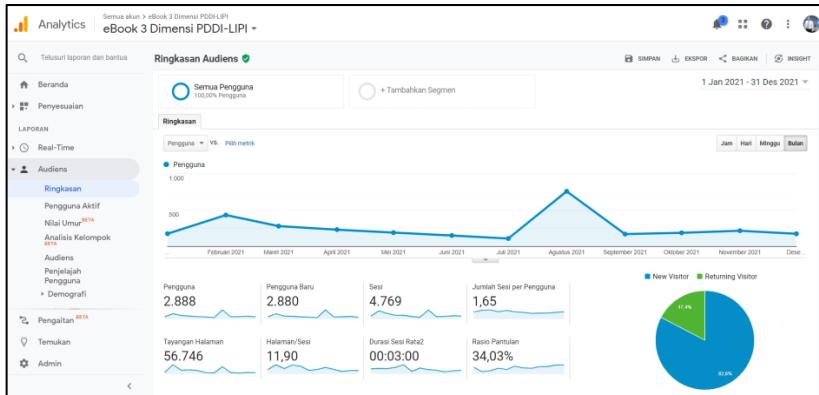
Figure 1. Setting the period of the desired visitor report
Source: Google Analytics, 2021

3. Acquire visitor visit data from various countries based on the desired period and convert the data into an excel table.

4. Acquire website traffic data, especially for books read, and export the number of visits to excel data.

5. The number of visits is grouped by category from the visits to the books read.

E.   RESULTS AND DISCUSSION

Kepustakaan BRIN Multi Satker Bandung-Directorate of Repository, Multimedia, and Scientific Publishing-National Research and Innovation Agency (*Direktorat Repositori, Multimedia dan Penerbitan Ilmiah-Badan Riset dan Inoasi Nasional*), which can be read in full at the section E.1. Directorate of Repository, Multimedia, and Scientific Publishing-BRIN. Meanwhile, to analyze the utilization of the RMPI-BRIN e-books 3 dimensions, they are grouped into three groups e-books 3 dimensions produced by the Directorate of Repository, Multimedia, and Scientific Publishing-National Research and Innovation Agency, namely: E.2. e-Book 3 Dimensions of Production Directorate of Repository, Multimedia, and Scientific Publishing-National Research and Innovation Agency; E.3. User countries of e-book 3 dimensions; and E.4. Category of e-Book 3 dimensions users.

E.1.   Directorate of Repository, Multimedia, and Scientific Publishing-BRIN

E-book 3 dimensions produced by *Kepustakaan LIPI Multi Satker Bandung*-Center for Scientific Data and Documentation-Indonesian Institutes of Science, since the issuance of Presidential Regulation of the Republic of Indonesia Number 78 of 2021, concerning the National Research and Innovation Agency (BRIN), then LIPI and several other research institutes joined the BRIN.

With this transition, the Kepustakaan LIPI Multi Satker Bandung -Center for Scientific Data and Documentation-Indonesian Institute of Sciences previously changed into a Kepustakaan BRIN Multi Satker Bandung Directorate of Repository, Multimedia, and Scientific Publishing-National Research and Innovation Agency. One of the products produced by the Bandung BRIN Library is the e-book 3-dimensions

The view of the-book 3 dimensions users can access web homepage with the link http://ebook3d.pddi.lipi.go.id can be seen at the image below:
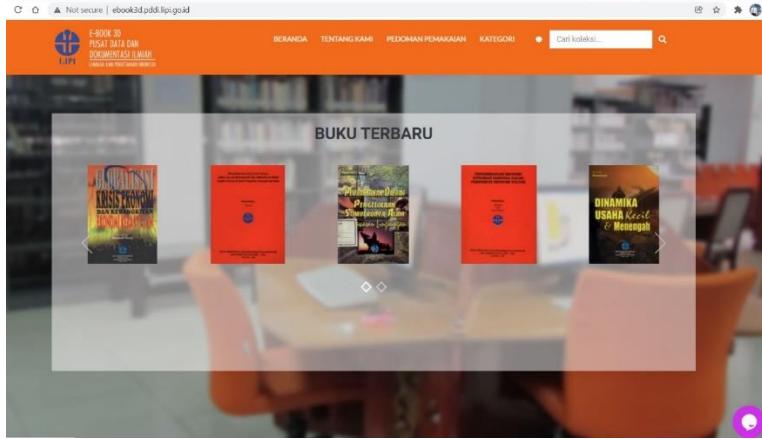
Figure 2. Home of e-Book 3 dimensions website

Source: e-book 3D Pusat Data dan Dokumentasi Ilmiah-LIPI, 2021

E.2.   Category of e-Book 3 Dimensions

The e-Books 3 dimensions that had been produced amounted to 304 titles. This e-book 3 dimensionwas a transfer from books published by Balai Media dan Reproduksi-LIPI. The titles were grouped into 12 categories, as can be seen in Table 1. below:

Table 1. e-Books 3 dimensions categories

No.	Category	No	Category
1	Socio-Economic	7	Telematics and Multimedia
2	Energy	8	Food
3	Health	9	Livestock and Agriculture
4	Maritime	10	Industry
5	Medicine and Pharmacy	11	Tourism
6	Environment	12	Others

Source: Google Analytics, 2021

Making the categories easy to find, users can click the picture icon be seen in figure 3 below:
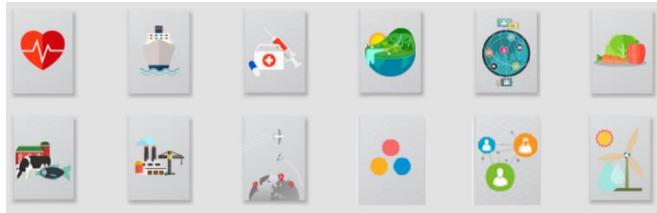
Figure 3.e-Books 3 dimensions categories
Source: Google Analytics, 2021

E.3.   User countries of e-book 3 dimensions

There were 22 countries that use e-books 3 dimensions, namely: Indonesia 2718 (94,05%),United States 72 (2,49%), China 17 (0,59%), Singapore 12 (0,42%), Australia 8 (0,28%), Malaysia 8 (0,28%), France 7 (0,24%), Japan 7 (0,24%), Germany 5 (0,37), Netherlands 5 (0,17%), Taiwan 5 (0,17%), Brunei 4 (0,14%), Ireland 3 (0,10%), India 3 (0,10%), Sweden 3 (0,10%), United Kingdom 2 (0,07%), Hong Kong 2 (0,07%), Cambodia 2 (0,07%), Argentina 1 (0,03%), Morocco 1 (0,03%), Madagascar 1 (0,03%), and Turkey 1 (0,03%), and other countries 3 (0,10%), more details can be seen in table 2 below:

Table 2. e-book 3 dimensions users by country

No	Country	Users	%
1	Indonesia	2718	94,11
2	United States	72	2,49
3	China	17	0,59
4	Singapore	12	0,42
5	Australia	8	0,28
6	Malaysia	8	0,28
7	France	7	0,24
8	Japan	7	0,24
9	Germany	5	0,17
10	Netherlands	5	0,17
11	Taiwan	5	0,17
12	Brunei	4	0,14
13	Ireland	3	0,10
14	India	3	0,10
15	Sweden	3	0,10
16	United Kingdom	2	0,07
17	Hong Kong	2	0,07

18	Cambodia	2	0,07
19	Argentina	1	0,03
20	Morocco	1	0,03
21	Madagascar	1	0,03
22	Turkey	1	0,03
23	Others	1	0,03
	Amount	**2888**	**100**

Sumber: Google Analytics (2021)

While the distribution of user country maps can be seen in Figure 4 below:

Figure 4. Map of user countries
Sumber: Google Analytics 2021

Sixty million Indonesians own gadgets or fifth in the world's most gadget ownership. The digital marketing research institute Emarketer estimates that in 2018 the number of active smartphone users in Indonesia is more than 100 million people. With such a large number, Indonesia will become the country with the fourth largest active smartphone users in the world after China, India, and America. Ironically, although interest in reading books is low, "we are social" data as of January 2017 reveals that Indonesians can stare at their gadget screens for approximately 9 hours a day(Evita Devega, 2021).

E.4. Category of e-Book 3 dimensions users

From the data, it is known that the most widely used e-book 3 dimensions categories are:tourism as many as 625 (31.2%), livestock and agriculture 421 (21,0%), socio-economic 396 (19.8%), energy 131 (6,5%), industry 112 (5,6%), others 109 (5,4%), maritime 109 (5,4%), environment

57 (2,8%), food 27 (1,3%), telematics and multimedia 19 (0,9%), medicine and pharmacy 1 (0,05),

and healthy 0 (0%)

Table 3. e-book e dimensions users by category

No.	Categories	Amount	%
1	Tourist	625	31,23
2	Livestock and agriculture	421	21,04
3	socio-economic	396	19,79
4	Energy	131	6,55
5	Industry	112	5,60
6	Others	109	5,45
7	Maritime	103	5,15
8	Environment	57	2,85
9	Food	27	1,35
10	Telematics and multimedia	19	0,95
11	Medicine and pharmacy	1	0,05
12	Health	0	0,00
	Amount	**2001**	**100,0**

From the previous data, it can be seen that a total of 2,888 e-book 3dimensions users from various countries, the remaining 887 users accessing the 3-dimensional e-book website only view the web homepage without reading books, so 2001 people read books on the web.For more details, the most used categories can be seen in Figure 5 below:
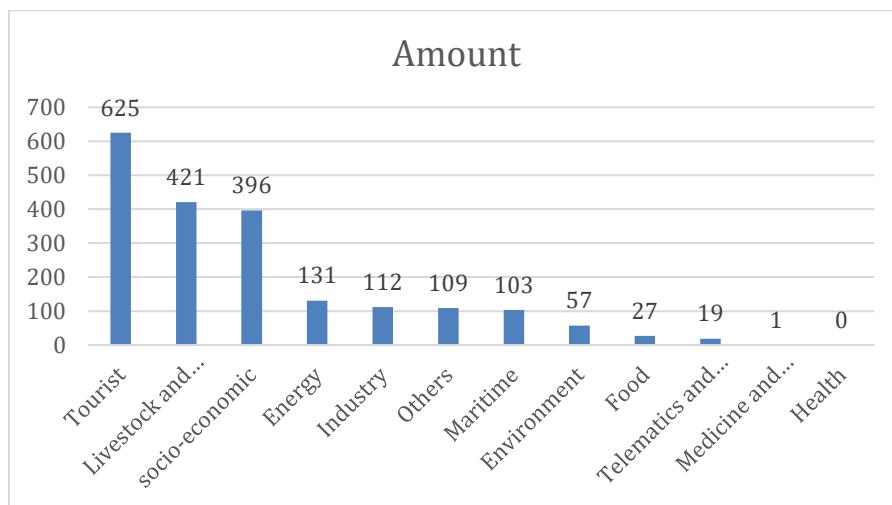
Figure 5. Map of user countries
Sumber: Google Analytics 2021

From the data above, it was known that the e-book 3 dimensions with the tourism category was the most read by users, this was because publication of e-book 3 dimensions with the tourism category are still little, even in printed books, so that they invite the curiosity of potential users.

It is still relatively new, and there are still scarce written sources that discuss the dynamics of tourism research in the world. In addition, data on the dynamics of tourism research is still minimal. In general, this book on tourism sees the obstacles to developing tourism as a science, indicating its development, the sequence of tourism platforms, and higher education(Patria, 2013).

F.   CONCLUSION

For more than three years, 3-dimensional e-book sites have been widely used by users in both Indonesia and other countries. In certain countries, some users only see the initial web page display containing a list of e-books. The e-book 3 dimensions book is available without reading the e-book 3 dimensions.

The e-Books 3 dimensions produced amounted to 304. It is hoped that the production can continue in the coming year, considering that the readers are many and spread in several countries.

The country that uses the most e-books3-dimensions in Indonesia is due not only to the use of gadgets that have been widely used but also because the language used in the 3-dimensional e-book uses the Indonesian language a lot.

The development of e-book 3 dimensions information system can be done as a form of responsibility from the world of libraries and research to fulfil their obligations in disseminating information to the public (Nugroho etal. 2018).

G.   DAFTAR PUSTAKA

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