Education System Transformation of the Indonesia Defense University in supporting scientific literacy

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Abstract.
Aim: The present study aims of this study is to evaluate the Defense University's education policy by examining how the use of libraries in supporting scientific literacy.

Methodology: This research method is qualitative by using phenomenology approach. It means that in understanding something has an objective and subjective side, unlike the positivism of separating between the two (subject-object), for science to be objective.

Result: Apparently there is a process of transformation of values and symbolism of the "Defense of Country / DoC" campus from the instructional education system to the science literacy that is pursued in accordance with the Ministry of Higher Education program but in line with the mission of the Defense Ministry. At present it has stood four Faculty of Defense Strategy, Defense Management, National Security and Defense Technology. The research concludes that the Indonesia Defense University (IDU) builds a distinctive character for both military and civilian needs to enhance the role of libraries as a center for the development of the Defense of Country (DoC) characters in semi-special model. In addition to fostering national character based on Pancasila can also follow the development of scientific literature supported by advanced information technology.

Conclusion: The decrease of visits to the Library cannot indicate a decrease in student interest in science literature because in the same year all students load their rich works in the journals of each Study Program. Vision IDU Library itself is to be one of the best Library of Higher Education in Indonesia.

Keyword; Education of the Defend of Country (DoC), Civil-Military, Semi-Special Library, and Habitus
1. Introduction

In the face of global competition, state must be able to understand the development of science well (Yuenyong & Narjaikaew, 2009). Indonesia in the era of reformation in 1999 happened four times amendment of 1945 Constitution. It is became the basis of changes of political system, economy, education and culture. The change from authoritarian to democratic governance is worrying about many parties. The unstable government resulted in the leader always changing before his position, namely President Bj.Habibie and Gus Dur only two years or less. By President Soesilo Bambang Yudhoyono builds the Defense University to unite military communities and civil society in a formal educational institution Magister (Strata 2) which leads to scientific literature. The library is one of the important elements of higher education. Academic environment and increase the brand image of institutions (Husain Salilul Akareem & Syed Shahadat Hossain, 2016). A good indicator of good science literacy shows the implementation of social-scientific literacy and scientific inquiry (Lawless et al., 2018). In the Law number 43 of 2007 the library is a vehicle for the preservation of the nation's cultural wealth and lifelong learning rides. It can be understood Higher Education is a process to educate and at the same time maintain and develop the life of nation and state.

However, the PISA (Program in International Student Assessment) and TIMSS (Trend International Mathematics and Science Study), a prestigious institution in the field of educational assessment put Indonesian students well enough. PISA Indonesia is in the 62nd place of 70 countries, while TIMSS put Indonesia at number 44 from 47 countries involved (Argina et al, 2017). Then the commonly used standard of seeing educational success is reflected in the education improvement index. According to the United Nations Development Program (UNDP) in the Human Development Report (2016: 199) Indonesia's education improvement index is still lagging behind the two countries: Singapore is ranked fifth in the category of Highest Human Development and Malaysia ranked 59th including the category of High Human Development.

According to Hurd (1998) suggests a scientific literacy definition based on seven scientifically literate people; (1) Understanding the nature of scientific knowledge; (2) Applying appropriate science concepts, principles, laws, and theories in interacting with nature; (3) Use the process of science to solve problems, make decisions, and advance its own understanding of the universe; (4) Interact with the values that underlie science; (5) Understand and appreciate the joint efforts of science and technology and the interrelationship between these matters with each and with other aspects of society; (6) Extend science education throughout life; (7) Developing many manipulative skills related to science and technology (Yuenyong & Narjaikaew, 2009).

In principle the process of community intelligence is the process of cultural production, the process of habitus through the arena of education. Only through good educational methods will result in an intelligent society (Bourdieu, 1984: 315). Then Grenfell (2004: 17) describes the process of shaping the intelligence part of the educational process, therefore education is a key element in building a
"New World", where seeking for social progress processes, professional training and personal development and new intellectual styles are formed.

The high or low of human resources of Indonesia cannot be separated from the educational resources. In the Act number 20 article 1 verses 23, one of the Education Resources is the means and infrastructure. Educational quality is certainly supported by adequate facilities and infrastructure. Chapter XII on Education Facilities and Infrastructure Article 45 paragraph 1 that each unit of formal and non-formal education provides facilities and infrastructure that meet educational needs in accordance with the growth and development of physical, intellectual, social, emotional, and psychological potential of learners. Government Regulation No. 19 of 2005 article 42 (2) explains that every educational unit must have facilities, one of which is a library.

Libraries are very instrumental in supporting of higher education doctrine (Tridharma Perguruan Tinggi) namely; education and teaching, research and development, community service. In addition to supporting Tridharma Perguruan Tinggi, according to the National Accreditation Board of Higher Education (BAN-PT), the library is an academic infrastructure that is taken into account in the standards and elements of accreditation assessment. The provisions of the implementation of the library described in the Law Number 43 Year 2007 article 1 paragraph 1 states that the Library is the institution managing the collection of written papers, prints, and / or professional record work with a standard system to meet the needs of education, research, conservation, information , and recreation of the user.

According to Law no 43 of 2007 article 20 the types of library is National Library, Public Library, School Library / Madrasah (Islamic school), Library of Higher Education and Special Library. IDU Based on Presidential Regulation number 5 of 2011 on the University of Defense as a university organized by the government. In Article 1 of Defense University or abbreviated as IDU, and article 2 that is technically academically fostered by the Ministry of National Education and technically functionally fostered by the Ministry of Defense. Under Law No. 43 of 2007, the National Library is a non-ministerial Government Institution that carries out government tasks in the library field, in charge of establishing national policy, public policy and technical policy of library management; conducting coaching, development, evaluation and coordination of library management; foster cooperation in the management of various types of libraries; and develop The National Standard Library (Standar Nasional Perpustakaan/SNP). One of them is SNP Perguruan Tinggi (university level), intended as a reference about the implementation of libraries of State and Private Universities. Library plays a role in achieving the vision, mission and goals of the University. The management of the Library according to the Regulation of the Minister of State Apparatus Empowerment and Bureaucracy Reform Number 9 of 2014 is an activity that includes planning, monitoring and evaluation of library activities.

The Indonesia Defense University (IDU) has a Vision: in 2024 to become a World Class University-based University of Defense with research-based that preserves national values. From the vision illustrated that IDU prepare to the University with world-standard quality where the components and institutions or
units in it carry out the tasks and functions that lead to the achievement of World Class University (WCU). In order to support the IDU Library has a mission that is the realization the implementation of international standard library with the aim of IDU library is to strengthen the implementation of the Library in accordance with the Laws and Regulations Library, and SNP. The SNP of Higher Education according to Law number 43 year 2007 article 11 paragraph 1 is the standard library collection, standard facilities and infrastructure, library service standards and library personnel standards, standards of implementation, and management standards.

Then IDU’s library has made Rule IDU number 18 year 2015 about technical guidance of library service of Defense University, Rector Regulation No. 32 Year 2015 about Guidelines for Processing and Maintenance of Library Material of University of Defense and also Rector Regulation No. 26 of 2016 about Development of Collection Defense University Library, while based on SNP and developed into the instrument of accreditation of Higher Education there are nine assessment components. In addition to the collection and maintenance of library materials and services, there are also components of cooperation, organizing library materials, human resources, infrastructure, budget, and library management.

Library is one of the institutions that support the achievement have instrument. One of the Parameters of World Class University Library which is quite popular in Indonesian society as follows:

<table>
<thead>
<tr>
<th>Num.</th>
<th>Parameters / Indicators</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Collection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Total collection of library materials</td>
<td>&gt; 1,000,000 eks</td>
</tr>
<tr>
<td></td>
<td>- Ratio of books with cavities academic (siva)</td>
<td>1 : 100</td>
</tr>
<tr>
<td></td>
<td>- The number of online databases is subscribed / accessible</td>
<td>&gt; 300 data bases</td>
</tr>
<tr>
<td></td>
<td>- Have access to E book</td>
<td>&gt; 10,000 title</td>
</tr>
<tr>
<td></td>
<td>- Procurement of books per year</td>
<td>Min 100,000 eks.</td>
</tr>
<tr>
<td></td>
<td>- Saving the entire work of the academic community</td>
<td>&gt; 90%</td>
</tr>
<tr>
<td>2.</td>
<td>Service</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Hours per week</td>
<td>&gt; 80 jam</td>
</tr>
<tr>
<td></td>
<td>- Service time</td>
<td>Monday s.d Sunday</td>
</tr>
<tr>
<td></td>
<td>- Searches of literature conducted by more than 4 subjects (S3) or 4 person resources person (S2)</td>
<td>There is</td>
</tr>
<tr>
<td></td>
<td>- Holding information literacy / skills or training</td>
<td>There is</td>
</tr>
</tbody>
</table>
### 3. Facilities
- Number of computers in the library for information access and PC work
  - 1 : 10
- Number of seats versus siva
  - 1 : 90
- Special study hall for post-graduate students and researchers
  - 25 spaces / average
- Discussion room
  - 10 pieces / average
- Bandwidth
  - > 30 Mbps

### 4. Librarian Criteria
- Bachelor
  - On average 40% of the total library staff
- Master
  - Average 30% of total library staff
- Doctor
  - Average 10% of total Library staff

### 5. Funds per Year
- Budget Library for the purchase of library materials
  - Average is equivalent to > Rp. 25,000,000,000
- Budget for book purchases
  - Average is equivalent to > Rp. 20,000,000,000
- Budget for subscriptions of electronic information sources (e-databases, e-journals, and e-books)
  - Average is equivalent to > Rp. 6,000,000,000
- Operational budget
  - Average is equivalent to > Rp. 5,000,000,000

### 6. International Cooperation
- Membership of international cooperation network
  - Active member

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**Figur 1; World Class University Library Parameter, source: Puspitasari & Anawati 2014:2**

**2. Methodology**

This research method is qualitative by using phenomenology approach. Moustakas (1994) in Halkis (2017: 46) that the essence of phenomenology is intentionality. It means that in understanding something has an objective and subjective side, unlike the positivism of separating between the two (subject-object), for science to be objective. Husserl's phenomenology it must be met like two inseparable currencies. The phenomenology according to Husserl described Halkis (2017: 54) acts from the whole to the later parts together in the whole. The existence is a process of sorting out the observed events (phenomenological reduction) and the ideas of the observed (reduction of aidetics), and intentionality. It is no longer interpreted as accidental but the severity or deliberate relationship observed object (*noumena*) with the mind is arranged in a complete logical construction (*Noesis*). Phenomenology realizes there is something of the essence behind it all that governs.
Methods of phenomenological analysis or qualitative constructive descriptive can be arranged easily and practically so it is easy to follow (Laksmi 2012: 131; Salim 2006; Creswell 2003). This research is arranged as follows:

1. Conducting interviews with subjects related to research topics being conducted. There are three dimensions to the attention of researchers; library facilities, national standards used and concepts of state defense values or different nationality expected through the library. The purpose of the interview is to explain each of these dimensions by finding relevant sources. For example, for library problems, interviewing the Head of the Defense University Library with questions about the purpose of the library, services, number of books provided, facilities provided and so on. The issue of national library standards interviewed the National Library assessors by discussing the criteria used. Defending the State talking Professional military observers Dr. Salim Said and Chancellor of the Defense University Lieutenant General Dr. Wayan Midhio who understands the problem of education in the institution, with questions about what material, methods, and means are right for the defense university to instill the value of defending the country. The identity of the informant should be known from the beginning.

2. Observe the behavior of the subject, thus showing what is really in the human mind.
   The researcher observes the management of library use specifically, in addition to specific planning concepts, certainly provides general literacy to support learning. Its specialty is the provision of facilities to support their institution specifically as a campus characterized by "Defending the Country".

3. Recorded into field notes, starting from the first day of research to the field. Group data into topics that are derived from the research theme. The focus of observation is the existing library services and facilities, but it is considered to be inadequate so it needs an ideal model by gathering the opinions of experts from the three dimensions mentioned above (library, standardization and campus specifications).

4. Checking data, through triangulation of data sources, informants, books, records, documents or search data online. The data collection tool is direct observation of facilities, documents, books, journals owned by an existing library. Interviews to assess the existence and use of existing libraries with national standardization, and finally design the expected ideal model.

5. Analyze data through interpretation in the following way:
   - Separate data from the researcher's initial prejudices and general assumptions. The data must be purely subject of subject experience. Data is separated between the use of the library now which is considered inadequate with components that must be added to be unique following the characteristics of the campus being built.
   - Discover the essence of pure and prejudiced phenomena and basic assumptions. This stage can be referred to as data reduction. The phenomenon under study is
library management, with an assumption that the campus has a unique characteristic of "Defending the Country," also builds library management that is specific as well.

- Group these assumptions into specific themes and organize them into research designs.

6. Construct how the symptoms are experienced

7. Give meaning to the outcome of reflection and write it down, and review the entire chapter.

In this process, researchers interviewed 9 respondents for 3 dimensions (National Standard Library / SNP, Technical Practitioner Library, the defense of Country/DoC) /Bela Negara. Researchers also observe librarians serving students and lecturers. The significance of this research is to design the IDU’s library model based on data reduction process from various data sources. The steps of this process is done, researchers use the Waterfall model (Pressman, 2010). It is sometimes called the classic life cycle, showing systematic, for software development that begins with needs specifications and customer development through planning, modeling, construction, and deployment. Here is a Waterfall model by Pressman (2010).

![Waterfall Model](image)

**Figure 2; Waterfall Model source: Pressman (2010: 9)**

This research begins with the formulation of needs or exploration (Epoche). Then proceeds to the process of sifting through the observed events (phenomenological reduction) and then the ideas of the observed (reduction of aidetics), and intentionality or unintentionally stuck. It means that the mind arranged in a complete logical construction. Furthermore, after going through the process of intentionality, researchers designed the model or modeling and construct, researcher’s use the term coding in order to be classified based on three dimensions and toward the implementation process.

3. Results

Looking at the library management of Defense University there is currently no visible characteristic library. Students' research results from the starting 2015 must be integrated into the journal of each course. Similar, lecturers must research at least two titles each year and should be published. The ideal model expected by the experts gathered is;
In terms of promotion conducted IDU library in a year as much as 1 to 2 times, while in the Instrument of Higher Education Accreditation the highest value of promotion is a maximum of 8 times / year. So more promotion is needed to make IDU library more familiar and visit increasing. From the aspect of the number of printed or non-printed collections, it meets the National Standards Library, but the needs of the collection sought based on the study program are relatively inadequate. Based on the information of some lecturers that the type of collection is still lacking, it is also justified by the students, that they are more searching and buying books outside the IDU Library. Described by Jones (2009: 2) that is the Institution at a university that is probably the most changing is the library.

Scientific transformation occurs starting from the data provided by the library, transforms into information through the ability to read, then becomes constructive knowledge through discussions with the guidance of lecturers, then students find wisdom and finally become enlightenment nationalist.

The campus's traditions and culture are not continuously changed in the operational, financial, and library needs of the twenty-first century. Decision-makers on campus do not do library research for a decade or more. The process of community intelligence is the process of cultural production, the process of habitus through the arena of education because only through the method of good education will result in an intelligent society. The IDU Library is a student intelligence arena So there is a process of habitus or (Inculcation process) (Bourdieu, 1984). In analyzing the management of IDU's library, the researcher uses five management functions that will be analyzed to describe the scientific literature that occurred in IDU's library;

First is Planning. According to Iskandar (2016: 11) if the plan is taken to the world of libraries is how the resources of the library that can be useful to be given to pemustaka. Planning in IDU Library is implemented based on the 2017 Budget Program Plan based on the needs of the librarian and the library receives inputs from lecturers, students, and organic IDU. Planning the addition of
collections conducted every year with the purpose of meeting the needs of the user. One of the efforts of librarians in achieving IDU library vision and mission is that IDU library has joined with Indonesian Librarian Association (IPI) so that every activity implemented by IPI IDU will get Invitation. The Director of National Library of Indonesia introduces the Deputy of National Library to the Library and is ready to cooperate in the form of MoU. This is a good step as an early stage of cooperation to reach a nationally accredited library. Accreditation by official government institutions is useful to ensure quality and guidance from the government so that the transformation process of literacy can be accounted for.

Second is Organizing. Organizing according to Soleh (2019) is the determination of the structure of roles through the determination of activities needed to achieve the purpose of activities in the library. In organizing Activities in IDU Library carried out in accordance with the main duties and functions of each staff. However, the constraints faced in working IDU library staff is double work, this is due to lack of library staff. Then in organizing the collection is done based on Dewey decimal classification rules.

The third is actuating. Iskandar (2016: 2016) Movement in the library referred to is the ability of leaders in moving the library staff to carry out their duties and responsibilities respectively well and standards. One of his efforts in Mobilizing staff is to provide briefings, counseling even though 15 to 20 minutes about the task, and how the staff provides good service to the user.

The fourth is controlling. Iskandar (2016: 11) Supervision in the library is an activity that can be interpreted to observe, research on all tasks or librarian work undertaken by the library leader. IDU’s leadership or head of library in supervising staff, despite having his own room, he is always mobile and rarely sits on the premises, oversees staff and asks if any staff is not in place.

The fifth is motivating. Understanding of motivation according to Iskandar (2016: 11) is doing, commanding, directing, persuading, encouraging, inspiring librarians to work together to carry out their duties properly. In this case the head of the library inspires staff by delivering important things to the staff during his seminars. Always a briefing every day, to see the progress and if any dissatisfaction with the work of the staff, he called one by one for questioning.

Based on the information of the librarian, collection procurement of Unhan Library do not make own procurement. the collections are adapted to the needs of the students, the study program and the lecturers, so the library takes the steps of making official memos, letters and communicates to give suggestions, input any books required in each study program, either lecturer, and of course the students. Library provides a digital reference that can be accessed through internet facilities provided by the university. Students do not have to visit physically to the library but simply accessed anywhere from the classroom, canteen to the inn.

4. Discussion

Defend of Country (DoC) as mentioned in Law no. 3 Year 2002 Article 9 paragraph 1, 2 (a) (b) (d), About the Defense of the State every citizen shall have the right and obligation to participate in the defense of the state embodied in the administration of state defense. Every citizen shall have the right and obligation to
participate in the defense of the state embodied in the administration of national
defense. The participation of citizens in state defense efforts, organized through
civic education, mandatory basic military training, dedication in accordance with
the profession.

Based on the White Book of Defense (Buku Putih, 2015: 60) in building the
strength of the nation, with all the institutions, principles and conditions that are
believed to be true and used as an instrument of regulating the moral life, identity,
character and identity of the nation based on Pancasila and 1945 of the Republic of
Indonesia RI required commitment and obedience a citizen is a modality capable of
dynamical national development in all fields. In the perspective of state defense the
values of state defense include:
1. Love the homeland
2. Aware of the nation and the state
3. Convinced of Pancasila as the state ideology
4. Sincere sacrifice for the nation and state
5. And have the initial ability to defend the country.

The quality of citizens who have the values of state defense will strengthen
the state defense system in order to maintain the sovereignty of the state, territorial
integrity and the safety of the nation. According to Hastuti (2015) in Tippe (2016:
113) Defense of Country (DoC) is divided into two non physical and
physical. DoC is nonphysical more focused on the growth of awareness, to counter
the threats both coming from within and from outside. It can be done in various
forms, over time and in all situations. Defending the state is physically defined as
the involvement of civilians in the defense efforts of the state with direct
involvement which is commonly known as mobilization.

DoC according to Zamroni (2015: 10) can be interpreted as an effort made
by all elements of the nation in order to safeguard, protect and defend the country
from various threats and disturbances, attacks, and other dangers both coming from
domestic and abroad. Defense Minister Ryamizard Riacudu on April 14, 2016 at
the University of Defense, Sentul-Bogor, in an effort to strengthen state cadres,
emphasized that intellectual cadres defend the country could become a source of
knowledge about defense and defend the country, studied all the books that have
been reviewed and the law, including the 1945 Constitution. (detiknews.com).

Minister of Defense Ryamizard Rycudu, dated March 29, 2016 in the
National Defense and Defense University (Defense) Defense University National
Seminar in Unity in Bhinneka Tunggal Ika Kemhan Hall, Central Jakarta, that:
Students must be insightful archipelago and also claimed to have
personality. Strong components of state defending exist in Higher
Education. Students can become intellectual cadres to defend the country. Rector
of the Defense University of Lieutenant General Wayan Midhio is IDU positioning
his existence as the only University in Indonesia that focuses on the study of
Defense and defend the country. Strategic reviews of defense and defense issues
have been pursued through various educational programs with the aim of producing
a strong state-backed intellectual cadre. On the same occasion Rector IDU said that need to produce intellectual cadres defend the country so as to achieve national goals through a strong state defense system.

Based on the Strategy of National Defense (2015: 138) HR is the most important asset in the state defense effort. The quality and quantity of human resources define the strength of defense, along with the support of defense technology. Military and non-military defense personnel must be well trained and equipped, highly motivated and with a reliable ability to perform their duties and functions in the context of national defense. According to Gumilar (2015: 11) Higher Education is an effective state defense education to prepare the younger generation. The guidance of the young generation into good citizens is an important task for educational institutions in order to realize responsible, effective, and educated citizens based on Pancasila. According to him, the correlation between universities and defending countries where the younger generation obtain education through Tridharma Perguruan Tinggi.

The understanding of Intellectual Cadre of State Defense if described etymologically (origin of word) refers to Indonesian Big Dictionary (KBBI) can be interpreted:
1. The person who is expected to play an important role in government, party, and so on.
2. Intellectual can be interpreted intelligent, intelligent, and clear thinking based on science
3. Bela (Defense) is to take good care, maintain.
4. The State is an organization within a territory which has the highest authority which is lawful and obeyed by the people.

From some of the above concepts, the researcher concludes that Intellectual Cadre of State Defense can be interpreted widely is all citizens who become prospective leaders of state, while narrowly defined are all students who are educated and trained to obtain knowledge (knowledge) about defense issues and state defense, strategic study, state policy, manifested in attitudes (attitude) in the form of self discipline, loyalty and have special skills (skill) in the form of management and leadership insight of Indonesian nationality. So the cadre intellectual defend the country is the one who is expected to hold an important role in government, party, society and so on.

5. Conclusions

The decrease of visits to the Library cannot indicate a decrease in student interest in science literature because in the same year all students load their rich works in the journals of each Study Program. Vision IDU Library itself is to be one of the best Library of Higher Education in Indonesia, it has been achieved in 2016 and 2020 marked with accreditation "A" from the National Accreditation Board. IDU library in managing is good, starting from planning, organizing, implementation, supervision and motivation has been done by library leader. Then with the rule made that is Rule of Rector about Rule IDU number 18 year 2015 about technical instruction of library service of University of Defense, IDU Rector's Regulation number 32 year 2015 about Development of Library Collection of IDU,
Rector Regulation IDU number 26 year 2016 about processing and care of library materials IDU. Then the need to be considered in making the next rule is how the human resources in the library and how they must work to get Trained Librarian (Train Librarian) in serving the scientific literature without limit.

Basically there are three activities undertaken librarians namely procurement, processing, and service. To be able to do these three things there is a big role librarian as a train librarian who really understands the guidebook work. IDU still needs additional librarian with background Library. a librarian train plays an active role in serving researchers, teachers, and students to accelerate the cycle of knowledge and information discovery. With the communication, the transfer of knowledge between librarians to user, shows the thinking Hey (2004) in Suwarsono (2016) running. As the production arena of academic culture and information culture conducted by the entire Academic Society, as according to Bourdieu (1993: 2010) The process of community intelligence is a cultural production, or arena of cultural production in the educational arena, because only with the methods of education Habitus process occurs. So the Library with its peculiarities to form the culture of state defense through the library. With the culture of Bela Negara, the students' curiosity is higher.

Reference