The effectiveness of implementing ANEKA-THK-based countenance evaluation application at IT vocational schools in Bali

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Abstract. Successful implementation of an application on a large scale depends on the effectiveness of the operational test results on the application. The main objective of this research was to demonstrate the effectiveness of the implementation of the ANEKA-THK (ANEKA-Tri Hita Karana)-based Countenance evaluation application at IT Vocational Schools in Bali. This research was development research with the development model was the Borg & Gall that focuses on the operational test phase to obtain the effectiveness level of implementing the evaluation application. A total of 114 people were included as respondents in this research. Questionnaires were used as tools for assessment in the operational test by respondents. The analysis technique was used in this research was quantitative descriptive, so that the results were obtained in the form of an effectiveness percentage of the implementation of ANEKA-THK-based Countenance evaluation application was 88.67% from usage test results by experts and 89.93% by teachers and students.

1. Introduction

Evaluation activities have the principle of obtaining information related to the state of an object being observed and then providing recommendations for improvement if an imbalance or problem is found in the object. Many evaluation models can be used to evaluate the learning process. The selection of the evaluation model must be adjusted to the object that is the evaluation focus.

One evaluation model that is often used to evaluate the learning process is Countenance. This evaluation model has two main components for evaluating, such as: the description matrix and the judgment matrix [1-6]. The description matrix is used to explain the existence and initial conditions of the learning process. The judgment matrix is used to compare the findings obtained in the learning process with established learning evaluation standards. Even though the Countenance model is suitable for evaluating the learning process, problems will occur if the implementation is still conventional. Some of those problems include: the evaluation will take a long time, the calculation process is not accurate, and the determination of recommendations is not fast. One effort that had to be made to anticipate it was to make an application of ANEKA-THK-based Countenance evaluation application [7].

This evaluation application can be realized by combining the educational evaluation model, ANEKA concept, and the concept of Balinese local wisdom, namely THK (Tri Hita Karana). The word ANEKA is an acronym for the following Indonesian words: Akuntabilitas, Nasionalisme, Etika publik, Komitmen mutu, and Anti korupsi. ANEKA is a concept that is implanted to prospective civil servants...
through internalizing attitude values. That attitude values, such as: accountability, nationalism, public ethics, quality commitment, and anti-corruption in themselves, to carry out their duties properly as a servant of the state serving the community [7,8]. The THK concept is local wisdom in Bali that teaches everyone to be able to make good and harmonious relationships, both of which occur between humans and God, humans with each other, and humans with the surrounding natural environment [9-11].

That ANEKA-THK-based Countenance evaluation application was able to be used to measure the quality of students’ abilities and character of students in following the learning process. But, the step of usage test to determine the effectiveness level on the application had not yet been carried out. The usage test of that application should be carried out for the first time at IT vocational schools, especially in the Province of Bali. It is because IT vocational schools are a school with academic nuances in the computer field so that it has a high tendency to be negatively affected by advances in information technology. The selection of Bali as the usage test area, cause the reason that the THK concept is familiar and has become a pattern of daily life for people in Bali.

Based on that situation, so the research question of this research is how the effectiveness of the implementation of the ANEKA-THK-based Countenance evaluation application in IT Vocational Schools in Bali Province? Referring to that problem statement, the purpose of this research is to know the effectiveness percentage of the evaluation application implementation.

There were four results of previous studies that become the main reasons for this research. The research was conducted by Ahyanuardi and Ratih in 2019 [11] showed the existence of the effectiveness test of instructional media that was applied at the high school level. In principle, the research was conducted by Ahyanuardi and Ratih has similarities with this research mainly related to testing the effectiveness of a web-based application. The difference lies in the function of the object that was studied. Ahyanuardi and Ratih’s research was more focused on learning media that functions as a learning resource. In contrast, this research was focused on evaluation applications that serve as tools to evaluate the learning process. The research that was conducted by Limatahu et al. in 2017 [12] showed the effectiveness testing of the CCDSR (Condition-Construction-Development-Simulation-Reflection) model that was used to measure the skills of physics teachers in making a lesson plan and worksheet SPS (Science Process Skill). Research Limatahu et al. has similarities with this research in terms of skills measurement, while the limitation of the Limatahu et al.’s research was not yet showed of attitude measurement.

The research was conducted by Suyatna et al. in 2018 [13] showed the effectiveness of testing the learning resources in the form of e-books that were used to support the learning process to improve students’ critical thinking skills. Limitation of Suyatna et al.’s research was not demonstrated yet the existence of effectiveness testing of learning resources was able to be used affects student attitudes, because in principle, more focused on the cognitive aspects of students. Research that was conducted by Sunarti et al. in 2017 [14] showed the effectiveness testing of the CPI (Construction-Production-Implementation) model, which was used to increase the interest in scientific iterations and the positive attitude of physics teachers towards science. The similarity of Sunarti et al.’s research with this research has the same principles for measuring cognitive and affective abilities through a learning process. The difference lies in the object that was studied, where the research Sunarti et al. more focused on the implementation of the CPI model that was conducted conventionally. In contrast, this research was focused on the ANEKA-THK-based Countenance model, whose implementation was more likely to use a computer application in the web form.

2. Method

This research was development research with a research design that follows the Borg and Gall stages, that consist of several stages, such as: 1) research and information collecting, 2) planning, 3) develop a preliminary form of product, 4) preliminary field test, 5) main product revision, 6) main field test, 7) operational product revision, 8) operational field testing, 9) final product revision, and 10) dissemination and implementation [15-18]. Especially in 2020, this research was focused on the usage
test phase of evaluation applications. The number of respondents that were involved in the usage test was 114 respondents. Data collection tools in this research were questionnaire instruments. The number of instrument items that were used in the usage test was 15 items. The location of usage test was done at the IT Vocational Schools spread over at six districts in Bali. The analysis was conducted on the usage test results using quantitative descriptive techniques. The quantitative descriptive technique that was used in this research was to compare the effectiveness percentage of usage test results with the effectiveness percentage standards that refer to five scales. The effectiveness score calculations of usage test results using the formula of the effectiveness percentage shown in equation (1) [19], while the effectiveness standard scores referring to the five scales can be seen entirely in Table 1 [19,20].

\[
\text{Effectiveness Percentage} = \frac{\sum (\text{Respondents Answer} \times \text{The Weight of Each Respondents Answer Choice})}{n \times \text{Highest Weight}} \times 100\% \tag{1}
\]

Notes: \( n \) = the total number of questionnaire items, and \( \sum \) = total

### Table 1. Percentage of effectiveness standards referring to five scales

| Category          | Poor | Less | Enough | Good | Excellent |
|-------------------|------|------|--------|------|-----------|
| Follow-up         | Revision | Revision | Revision | No Revision | No Revision |
| Usage test %      | 0-54 | 55-64 | 65-79  | 88-89 | 90-100    |

3. Results and Discussion

The usage test of the ANEKA-THK-based Countenance evaluation application was conducted by two educational experts, two informatics experts, 30 teachers, and 80 students from several IT Vocational Schools in Bali Province. The usage test results by experts can be seen in Table 2, while the usage test results by teachers and students can be seen in Table 3.

### Table 2. Usage test results of ANEKA-THK-based countenance evaluation application by experts

| No Respondents | Items- | Effectiveness Percentage (%) |
|----------------|--------|-----------------------------|
|                | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | ∑                           |
| 1 Education Expert-1 | 5 4 5 4 4 5 4 5 4 4 4 5 4 4 4 | 65 86.67 |
| 2 Informatics Expert-1 | 5 4 5 4 4 5 4 5 4 5 4 5 4 5 4 | 67 89.33 |
| 3 Education Expert-2 | 5 4 5 4 4 5 4 5 4 5 4 5 4 5 4 | 67 89.33 |
| 4 Informatics Expert-2 | 5 5 5 4 4 5 4 5 4 5 4 5 4 5 4 | 67 89.33 |
| Average            | 88.67 |

### Table 3. Usage test results of ANEKA-THK-based countenance evaluation application by teachers and students

| No Respondents | Items- | Effectiveness Percentage (%) |
|----------------|--------|-----------------------------|
|                | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | ∑                           |
| 1 Teacher-1    | 5 4 5 4 4 5 4 5 4 4 4 5 4 4 4 | 68 90.67 |
| 2 Teacher-2    | 5 4 5 4 4 5 4 5 4 5 4 5 4 5 4 | 67 89.33 |
| 3 Teacher-3    | 5 4 5 4 4 5 4 5 4 4 5 4 5 4 5 | 67 89.33 |
| 4 Teacher-4    | 5 4 5 4 4 5 4 5 4 4 5 4 4 5 4 | 67 89.33 |
| 5 Teacher-5    | 5 4 5 4 4 5 4 5 4 4 4 4 4 4 4 | 66 88.00 |
| 6 Teacher-6    | 5 4 5 4 5 5 4 5 5 4 5 5 5 4 4 | 69 92.00 |
| 7 Teacher-7    | 5 4 4 4 5 5 5 4 4 4 4 4 4 4 5 | 67 89.33 |
| 8 Teacher-8    | 5 4 4 4 5 5 4 4 4 4 4 4 4 4 5 | 68 90.67 |
| 9 Teacher-9    | 5 5 5 4 4 5 5 4 4 4 4 4 4 4 5 | 69 92.00 |
| 10 Teacher-10  | 5 4 4 5 5 4 4 4 4 4 5 5 5 4 4 | 68 90.67 |
| 11 Teacher-11  | 5 4 5 4 4 4 4 5 5 4 4 4 4 5 4 | 66 88.00 |
| 12 Teacher-12  | 5 4 4 5 5 4 4 5 5 4 5 5 4 4 5 | 67 90.67 |
| 13 Teacher-13  | 5 4 4 5 5 4 4 5 5 4 5 5 4 4 5 | 67 90.67 |
| 14 Teacher-14  | 5 4 4 5 5 4 4 5 5 4 5 5 4 4 5 | 69 92.00 |
| 15 Teacher-15  | 5 4 5 4 5 4 4 5 5 4 4 5 4 4 5 | 65 86.67 |
| No | Respondents  | Items- | Effectiveness Level of Evaluation Application | Percentage (%) |
|----|--------------|--------|---------------------------------------------|-----------------|
|    |              | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | ∑ |                  |
| 16 | Teacher-16   | 4 5 4 5 5 5 4 4 4 4 5 5 5 4 67 | 68 | 90.67            |
| 17 | Teacher-17   | 5 4 5 4 4 4 4 4 4 5 4 5 4 5 65 | 65 | 86.67            |
| 18 | Teacher-18   | 4 5 4 5 5 5 4 4 4 5 5 5 5 68 | 68 | 90.67            |
| 19 | Teacher-19   | 5 4 5 5 4 4 4 4 4 4 5 4 5 4 66 | 66 | 88.00            |
| 20 | Teacher-20   | 4 5 4 5 5 5 5 5 5 4 5 5 5 4 70 | 70 | 93.33            |
| 21 | Teacher-21   | 5 4 5 4 4 4 4 4 5 4 5 5 4 4 65 | 65 | 86.67            |
| 22 | Teacher-22   | 4 5 5 5 5 5 5 5 5 4 5 5 4 5 71 | 71 | 94.67            |
| 23 | Teacher-23   | 5 4 5 4 4 5 5 4 4 4 5 4 5 4 66 | 66 | 88.00            |
| 24 | Teacher-24   | 4 5 5 5 5 5 4 4 4 5 5 5 4 4 67 | 67 | 90.67            |
| 25 | Teacher-25   | 5 4 5 4 4 4 5 4 5 4 5 4 5 5 66 | 66 | 88.00            |
| 26 | Teacher-26   | 4 5 4 5 5 4 5 4 5 4 5 4 4 4 66 | 66 | 88.00            |
| 27 | Teacher-27   | 5 4 5 4 4 4 4 4 5 4 5 5 4 5 65 | 65 | 86.67            |
| 28 | Teacher-28   | 4 4 4 5 5 4 5 4 5 4 5 5 5 4 67 | 67 | 89.33            |
| 29 | Teacher-29   | 5 4 5 4 4 5 5 4 4 4 5 4 5 5 66 | 66 | 88.00            |
| 30 | Teacher-30   | 5 5 4 5 5 4 5 5 4 5 5 5 5 4 69 | 69 | 92.00            |
| 31 | Student-1    | 5 4 5 4 4 5 4 4 5 4 5 5 5 4 68 | 68 | 90.67            |
| 32 | Student-2    | 5 4 5 5 5 4 5 4 5 5 5 5 4 4 69 | 69 | 92.00            |
| 33 | Student-3    | 5 5 4 5 4 5 5 5 5 5 4 4 5 5 70 | 70 | 93.33            |
| 34 | Student-4    | 4 5 4 5 5 4 5 4 4 4 5 5 5 4 67 | 67 | 89.33            |
| 35 | Student-5    | 5 4 5 4 5 5 5 5 5 5 5 5 4 5 70 | 70 | 93.33            |
| 36 | Student-6    | 4 5 4 5 5 4 4 4 4 4 4 5 5 4 65 | 65 | 86.67            |
| 37 | Student-7    | 5 4 5 5 5 4 4 4 5 5 5 5 5 4 71 | 71 | 94.67            |
| 38 | Student-8    | 4 5 4 5 5 4 4 4 4 4 4 4 5 5 66 | 66 | 88.00            |
| 39 | Student-9    | 5 4 5 5 4 5 5 5 5 5 5 4 4 5 71 | 71 | 94.67            |
| 40 | Student-10   | 4 5 4 5 5 4 4 4 4 4 4 5 5 4 65 | 65 | 86.67            |
|    |              |        |                                             |                 |
|    |              |        |                                             |                 |
|    |              |        |                                             |                 |
|    |              |        |                                             |                 |
|    |              |        |                                             |                 |
|    |              |        |                                             |                 |
| 90 | Student-60   | 5 4 4 4 5 4 4 4 5 4 4 4 5 5 66 | 66 | 88.00            |
| 91 | Student-61   | 4 5 5 5 4 5 4 5 5 5 4 5 5 5 68 | 68 | 90.67            |
| 92 | Student-62   | 5 4 4 4 5 5 5 5 5 5 4 5 4 4 68 | 68 | 90.67            |
| 93 | Student-63   | 4 5 5 5 4 4 4 4 5 4 5 5 5 5 67 | 67 | 89.33            |
| 94 | Student-64   | 5 4 4 5 5 5 4 5 5 5 4 5 4 4 66 | 66 | 88.00            |
| 95 | Student-65   | 4 5 5 4 4 5 4 5 4 5 4 5 4 5 68 | 68 | 90.67            |
| 96 | Student-66   | 4 5 4 4 5 4 5 5 5 5 5 5 4 4 68 | 68 | 90.67            |
| 97 | Student-67   | 4 5 4 4 5 4 4 5 5 4 5 5 5 5 69 | 69 | 92.00            |
| 98 | Student-68   | 5 4 4 5 5 4 5 5 4 4 4 5 5 4 67 | 67 | 89.33            |
| 99 | Student-69   | 4 5 5 4 4 4 4 5 5 5 5 5 4 5 68 | 68 | 90.67            |
| 100| Student-70   | 5 4 4 5 4 5 4 5 5 5 4 5 4 5 67 | 67 | 89.33            |
| 101| Student-71   | 5 4 5 4 4 4 4 5 5 5 5 4 5 4 67 | 67 | 90.67            |
| 102| Student-72   | 4 5 4 5 5 5 5 5 5 5 4 4 4 5 68 | 68 | 90.67            |
| 103| Student-73   | 5 4 5 5 4 4 4 4 5 5 5 5 4 4 67 | 67 | 89.33            |
| 104| Student-74   | 5 4 5 5 5 5 5 5 5 4 4 4 4 4 67 | 67 | 89.33            |
| 105| Student-75   | 4 5 4 5 4 4 4 4 5 5 4 5 5 5 68 | 68 | 90.67            |
| 106| Student-76   | 5 4 5 5 5 5 5 5 5 4 4 4 4 4 67 | 67 | 89.33            |
| 107| Student-77   | 4 5 5 4 4 4 4 4 5 5 5 5 4 5 67 | 67 | 89.33            |
| 108| Student-78   | 5 4 4 5 5 5 5 5 5 4 4 4 4 4 67 | 67 | 89.33            |
| 109| Student-79   | 4 5 5 4 4 4 4 4 5 5 5 5 4 5 67 | 67 | 89.33            |
| 110| Student-80   | 5 4 4 5 5 5 5 5 4 4 4 4 5 5 68 | 68 | 90.67            |

| Average | 89.93 |

Based on the data shown in Table 2 and Table 3 above, it appears that usage test results by experts showed the percentage average of effectiveness was 88.67% and usage test results by teachers and students showed percentage average of effectiveness was 89.93%. It showed the effectiveness level of implementing ANEKA-THK-based Coun tenance evaluation application at IT Vocational Schools in Bali province included in the good category. Therefore, in general, it can be said that there is no need for major or minor revisions to that evaluation application. Data in Table 2 or Table 3 also showed there were 15 instrument items used as indicators of the effectiveness measurement of the evaluation application. Those instrument items, such as item-1 about suitableness the appearance of the design and function of the login form, item-2 about the completeness of the features available in the main menu, item-3 about the completeness of the features available on the input form of evaluation.
indicators, item-4 about the completeness of the features available in the input form of the respondent’s assessment to the evaluation aspects, item-5 about the completeness of features available in the evaluator identity data input form, item-6 about the completeness of features available on the antecedent form in the description matrix, item-7 about the completeness of features available on transaction form in the description matrix, item-8 about the completeness of the features available in the outcomes form in the description matrix, item-9 about the completeness of features in the judgment matrix form had referred to aspects of ANEKA and THK(Tri Hita Karana), item-10 about the completeness of features on the decision and recommendation form, item-11 about the suitability of evaluation aspects in the accountability section that was used as a reference by the antecedent components, transactions, and outcomes in the matrix description form, item-12 about the suitability of evaluation aspects in the nationalism section, item-13 about the suitability of evaluation aspects in the public ethics section, item-14 about the suitability of evaluation aspects in the quality commitment section, item-15 about the suitability of evaluation aspects in the anti-corruption section. Figure 1 shows usage test of ANEKA-THK-based countenance evaluation application.

![Figure 1](image)

**Figure 1. Usage test of ANEKA-THK-based countenance evaluation application**

This research had become an innovation to solve the constraints of previous research conducted by Limatahu *et al.*, and research conducted by Suyatna *et al.*. The innovation given to solve the problems from previous studies is presenting an evaluation application that can measure the effectiveness of the computer learning process in terms of cognitive and affective. Although this research was carried out smoothly and obtained good results, there was also an obstacle encountered. The limitation of this research had not yet shown fully of the procedures for obtaining judgment standards based on *Tri Hita Karana* and ANEKA that were used in the judgment matrix.

4. Conclusions

The usage test of the *ANEKA-THK*-based *Countenance* evaluation application implemented at IT Vocational Schools spread across six districts in Bali had been running smoothly. The effectiveness of the evaluation application implementation had been the good classified, and it does not need to be revised, so in general, the evaluation application is ready to be implemented on a broader scale. Future work that needs to be done to solve the obstacle found in this research is to show the procedures for determining the evaluation standard in terms of the concept of *THK* (*Tri Hita Karana*) and the *ANEKA* concept.

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5. References

[1] Windrajaya E R, Hardyanto W, and Wibawanto H 2020 The evaluation of professional placement in public vocational high school 2 tegal by using stake countenance model *Innovative Journal of Curriculum and Educational Technology*. 9(1), pp. 17–24.

[2] Harjanti R, Supriyati Y, and Rahayu W 2019 Evaluation of learning programs at elementary school level of “Sekolah Alam Indonesia (SAI)”: evaluative research using countenance stake’s model *American Journal of Educational Research*. 7(2), pp. 125–132.

[3] Theresa J G 2018 The evaluation of post PT3 program using stake’s countenance model *Malaysian Journal of Social Sciences and Humanities*. 3(4), pp. 109–118.

[4] Fatima G, Malik M, Hussain C A, and Nayab D E 2017 Antecedents of early childhood special education program: a stake’s model perspective *Bulletin of Education and Research*. 39(1), pp. 275–290.

[5] Dewantara I P M 2017 Stake evaluation model (countenance model) in learning process bahasa indonesi at ganesha university of educational *International Journal of Language and Literature*. 1(1), pp. 19–29.

[6] Thanabalan T V, Siraj S, and Alias N 2015 Evaluation of a digital story pedagogical module for the indigenous learners using the stake countenance model *TOJET: The Turkish Online Journal of Educational Technology*. 14(2), pp. 63–72.

[7] Divayana D G H, Ariawan I P W, and Adiarta A 2019 Development of countenance application oriented on combining aneka-tri hita karana as a mobile web to evaluate the computer knowledge and morality *International Journal of Interactive Mobile Technologies*. 13(12), pp. 81–103.

[8] Kamal M, and Elim J 2018 Implementation of project based learning model for anti corruption subject in fundamental training for BPKP’s civil servant candidates of the millennials generation In *4th International Conference on Teacher Training and Education (ICTTE 2018)*, Atlantis Press, pp. 114–122.

[9] Suci I G S, Sonhadji K H A, Imam A, and Ariffin I 2018 Organizational harmony in hindu higher education institution based on tri hita karana culture *Vidyottama Sanatana International Journal of Hindu Science and Religious Studies*. 2(1), pp. 49–59.

[10] Astuti N N S, Ginaya G, and Susyarni N P W A 2019 Designing bali tourism model through the implementation of tri hita karana and sad kerth values *International Journal of Linguistics, Literature and Culture*. 5(1), pp. 12–23.

[11] Ahyanauardi, and Ratih 2019 Effectiveness of use web-based learning media for information and communication technology in senior high school *International Conference on Education, Science and Technology 2019*, *Journal of Physics: Conference Series*. 1387, pp. 1–6.

[12] Limatahu I, Sutoyo S, Wasis and Prahani B K 2018 The effectiveness of CCDSR learning model to improve skills of creating lesson plan and worksheet science process skill (SPS) for pre-service physics teacher *Seminar Nasional Fisika (SNF) 2017*, *Journal of Physics: Conference Series*. 997, pp. 1–7.

[13] Syutnisa A, Ertikanto C, Herlina K and Pradana F A 2019 The effectiveness of interactive e-book quantum phenomena compiled with scientific approach in improving higher order thinking skills *International Conference on Mathematics and Science Education (ICMScE 2018)*, *Journal of Physics: Conference Series*. 1157, pp. 1–7.

[14] Sunarti T, Wasis, Madlazim, Suyidno and Prahani B K 2018 The effectiveness of CPI model to improve positive attitude toward science (PATS) for pre-service physics teacher *Seminar Nasional Fisika (SNF) 2017*, *Journal of Physics: Conference Series*. 997, pp. 1–7.
[15] Veronica N, Purwanta E and Astuti B 2020 Design and development of a mobile learning for career planning in senior high school *International Journal of Scientific & Technology Research*. 9(1), pp. 908–913.

[16] Muhardi A, Anwar B S, Rukun C K and Jasrial D 2017 Learning model development using moodle e-learning software by implementing borg and gall method *3rd International Conferences on Information Technology and Business (ICITB)*, pp. 167–176.

[17] Sarjana, Fadillah and Astuti I 2018 The development of natural knowledge science learning module to improve student learning achievement in primary school *Journal of Education, Teaching and Learning*. 3(2), pp. 219–224.

[18] Fakhrudin A 2018 The Implementation of augmented reality technology in teaching natural sciences to improve elementary students’ learning achievement *AL-TA’LIM Journal*. 25(1), pp. 13–21.

[19] Sugiharni G A D 2018 The development of interactive instructional media oriented to creative problem solving model on function graphic subject *Journal of Educational Research and Evaluation*. 2(4), pp. 183–189.

[20] Fikri H, Madona A S and Morelent Y 2018. The practicality and effectiveness of interactive multimedia in indonesian language learning at the 5th grade of elementary school *The Journal of Social Sciences Research*. 2, pp. 531-539.