THE APPLICATION OF QUALITY FUNCTION DEPLOYMENT METHOD ON MANAGEMENT INFORMATION SYSTEM OF TEACHER TRAINING IN TAR-Q BANDUNG

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ABSTRACT

Course and Training Institute or LKP TAR-Q is a company engaged in the services of teaching the Koran and Islamic studies. Teachers at LKP TAR-Q are required to attend trainings held by LKP TAR-Q every week on Saturday. The instructors at LKP TAR-Q have different backgrounds, so they must first collect data on the teacher's needs before giving training to the instructor so that the training provided is in accordance with the instructors' needs. Data collection on teacher needs is done by assessing students' courses of each teacher, and then the results of the assessment are processed using the Quality Function Deployment method. Management of teacher training is carried out using the PDCA (Plan, Do, Check, Act) method. From the results of the study it was found that by using the Quality Function Deployment method the needs of teachers can be known, then by using the PDCA method in the Management Training Management Information System Teachers can assist in arranging training scheduling starting from the time, builder, room to the participants of each training so that no there was a conflict between time, the coach, the room and the trainee.

Keywords : *Quality Function Deployment, Training Management, PDCA, SIM, Assessment*

1. *INTRODUCTION*

TAR-Q course and training institute, or LKP TAR-Q*, is an institution that provides guidance services for the Koran and Islamic studies and social activities.* LKP TAR-Q *is based in Bandung precisely on Jl. Sidomukti No. 34.* LKP TAR-Q *and has branches in Cicalengka, Jatinangor, Sumedang, Batam, Padang and Bukit Tinggi. The number of teachers at the* LKP TAR-Q *center is 125 people.*

LKP TAR-Q *routinely conducts training to teachers every week, precisely on Saturdays. Based on the results of an interview with Ms. Filia Devianti as head of the research and development division who has the responsibility of providing training to instructors at* LKP TAR-Q*, currently* LKP TAR-Q *has five trainings for its instructors, namely discipline, deepening of material, micro teaching, khat and talaqqi. So far, the training that is routinely held is material training, while the other four trainings are only conducted once in a while this is because* LKP TAR-Q *does not know what training is needed by the instructors because there is no teacher assessment that can be used as a reference to determine teacher training needs.*

After distributing the teacher assessment questionnaire to course students to find out the instructor's training needs, an assessment of 10 teachers was obtained by 300 respondents. Of the 300 respondents assessment for teacher discipline was 69% stated that the instructor was very disciplined, 26% stated that the instructor was disciplined, 4% stated that the instructor was sufficiently disciplined and 1% stated that the instructor was undisciplined. Evaluation of teachers for mastery of the material is 72% stated that mastery of the teaching material is very good, 27% stated good and 1% said it was good enough. Teacher assessment for delivering material is 61% stating that the delivery of teaching material is very good, 35% say it is good, 3% say it is good enough, and 1% say it is not good. Teacher Arabic grading is 51% stated

that Arabic writers are very good, 43% say good and 6% say good enough. Assessment of Talaqqi teachers is 73% stated that Talaqqi teachers are very good, 25% stated good, and 2% stated quite good. Based on these data instructors also need discipline training, micro teaching, khat, and talaqqi, so that teachers will become trainees in these trainings.

The chairperson of the research and development division must arrange training scheduling due to the limited time, space and training builder as well as the different needs of each trainee. Training scheduling includes determining training to be held, time, space, coaches and training participants from each training so that there is no conflicting schedule. The teacher training management information system can assist the head of the research and development division in determining the training to be held based on the results of the teacher's assessment and assist in arranging training scheduling.

The expected goals will be achieved by developing this teacher training management information system, namely:

a. *Assists the head of the research and development division in determining the training to be held based on the results of the teacher's assessment*
b. *Assists the head of the research and development division in scheduling training*

2. *THEORY BASIS*

2.1 *Training Management Information System*

Training management information system is a system that processes information for a section or group that can assist in conducting training management at the assessment stage, the training implementation stage and also the evaluation stage.[4]

2.2 PDCA

Plan or planning, at this stage the target (problem) planning and process must be carried out to solve the problem. Do or do, at this stage the process that has been planned has been implemented at the plan stage. Check or evaluation, at this stage an evaluation of the targets and processes that have been carried out at the do stage. The final process is the Act or follow up, at this stage a total evaluation of the target results and the process is followed up with improvements if there are still imperfect.[10]

The cycle of PDCA *can be seen in Figure* 1.

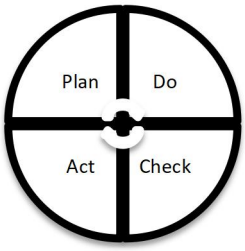


Figure 1. PDCA *Cycle*

2.2 *Quality Function Deployment*

QFD *is an approach used to determine consumer desires, then translate them into technical design and production planning accurately*.[5]

QFD *steps are*[6] :

a. *Identifying consumer needs*
b. *Make a planning matrix*
c. *Preparation of technical activities*
d. *Determination of the relationship between consumer needs with technical interests*

2.2.1 Matriks Perencanaan (*House Of Quality*)

The steps in making the HOQ matrix are as follows [6] :

a. *Importance to customer*
b. *Current satisfaction performance*

$$\text{tingkat kepuasan} = \frac{\sum performance\ weight}{\sum jumlah\ responden} \quad (1)$$

$$performance\ weight = number\ of\ respondent * performaance\ (scale) \quad (2)$$

c. *Goal*

The goal scale can be seen in table 1.

Table 1. *Goal Scale*

Scale	Explanation
1	Not satisfactory
2	Good enough
3	Satisfying
4	Very satisfactory

d. *Improvement ratio*

$$improvement\ ratio = \frac{goal}{\text{tingkat kepuasan}} \quad (3)$$

Improvement ratio can be seen in table 2.

Table 2. *Improvement ratio*

Value	Meaning
<1	*No improvement*
1-1,5	*Moderate repair*
>1,5	*Overall overhaul*

e. *Sales point*

Sales point can be seen in table 3.

Table 3. *Sales Point*

Value	Meaning
1	*no sales point*
1,2	*Medium sales point*
1,5	*Strong sales point*

f. *Raw weight* dan *normalized raw weight*

$$raw\ weight = importance\ to\ customer * improvement\ ratio * sales\ point \quad (4)$$

$$normalized\ raw\ weight = \frac{raw\ weight}{raw\ weight\ total} \quad (5)$$

2.2.2 *Relationship between Consumer Needs and Technical Interest*

The relationship symbol can be seen in table 4

Table 4. *Symbols in the Relationship of Consumer Needs with Technical Activities*

Symbol	Numeric Value	Understanding
(blank)	0	No connection
△	1	Maybe there is a relationship
○	3	The relationship is moderate

◎	9	Very strong relationship

2.3 *Instruments*

The instrument is a tool used to measure a measuring object or collect data about a variable.

2.3.1 *Closed Questions and Answers*

Closed questions are a type of question in which the respondent must choose from a set of answers that have been set. There are two types of closed questions namely closed questions with sequential response scale answers and closed questions with categorical response options. Closed questions ask respondents to make a choice between a set of alternatives that have been set.[9]

2.3.2 *Ordinal Size Scale*

An ordinal scale is a scale that has a sequence of levels in relation to the number of attributes it has. The ordinal size indicates a difference.[9]

2.3.3 *Scalling Likert Scale*

Likert scale as a scaling technique is widely used especially to measure opinions or perceptions about a thing. This scale contains a number of questions in the response category and then a person's score on the scale is calculated by adding up the number of responses he gave.[9]

3. *RESEARCH METHODS*

This research uses descriptive research methodology. The flow of research can be seen in Figure 2 through Figure 4.

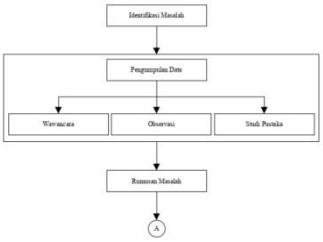


Figure 2. *Research Flow*

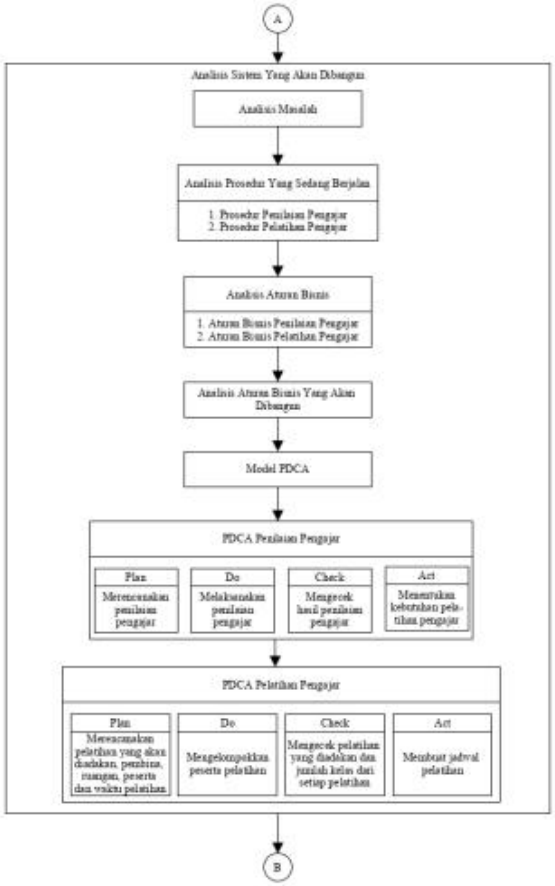
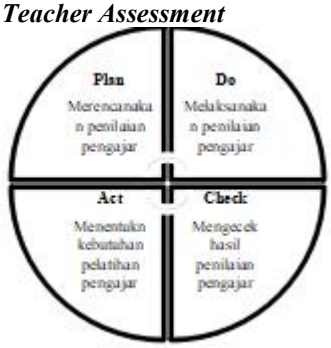


Figure 3. *Research Flow (continued)*

Figure 4. *Research Flow (continued)*

4. *DISCUSSION*

4.1 PDCA *Teacher Assessment*



Gambar 5. PDCA *Teacher Assessment*

4.1.1 *Teacher Assessment Plan*

at this stage the teacher's assessment plan is conducted in the form of an assessment questionnaire following the assessment questionnaire can be seen in table 5 *and table* 6.

Table 5. *Quality Assessment Questions and Responses*

No	Question	Answer				
		SK	K	C	B	SB
1	Ability to master learning material					
2	The ability to respond / answer questions					
3	The ability to convey material					
4	The ability to animate class atmosphere					
5	The ability to provide motivation					
6	Ability to write Arabic script					
7	Ability to discuss examples					

Table 6. *Quantity Assessment Questions and Responses*

No	Question	Responses				
		TP	J	N	SR	SL
1	Dress neatly and politely					
2	Present on time					
3	Build for 90 minutes					
4	Giving motivation					

4.1.2 *Do Teacher Assessments*

At this stage the teacher's assessment is carried out by distributing the assessment questionnaire to the students of the course. Following are the results of the assessment for a teacher named Ramdhan Rizky whose sample can be seen in table 7.

Table 7. Ramdhan Rizky's *evaluation*

Question	Respondent				
	1	2	3	4	5
Dress neatly and politely	5	5	5	4	5
Present on time	4	4	4	4	4
Build for 90 minutes	5	5	5	4	5
Ability to master learning material	5	5	5	4	5
Ability to discuss examples	5	5	5	4	5
The ability to respond / answer questions	5	5	4	4	4
The ability to convey material	5	4	4	5	5
The ability to liven up the classroom atmosphere	5	4	5	4	4
Giving motivation	5	4	4	5	4
The ability to provide motivation	5	4	4	4	4
Ability to write Arabic script	4	4	4	4	4

The results of the teacher assessment questionnaire were processed using the QFD method and then presented in the form of HOQ which can be seen in table 8.

Table 8. *House of Quality*

			Kepentingan Teknik									
		Tingkat Kepuasan	Pelatihan Kedisiplinan	Pelatihan penyampaian materi	Pelatihan *micro teaching*	Pelatihan *khat*	Pelatihan *talaqqi*	*Goal*	*Improvement ratio*	*Sales point*	*Raw weight*	*Normalized raw weight*
Kriteria	Kedisiplinan	4,593	◎					5	1,08	1,5	8,1	0,213
	Penguasaan materi	4,635		◎				5	1,07	1,5	8,025	0,212
	Penyampaian materi	4.5			◎			5	1,11	1,5	8,325	0,22
	Tulisan	4,37				◎		4	0,92	1,2	5,52	0,146
	Talaqqi	4,73					◎	5	1,06	1,5	7,95	0,21
Normalized Contributions			0,213	0,212	0,22	0,146	0,21					
Prioritas			2	3	1	5	4					

4.1.3 *Check* Penilaian Pengajar

Checking is done by looking at the results of HOQ in table 8. *The following results of checking the shortages of training participants can be seen in table* 9.

Tabel 9. Rizky Ramadhan's Assesment Results

No	Kriteria	*Improvement ratio*	Perbaikan	Indikator
1	Kedisiplinan	1,08	Perbaikan sedang	Perbaikan sedang
2	Penguasaan materi	1,07	Perbaikan sedang	Perbaikan sedang
3	Penyampaian materi	1,11	Perbaikan sedang	Perbaikan sedang
4	Tulisan	0,92	Tidak ada perbaikan	Tidak ada perbaikan
5	*Talaqqi*	1,06	Perbaikan sedang	Perbaikan sedang

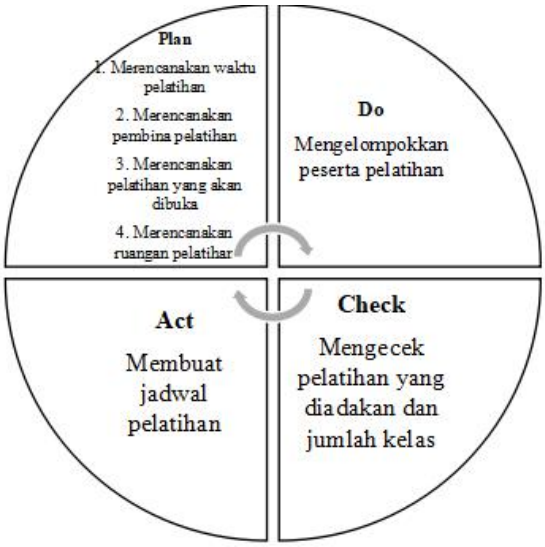
4.1.4 *Act Teacher Assessment*

At this stage the training will be provided to the trainees. The following training that must be attended by Rizky Ramadhan can be seen in table 10.

Table 10. Rizky Ramadhan *Training*

Kekurangan	Tindak Lanjut	*Normalized Contributions*	Prioritas
Kedisiplinan	Pelatihan kedisiplinan	0,213	2
Penguasaan materi	Pelatihan penguasaan materi	0,212	3
Penyampaian materi	Pelatihan penyampaian materi	0,22	1
Talaqqi	Pelatihan *talaqqi*	0,21	4

4.2 PDCA *Management Teacher Training*



Gambar 6. PDCA *Teacher Training*

4.2.1 *Plan Teacher Training Management*

At this stage, planning of training time , training builder, training to be opened, and training room are carried out .

4.2.2 *Do Teacher Training Management*

At this stage grouping of training participants is carried out in their training classes.

4.2.3 *Check Teacher Training Management*

At this stage the training classes will be checked to be held.

4.2.4 *Act Teacher Training Management*

The follow up of the management of teacher training is to make a training schedule for trainees. Each class from checking results will be determined by time, room and coach by the head of the research and development division. The following results of training scheduling can be seen in table 11.

Table 11. *Training Schedule*

No	Pelatihan	Ruangan	Pekan	Waktu	Pembina
1	Kedisiplinan	Lantai 3	1	13:00 - 13:45	Asep Solihin
2	*Micro teaching*-1	Ruangan 1	2	13:00 - 13:45	Jusmin Nuryadin
3	*Micro teaching*-2	Ruangan 2	2	13:00 - 13:45	Gito Herianto
4	*Talaqqi*	Ruangan 1	3	13:00 - 13:45	Ade Hanapi
5	Pendalaman materi	Ruangan 1	1	14:00-15:00	Jusmin Nuryadin

5. *SYSTEM PLANNING*

5.1 *Context Diagram*

Context diagram represents the whole system. Context diagram of the system to be built can be seen in the Figure 7 .

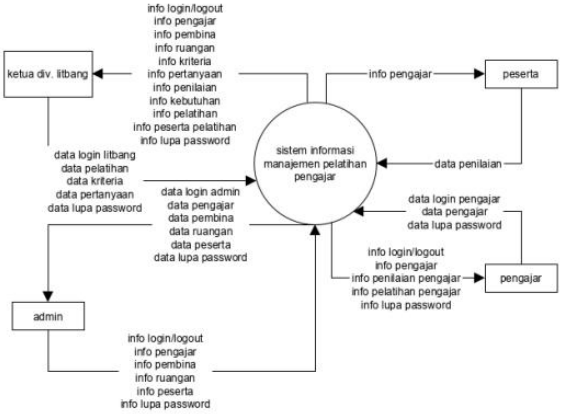


Figure 7. *Context Diagram*

5.2 *Data Flow Diagram*

Data flow diagrams of the training management system that will be built can be seen in Figure 8 through Figure 8.

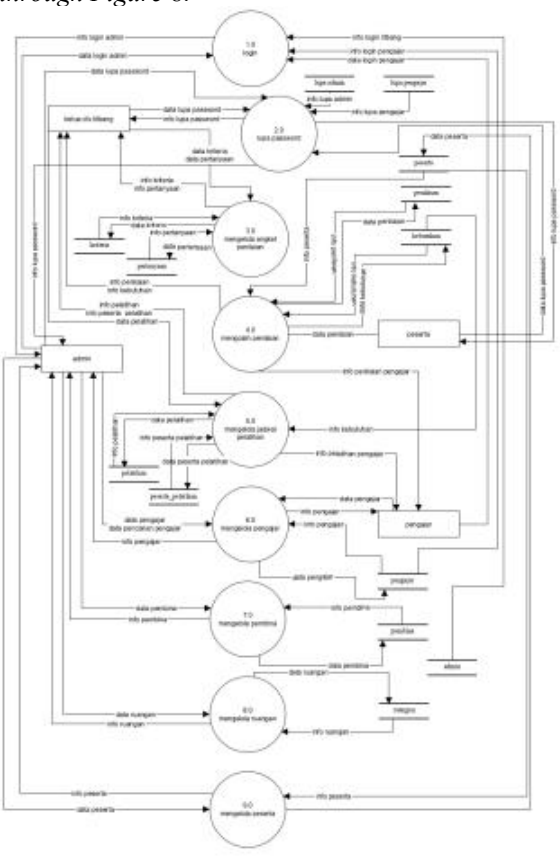


FIgure 8. DFD Level 1 *Management Information System for Teacher Training*

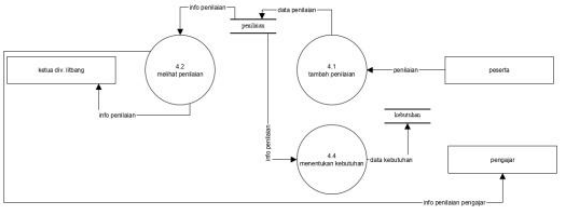


Figure 9. DFD Level 2 *Processing Assessment*

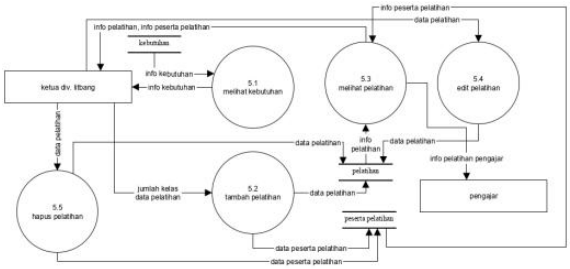


Figure 10. *Manage Training Schedules*

6. COVER

Based on research and testing results that have been conducted on the Teacher Training Management Information System at LKP TAR-Q, it can be concluded that this system can assist the head of the research and development division in obtaining teacher assessment information and assist in the teaching training management process that suits the training participants' needs, This system can assist administrators in managing data, be it teacher data, participants, coaches and rooms, this system can help trainees in obtaining assessment and training information that must be followed, this system can assist course students in delivering their assessment of teachers.

Based on the results of the system testing, obtained some suggestions that can be considered for development, that is, further research is expected to teach teacher training management information systems also to involve the coach in the assessment process, further research is expected to interface of the Teacher Training Management Management Information System can be improved to make it more user friendly.

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BIBLIOGRAPHY

[1] Nazir, Mohammad, in Metode Penelitian / Mohammad Nazir, Jakarta : Ghalia Indonesia, 1988, pp. 63.

[2] Fanny Andalia, Eko Budi Setiawan, "Pengembangan Sistem Informasi Pengolahan Data Pencari Kerja Pada Dinas Sosial Dan Tenaga Kerja Kota Padang", Jurnal Ilmiah Komputer dan Informatika (KOMPUTA), Vol. 4, No. 2, Oktober 2015.

[3] Susanto, Azhar, Sistem Informasi Manajemen Konsep dan Pengembangannya, Bandung : Lingga Jaya, 2000, pp. 72.

[4] Rivai V., M. Ramly, T. Mutis dan Willy A, Manajemen Sumber Daya Manusia untuk Perusahaan dari Teori ke Praktek, Jakarta : PT. Raja Grafindo Persada, 2014, pp.164.

[5] Wijaya, Tony, Manajemen Kualitas Jasa Desain Servqual, QFD, dan Kano, Indeks, 2018.

[6] Cohen, L, in *Quality Function Deployment : How to Make QFD Work For You,* AddisonWesley, Inc., 1995.

[7] Widianti, Utami Dewi, "Pembangunan Sistem Informasi Aset di PT. Industri Telekomunikasi Indonesia (PERSERO) Berbasis Web", Jurnal Ilmiah Komputer dan Informatika (KOMPUTA), Vol. 1, No. 2, Oktober 2012.

[8] Noviana, Mafazah and Hastanto, Sujoko, "Penerapan Metode *Quality Function Deployment* (QFD) untuk Pengembangan Desain Motif Batik Khas Kalimantan Timur", J@TI Undip, Vol IX, No. 2, Mei 2014

[9] Silalahi, Ulber, "Metode Penelitian Sosial Kuantitatif", Bandung : PT Refika Aditama, 2015

[10] Poerwanto, G Hendra, *Plan-Do-Check-Act* (PDCA), https://sites.google.com/site/kelolakualitas/PDCA, 18 April 2019 21.45