

Developing Tri Kaya Parishida Based Blended Learning Media Using Adobe Captive for Probstat Courses

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ABSTRACT

The objectives of this study ware to: (1) Design TKP based BLM that was based on the needs of students and lecturers for probability and statistics courses at the Informatics Management Department of Politeknik Ganesha Guru; (2) Measure the quality of TKM based BLM that was based on the needs of students and lecturers for probability and statistics courses in the Informatics Management Department of Politeknik Ganesha Guru; (3) Determine student and lecturer responses to the implementation of the TKM based BLM that was based on the needs of students and lecturers for probability and statistics courses in the Informatics Management Department of Politeknik Ganesha Guru; Determine student learning outcomes before and after the implementation of the TKP based BLM in the teaching and learning process. The research conducted at the Politeknik Ganesha Guru. The subjects of the study were students and lecturers at the Politeknik Ganesha Guru who volunteered in the product trials and run trials in this study. The object of this research was the TKM based BLM developed for the Probstat course. The type of research chosen was Research and Development (R&D). Based on the Result and Discussion, it could be concluded that: (1) the TKM based BLM product was developed based on the needs of students and lecturers for probability and statistical courses through the R&D method; (2) the quality of BLM based TKP products scored 91.33, qualified as very good, provided by the content experts and media experts rated the product 91.67 qualified it as very good; (3) students and lecturers responses to the implementation of the TKM based BLM were given an average score of 97.92 qualified as very good; (4) there is a significant difference between the pretest and posttest trials using the TKM based BLM (sig. 0,000 <0.005), an increase in the value of the pretest value 33.74 to 73.6 posttest.

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1. Introduction

The development of teaching and learning during the industrial revolution 4.0 focuses on the new type of literacy that includes internet/big data, technology and humanities. It is developing the humanities by integrating technology during the teaching and learning process at the university. Sufficient infrastructure such as classroom, desk top computer, and internet network at the Politeknik Ganesha Guru is good opportunity to develop Blended Learning and literacy integration. Moreover, adequate hard ware equipment possessed by the students opens the possibility to develop media that lead to a flexible, timeless and borderless learning process.

The observation conducted in 2017-2018 showed that lectures of PGG who tough general subject courses found difficulties in integrating the concept of new literacy in their teaching. One of the general subject courses was the statistic/probstat. The interview conducted on (Thursday, September 12th 2017) with the students of PGG Nurul, Adnyani, and Abdul (students of Informatics management) and the lecture I Wayan Putrawan, S.Pd., M.Pd who tough statistic showed that 1) lecturer carried his teaching by presenting the material using PowerPoint and whiteboard, giving statistic problem, providing guided and independent exercise (teacher centre), 2) collecting data, tabulating data, and data analysis had not been done independently by the students, 3) software for analysing the data such as SPSS, XL Stat, and Minitab was not used effectively, and 4) online learning was not implemented.

Lecturer as the agent of change has to develop and improve his skill and adopt the new technology in his teaching. One of the many ways that can be chosen by lecturer to adapt with the rapid technology development and multiliteracy in the industrial revolution 4.0 is developing learning media for accommodating the student centre learning and learning media which is borderless and timeless. The learning media developed in this current research was the Blended Learning Media (BLM). The BLM developed was an interactive media in which its content supported blended learning.

BLM in this research was the learning media that had offline and online content. The offline content was typically small contents that did not take large storage capacity such as: texts, images, or exercise. The online contents specially developed for contents that needed large storage capacity and require user interface interaction and recording of the result of students assessment. The online contents were video, discussion forum, automatic tabulated online assessment, and collecting the assignment by the students or individual project. Fujiyanto (2016) stated that learning media such as blended learning can improve the outcome of the students learning. Learning media can decrease the level boredom among the students as stated by (Tafonoa, 2018). Kurniati and Nita (2018) stated that interactive learning media had strong theoretical basis that it could improve the students understanding. The development of blended learning in this present research integrated the humanity values and life skill of the Balinese culture that is *Tri Kaya Parisudha* (TKP). TKP is the Balinese local genius that can be implemented in every aspect of human life, one of them is the teaching and learning process.

TKP consists of manacika (think good), kayika (do good), and wacika (speak good). TKP based BLM was not only directed toward the ways of thinking and the manner of speaking and acting but also correspond to the ethic value of learning offline and online. The development of TKP based BLM was using Adobe Captive Software. The Software was chosen in developing responsive BLM because the media generated was suitable for PC, laptop, tablet or Smartphone. Based on those backgrounds, researcher then developed the TKP based BLM using the Adobe Captive for the Probability course.

Learning Media is tool, environment and or any kind of activities specifically crated for students to increase their knowledge, or behaviour cange and skill development (Adnyana dan Citrawathi, 2017). Sanaky (2011), stated that learning media is tool used by the teacher to spread information to the studnts or tool that helps students to gain information.

The present research developed media for offline and online learning widely known as Blended Learning Media (BLM). The BLM was the answer for difficulties in running the learning media that need large storage capacity. BLM used small size contents for offline learning and large size content could be accessed online. The BLM was developed with Adobe Captive (AC).

Adobe captive (AC) was effective software for developing high category learning media (Syam, 2012). AC can be used to create the digital learning media such as software demonstration, software simulation multi scenario, and random quiz in Small Web Format (.swf) and HTML5 (Siegel, 2015). AC has number of advantageous features, such as: 1) it can be used to develop various type of media, like video demo, simulation, responsive project or adopting from the existing file from the power point then combine those files, 2) it can be used to create exercise and assessment I the form of multiple choice, matching, short answer filling the blank, and rearrange sequences, 3) it is suitable for .mp4, .swf, .apk, .app, .axe and can be published in LMS to adobe captive prime. The development of *Tri Kaya Parishuda*

based BLM developed using Adobe Captive is a breakthrough in learning media development to integrate the local wisdom in enhancing national character (Danim, 2010).

The development of *Tri Kaya Parisudha* based BLM was creating learning media in which its content can be accessed both online or offline where the stages of the learning process were organized trough the *Tri Kaya Parisudha* concept that is *manacika* (think good), *wacika* (speak good) and *kayika* (do good). The Adobe Captive software was used in the development of learning media for statistics (Probstat) courses.

2. Methods

The research was conducted at the Politeknik Ganesha Guru. The subjects (respondents) of the

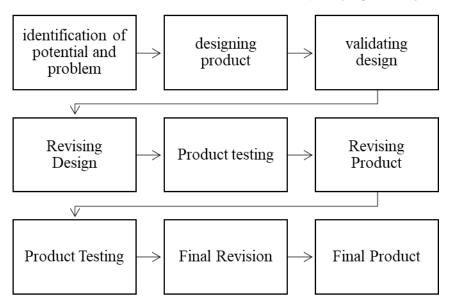


Figure 1. Procedure of *Research and Development (R&D)* adopted from Sugiono

Research were the students and lecturers of Politeknik Ganesha Guru, media experts and content experts. The object of the research was TKP based BLM developed for the Probstat course. The research was R&D research. The procedure of the research adopted the Sugiyono models (Sugiyono, 2013 & Emsir, 2015). The devlopment procdures is presented on figure 1:

The measurement tool used in the development was questionnaire for response given by lecturer and students, questionnaire for media expert, questionnaire for content experts and learning outcome test. Questionnaire was analyzed descriptive qualitatively and learning outcome test was analyzed using tpair test to identify the difference of the learning outcome before and after the implementation of TKP based BLM.

3. Result And Discussion

The research on the "Development of *Tri Kaya Parisuda* based Blended Learning Media using Adobe Captive for Probstat course in Politenik Gansha Guru" was a research and development. The procedure was adopted from Sugiyono (Sugiyono, 2013 and Emzir, 2015). The research was done with the following detail:

The problem and potential identification were done through the process: (a) observed infrastructure and facilities that would be used in the implementation of TKP based BLM for the Probstat course at the Informatics Management in Politekhnik Ganesha Guru and (b) interviewed the lecturer and students. Based on the observation, it could be stated that 1) infrastructure and facilities were sufficient, indicated by the availability of the desk top computer, students had laptop, and students had Smartphone. Besides, the WIFI network at the campus was available and in good condition. Also, students were able to buy internet credit for their Smartphone.

The information used to design the TKP based BLM was gathered trough need analysis. The TKP based BLM was designed using the information gathered from the potential and the need analysis. The

results of the need analysis were presented as follow: (1) Learning media had to accommodate student to study independently which then directing them into a student centre learning and media for learning had to be eye-catching, (2) besides concept understanding, the media had to be directed to give students chance to collect data, tabulate it and then analyse the data descriptively trough the existing technology. It is important for vocational students to practice something that they probably need in their life. (3) Media had to provide online content therefore it could be accessed wisely by the students, (4) the learning media had to have simple layout and easy to use. The next steps were to review the lesson plan for the Probstat courses and the teaching material. The information that had been collected then brought to Focus Group Discussion (FGD). The FGD was directed to discuss further development of the material. The FGD included the expert team, developer team, and researcher.

The FGD was held on May, 23rd 2019. Based on the FGD, it could be concluded that (1) the material of the TKP based BLM ought to be implementative and could be applied as a part of students skill, (2) The material in the media included concept understanding, tutorial for data collection, data tabulation, and data analysis using computer technology. Those materials were (a) quantitative measurement scale (nominal, ordinal, interval and ratio), (b) the use of Google form to collect data, (c) the use of MS Excel/SPSS in tabulating and presenting the data and (d) the use of MS Excel/SPSS for analysis data statistically. (2) the product ought to be (a) characterized the blended learning media (b) the learning steps indicated *manacika* (think good), *kayika* (do good) and *wacika* (speak good). The result of the FGD was then used to design the product.

The TKP based BLM was designed based on the potential and the result need analysis. This design was brought to FGD to get the design validation. The process of validation was conducted by the content expert and learning media expert. Those experts gave suggestions to the developed material. The suggestion was used for further development of the media. It was gathered trough questionnaire during the discussion process. The FGD was held on June 10^{th} 2019. The documentation of the FGD session is presented on Figure 2.



Figure 2. FGD Discussing the result of the preduct design

The experts involved in validating the prototype design were Dewa Gede Agus Putra Prabawa, S.Pd., M.Pd. and Komang Hari Santhi Dewi, S.Pd., M. Pd. The experts for validating the media were Luh Putu Cintya Prabandari, S.ST. M.T. and Gede Arna Jude Saskara S.T., M.T. The suggestions provided by the media experts were: (1) there was no need to use excessive links on the slide, but use button or drop down that presented content of the button, (2) the guidance to use the media had to be added. The suggestion given by the content experts was the button that directed the user to list of the material page was not required because after the students finished their exercise they could only proceeded to the next material or went back to the previous material.

Based on the suggestion provided by the experts, design revision was conducted to have the final product of TKP based BLM. The layout of the product is presented blow:

a. Home page



Figure 3. Home page

b. Home page display

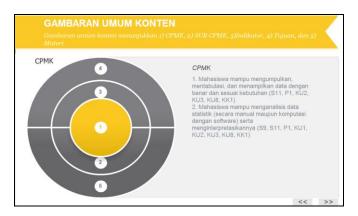


Figure 4. Home page display

c. The guidance of using the media

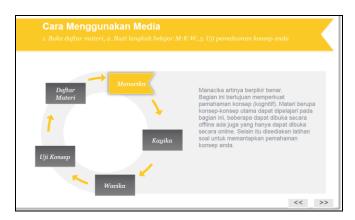


Figure 5. The guidance of using the media display

d. List of material display

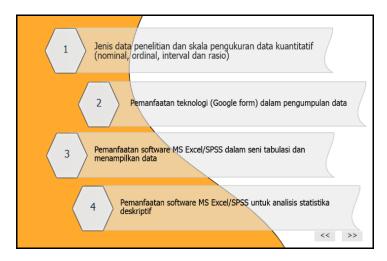


Figure 6. Display the list of the material

e. Example of the offline material

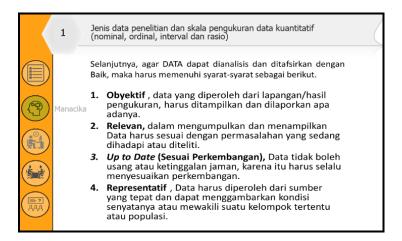


Figure 7. Display of the offline material

f. Example of the online material



Figure 8. Display of the online material

g. Example of the question on excercise and the result



Figure 9. The display of the question for exercise



Figure 10. Lay out of the result of the excercise

The finished product was then tested. The test was conducted on August 5th 2019 by using the product on a small group of 1 lecturer and 6 students. The test is presented on Figure 11. The test was conducted to understand the effectiveness of the TKP based BLM. The result of the test was gathered trough questionnaire and interview. The result of the test was used for further development.



Figure 11. Test on the small group

There were 6 students participated on the test, they were Ni Ketut Suryani, Gusti Made Suardana, I Gusti Ngurah Agus Bayu Teja, I Wayan Kusumayasa, KAdek Resa Yudha Lesmana, Made Budiawan. The

lecturer was I Wayan Putrawan, S.Pd., M.Pd. The lecturer said that the product of TKL based BLM was positive and good and for the suggestion there was no remark.

The respond given by studnts was tabulated below.

$$= \frac{\sum percentage \ of \ expectd \ answer}{number \ of \ question} = \frac{1566,67}{16} = 97,92$$

In order to make decision the table for conversion is need. The table is resented below:

Table 1. Convertion for level of achievment

Level of achievment (%)	Qualification	remark
90-100	Very good	No revision needed
75-89	Good	No revision needed
65-74	Enough	Revision needed
55-64	Poor	Revision needed
0-54	Very poor	Revision needed

The conversion results in Table 1 show the score for the students response is 97.92, classified as very good so the product does not need to be revised. There were things that should be considered to improve the quality of the products, namely: (1) One students or 16.67% of students state that the use of TKP based BLM did not facilitate the learning process of Probability and Statistics Courses; (2) One student or 16.67% of students stated that online material provided in the TKM based BLM did not facilitate student to study whenever and wherever they wanted; (3) One student or 16.67% stated that there were some of BLM based BLM components that needed to be added. In addition there are a number of notes given in the information and advice column written by students that need to be considered, including: (1) Please added instructions on what to do after answering the questions after selecting an answer and clicking send to continue for that question (Gusti Made Suardana); (2) Adding the exit button and clear homepage at the end of the BLM material (Gusti Made Suardana); (3) Add backsound to the video to make it interesting (Kadek Reza Yudha Lesmana); and (4) Videos should be offline so students who do not had an internet connection did not experience difficulties (I Made Budiawan). Suggestions 1, 2, and 3 could be used to make revisions, while 4 was not because at least students can access video material on campus using Wifi.

The result of the test conducted on the small group was then discused again on the FGD. The discussion was held on Wednesday, Agust 7^{th} 2019. The FGD discussed the result of the product testing, suggestion given by the respondent and expert team. The documentation of the FGD is presentd on Figur 12.



Figure 12. FGD discussing the result of the product

FGD was commenced by presenting the product then presenting the data and suggestion gathered during the test on the small group. The content experts and the media experts answered the questionnaire to give suggestion on the product. The result of the questionnaire is presented below:

Table 2. Result of the questionaire gathered from content expert

Aspect	Indicators	Content	Content analysis	
		I	II	
Aim of media development	Develop the students ability in gathering presenting and analysing statistical data trough th process of Tri Kaya Parisuda based leraning.	5	5	5
General	Clarity of CPMK and Sub CPMK	4	5	4.5
description	Accordance of indicators, objective and leraning materials	4	5	4.5
The procedure of implementing the	Availabity of clear procedure to use the material	4	5	4.5
media Content quality	Materials match the CPMK of the probsat and statistics courses	4	5	4.5
	Easy to understand materials	5	4	4.5
	Materilas that meet the need of the students	5	4	4.5
	Materials direct the students to improve their knowledge, skill and value	4	4	4
	Selection of <i>online</i> and <i>offline</i> content that meet the criteri of <i>blended learning media</i>	5	5	5
	Selection of content based on <i>Tri Kaya Parisudha</i> namely <i>Manacika, Kayika</i> and <i>Wacika.</i>	5	5	5
Quality of the	Clarity of the langauge used	4	3	3.5
language	Accuracy of the language and user	5	4	4.5
Exercise	Simplicity of the exercise direction	5	5	5
	Exercise matches the materials	5	5	5
	Availabity of the score and answer for the exercise	5	4	4.5
total		69	68	68.5
Score scale (1-100)		92.00	90.67	91.33

The result of the conversion can be seen on Table 2. It shows that the average rating given by the content experts is 91.33, qualified as excellent. It means that the product does not further revision. However, the suggestion given by the experts need to be considered for perfecting the product. The result of the questionnaire provided by the media experts is presented below:

Table 3. Result of the qustionaire by the media experts

		Media expert		Average
Aspect	Indicator	I	II	
Motivasiion	 TKP based BLM can motive students. 	4	5	4.5
	2) TKP based BLM makes the statistics course interesting.	5	5	5

		Media expert		Average
Aspect	spect Indicator		II	
Desaign Presentation	clear color contrast between the font and figure	5	5	5
	4) simple material display	5	5	5
	5) figure matches the material and audion	4	3	3.5
Interaction simplicity	6) fucntional button	4	4	4
	7) easy interface	4	5	4.5
	8) Easy to acces the list of material	5	5	5
Access simplicity	9) Media provides easy acces to online file and audio-vidio		5	5
	 Media provides easy access in selcting the metrial and concept understanding exercise. 	5	5	5
	11) Control and design format accommodate the variation of the students.	4	4	4
Modivication simplicity	12) The ability of the media to e used for various lernaing variation especially for the belnded lernaing	4	5	4.5
Jumlah		54	56	55
Nilai sekala (1-100)		90.00	93.33	91.67

The result of the conversion can be seen on Table 3. It shows that the average rating given by the media experts is 91.67, qualified as excellent. It means that the product does not further revision. However, the suggestion given by the experts need to be considered for perfecting the product.

The revision of the products was conducted based on the result of the product testing conducted on the small group and the result of the FGD attended by media and content experts. Before the revision, the models that wore Balinese traditional cloth were taken. The picture taken then transformed into black and white cartoon figure stored on the .png format. The suggestion from the content experts included: (1) use video to replace the PowerPoint. Video could improve the learning motivation. Material that included theoretical understanding could be carried out during classroom meeting. (Dewa Gede Agus Putra Prabawa, S.pd., M.Pd.) The result of the revision is presented in figure 11.

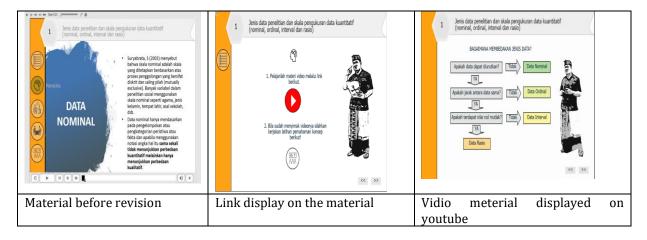


Figure 11. Revise the material into simple audio-vidio form

(2) Small box must be added in the media, e.g. the box that says "*Tahukah Anda?*" which contained definition of statistics, the importance of statistics for human life or inspiring things about statistics that in turn gave positive impact to the students. (Komang Hari Santhi Dewi, S.Pd., M.pd.) Figure 13 is an example of the "*Tahukah Anda box*.

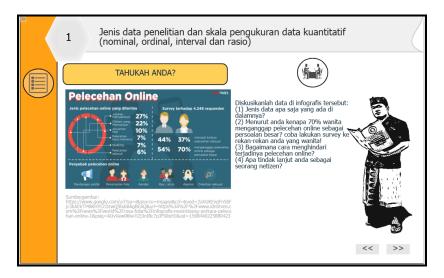


Figure 13. Example of the "Tahukah anda?" box

Suggestions given by the media expert were (1) there were too much buttons on the material that were confusing and inefficient. The problem could be simplified by putting table of content (TOC), placed on the left corner or right corner of the media. (Gede Arna Jude Saskara S.T., M.T.)



Figure 14. Ommiting button and adding TOC

(2) For the exercise, after answering the question and submit, there had to be an additional information of "klik sembarangan untuk melanjutkan" in order to avoid confusion among the novel user of the media. (Luh Putu Cintya Prabandari, S.ST., M.T.)

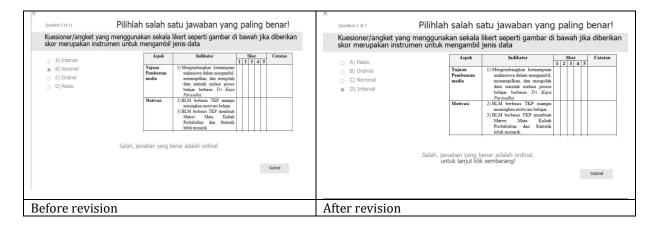


Figure 15. Revision for the addition of exercise instruction

- (3) Back sound had to be added, especially for the opening and closing session of the media and back sound on material explanation had to have appropriate volume and music instrument in order to give convenience to the students. (Gede Arne Jude Saskara, S.T., M.T.)
- (4) Default assets of the AC were avoided to be used in the model. It was better to us picture/cartoon figure complete with its traditional cloth to elevate the Balinese culture/local wisdom. (Gede Arne Jude Saskara, S.T., M.T.)

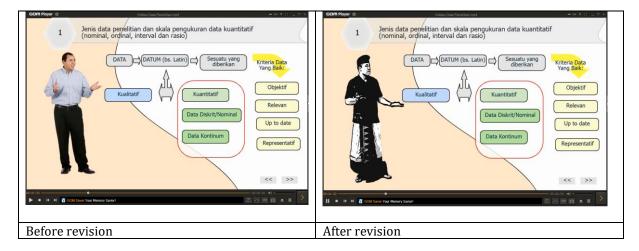


Figure 16. Asset canging for th model

After the product test was conducted, the second testing was commenced. The second testing was conducted using the pre-experimental design that was one-group pre-test-post design. The TKP based BLM was tested to 26 students. The normality test was conducted before the trial run (Yamin & Heri, 2014), presented on the Table 4.

Table 4 Th result of Normality tets of the data distribution

	Kolmogor	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.	
Pretest	.136	26	.200*	.940	26	.134	
Postest	.159	26	.090	.963	26	.451	

The table 5 presents the result of the normality test using Kolmogorov-Smirnov and Shapiro-Wilk. The significance of the pre-test and post-test was >0.05, that was 0.200 and 0.090. This means that the data distribution of the pre-test and post-test is normal. The analysis of paired t-test was conducted (Yamin & Heri, 2014). The result of the t pair test is presented on Table 5.

Table 5. The result of paired t-test

Mean		t pair			
Pretest	Posttest	test	sig.	Correlation	Sig.
33.74	73.60	40.406	0.000	0.951	0.000

The result of paired t-test was 40.406 with significances 0.000 < 0.005. It means that there was significance difference between the pre-test and post-test on the second test of the TKP based BLM. Based on the result of the paired t-test result, it could be concluded that the post-test was higher than the pre-test. The average value of the pre-test was 33.74 and the post-test was 73.6; the learning outcomes of the students improved by 39.8 after the implementation of TKP based BLM. The result of the correlation test of the pre-test and post-test was 0.951 with significance 0.000; it indicates there was significant relationship between the pre-test and post-test. It can be said that the prior knowledge (pre-test) has significant effect on the learning outcome (post-test)

The TKP based BLM affected the learning outcome. Based on the interview, BLM made the Statistics and Probsat course easy to understand. It was because: (1) students felt the video (audio visual) was easier to understand than reading book, moreover it could be accessed online; (2) TKP based BLM was easy and simple media to use; (3) the materials were simple and easy to learn; (4) TKP based BLM focused on collecting data, presenting the data, analyzing the data, and interpreting the data and it can be used for daily activity. There was no suggestion given by the students. The final revision was for adjusting and tiding the components of the TKP based BLM. The product then distributed to other lecturers to be implemented in their course especially who tough the statistic and Probstat course.

Blended learning is the integration of offline learning and online learning (Cheung & Hew, 2011)(Sharma & Barrett, 2011). DEECD (2012) stated that blended learning is learning model that integrates students center learning, traditional learning and online learning to harvest the potential of education system. Obiedat at all (2014) showed that blended learning affected the academic achievement. Dwijayanti et. all (2018) stated that there was significant differences on students classical learning outcome between the students who used PowerPoint and students who used interactive media.

Blended learning was interactive learning media will have its full potential if it is supported by the learning media. Sanjaya (2014) stated that learning media is collection of interesting learning information in the form of medium or every form of no personal communication delivered to students therefore the learning goal could be effectively achieved. Irmayanti et all (2017) defined the learning media as (1) medium for spreading massage, information or learning material to students, (2) modified components to stimulate the independent learning for students, (3) physically presented massage to motivate or stimulate independent learning for students, and (4) any form of communication that will stimulate the students to learn the material trough visual, audio and audio-visual.

The TKP based BLM fulfilled of those specifications. It simplified the knowledge transfer from the lecturer to students. This media directed the students into independent learning for improving their learning outcome for Probstat and statistics courses. The use of the media was not technology dependant and relied greatly on the creativity of the teacher. Blended learning media directed the learning process into independent learning. Online material enables the flexible learning.

Suhardana (2007) stated that *Tri Kaya Parisudha* (TKP) is a Balinese Hinduism teaching that focus on thinking, speaking and doing good. The teaching can be implemented into daily life. The teaching is basic foundation for implementing the character building for students Suhardana (2007). Artini (2016) conducted research on the implementation of *Tri Kaya Prisudha* in teaching and learning process and found that (1) *manacika* (good thinking) was the basis for speaking good (*wacika*) and doing good (*kayika*) (2) the *tri kaya parisudha* also affected positively the social science teaching and learning process for elementary school in Sukasada district (Irmaynthi et all 2017). The TKP based teaching and learning opened the chance to practice the enhanced the concept understanding (*manacika*), practiced the skill for proposing idea and opinions verbally (*wacika*), and developed the psychomotor skill (*kayika*). TKP based BLM was designed for independent learning that involved thinking (*manacika*), doing (*kayika*) and presenting/discussing (*wacika*). The TKP based learning was expected to direct the students to study systematically and independently in constructing the knowledge and skill.

The implication of developing TKP based BLM was efficiency on the application of inactive media as material could be accessed offline and online accommodating the need of the lecturer and students. The steps of TKP based BLM built the thinking skill, strengthening concept understanding, developing psychomotorics skill, and developing the skill in proposing idea and opinion verbally. For the future development, TKP based BLM must be directed into responsive design therefore it could be accessed

trough desktop computer, laptop, tablet or Smartphone. Theoretically, the development of TKP based BLM enriched the classification of the learning media. The new type of media will be a media that is efficient and developed based on the local genius and wisdom which in turn drive students onto classical and independent learning.

4. Conclussion

Based on the result and discussion, it could be concluded that (1) the TKP based BLM for probability and statistic course that meet the need of lecturer and students was successfully developed, (2) the quality of the TKP based BLM as very good with the average score of 91.33 provided by the content expert and the average score provided by the media expert was 91.67 categorized as very good, (3) the respond of the lecturer and students was very good with average score of 97.92, (5) there was significant differences between the pre-test and post test during the trial run test of the TKP based BLM (sig. 0.000 < 0005), there was improvement observed, the score of the pre-test was 33.74 and the score for post test was 73.6.

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