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# APPLICATION OF EVALUATION AND SUPERVISION MODEL OF COUNSELLING SKILLS: IMPLEMENTATION, TESTING, AND INTEGRATION

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**Abstract**

The evaluation and supervision system for counselling skills in Indonesia is still not standardized, valid, and reliable. Whereas counselling skills are core competencies that need to be mastered by a counsellor in carrying out counselling. Counsellors who master the basic skills of counselling can carry out the counselling process effectively. Standardized evaluation and supervision instruments for counselling skills can assist in the process of understanding the counselor's competency level and determining the efforts to develop counsellor competencies that need to be carried out. This further basic research seeks to develop an application program for the evaluation and supervision of the counselling skills model that can be used by all tertiary institutions that organize guidance and counselling education programs and become a reference for evaluation and supervision of counselling skills evaluation and supervision instruments for professional guidance and counselling teacher programs. The purpose of this research is to implement, test, and integrate standardized evaluation and supervision model application programs. This research is an advanced research and development research using the Design Science Research Method which has resulted in a prototype design of an evaluation model application program and supervision of counselling skills. The further development stages to be carried out are (1) the demonstration stage in the form of implementing the prototype into a complete product using the PHP and MySQL programming languages, (2) the testing and evaluation stage of the program using alpha testing and beta testing, and (3) the communication stage of the evaluation model application program. and supervision of counselling skills to users.

Keywords: Counselling skills, Design science research, Evaluation and supervision, Guidance and counselling, Web application.

## 1. Introduction

Learning is a product of individual experience as indicated by a relatively permanent change in behavior. Individual learning outcomes can be seen from the changes in behavior obtained from the process of individual interaction with the environment through various experiences, thought processes, and exercises carried out [1-6]. Behavioral learning outcomes can be in the form of skills that are following the achievement of the needs that are used as criteria. Therefore, learning outcomes must be measured specifically, effectively, and efficiently following learning outcomes that are used as learning objectives. Outcomes Based Education emphasizes that successful education is based on the learning outcomes possessed by students [7]. Learning outcomes can be used as a reference for evaluating and supervising the quality of the educational process implemented. Learning outcomes must be measurable and provide feedback to improve the educational process.

A professional in the field of Guidance and Counselling is required to have competencies as stated in the Counsellor Competency Standards (SKK) which have been confirmed in Ministerial Regulation No. 27 of 2008 namely pedagogic, personality, social and professional competencies. Aspects of professional competence of counsellors which contain the mastery of counsellors in mastering the theoretical framework and praxis of guidance and counselling implies that counsellors must master many skills including counselling skills as an area to demonstrate the performance of counsellors in the area of guidance and counselling praxis.

Counselling skills present skills that must be mastered by counsellors which include skills (1) building relationships, personal approach, observation, and listening; (2) responding to content, feelings, and meanings; (3) personalizing the meaning or implication of the response to meaning; and (4) emphasizing on facilitating the counselee's efforts to act. These skills aim to foster conditions of involvement, exploration, understanding, and action in the counselee. Basic counselling skills are important skills mastered by a counsellor in implementing counselling. Counsellors who master many counselling skills, make themselves involved in a counselling process that runs effectively [8, 9]. The role of universities in this regard at the Universitas Pendidikan Indonesia, especially the Guidance and Counselling Study Program, is to equip students to master the competence of counselling skills through the Basic Counselling Skills practicum course. Students try to master many counselling skills through counselling skills training in each practicum meeting. Counselling practicum training is proven to help train counsellors gain skills and experience to handle counselling sessions [10].

The position of lecturers in counselling skills courses is not the same as lecturers in other courses, because they must act as supervisors. According to the implementation of counselling practice requires a lecturer who acts as a supervisor and can create an atmosphere of practice as a "counselling" process, calling training a process of supervision. However, the phenomenon in Indonesia shows that there is still no standardized evaluation and supervision instrument to measure the level of student mastery in the Basic Counselling Skills practicum. The evaluation and supervision process is still done manually by lecturers who are in charge of the Basic Counselling Skills practicum course. So that the evaluation and supervision process is sometimes still subjective, less effective and efficient, not recorded properly, feedback is done verbally, and not detailed. The meaning of subjective is when two

lecturers assess the level of mastery of basic counselling skills, the results obtained by students regarding the mastery of counselling skills can also be different. Less efficient and effective in terms of time, which is a process that is carried out manually will take more time and the value obtained by students still cannot describe the actual situation because they do not use valid and reliable measuring instruments or instruments. It is not recorded properly because it only relies on the memory of the lecturer. Thus, there may be aspects that are missed when evaluated and supervised. It is not detailed in terms of conveying the level of student mastery in the skilled, medium-skilled, or unskilled category because there is no standard instrument to categorize it. The phenomenon that occurs can be concluded that there is a great diversity in the ability of supervisors to evaluate counselling skills [11, 12], and standard and comprehensive evaluation methods are still limited [13], especially regarding how to assess the development of counselling skills training participants.

Technology-based evaluation and supervision instruments are important for flexible, easy-to-use, and adaptive practicum implementation with current learning conditions. The advantages of using computer-based evaluation in assessment can be divided into five main categories [14]:

(i) the richness of the interface, the use of graphics allows the presentation of content to be more easily understood according to the specific needs of individuals;

(ii) computer-based evaluation and supervision that uses the internet, has a diverse population coverage because individuals have easy access efforts;

(iii) errors in administration, which can lead to bias, are minimized;

(iv) has a faster scoring time, and greater accuracy; and

(v) the quantity and quality of writing is better than the conventional method using paper.

This research is an advanced learning innovation development research that seeks to develop an evaluation and supervision model application program that is innovative, effective, efficient, and standardized. This study will discuss the design of a website-based evaluation and supervision system, system testing, and system integration. The system built is web-based using multi-agent technology with a client/server approach to access and receive information from the database to users to achieve their work.

## 2.Research Method

This research will produce a program that will be implemented for the evaluation and supervision of counselling skills (see Figs. 1 and 2). The method used in this research is the Design Science Research Method (DSRM). DSRM has become a standard guide for research related to the design of a service in the form of an information system. The stages of the DSRM method used in this study are (1) problem identification, (2) identification of the object of the solution, (3) design and development, (4) demonstration, (5) evaluation, (6) communication [15]. In the early stages of the research, starting by identifying the problems found in the field, namely the absence of standardized evaluation tools and supervision of counselling skills. Problem identification is carried out employing literature studies related to the concept of counselling skills from various related sources, also carried out by

interviews and field surveys to finally formulate problems in the field. The problem identification stage has been carried out in the initial research in 2019-2020.

The object of the solution in this research is the innovation of a standardized and technology-based evaluation and supervision program for counselling skills. The researcher developed a valid counselling skill instrument model so that it is ready to be implemented in a technology-based counselling skills evaluation and supervision program. In its implementation, the method used is Service Oriented Architecture (SOA) and web services as technology in the development of service-based systems [16]. Method analysis of the evaluation process was carried out. The analysis is carried out by applying the method of simplifying the evaluation and supervision process which will be integrated as needed.

At this stage, an Entity Relationship Diagram (ERD) is carried out as a tool to model the relationship or relationship between objects or entities and their attributes. ERD is a diagram that describes the relationship between tables and their fields in a database system. ERD can be used to equate views of a unique data relationship: network models, relationship models, and relationships of a set so that these models are easy to analyse for their relationship to each other [16]. To describe the data communication path used a Data flow diagram. A data Flow Diagram or abbreviated DFD is a depiction of a model that allows system professionals to describe the system as an arrangement of processes that are connected by data flows, either manually or computerized. At the demo/implementation stage, the results of the prototype design that has been made will be translated into codes or programming syntaxes using predetermined programming languages, namely PHP and MySql. The program that is built will be directly tested based on its units or parts. Thus, each unit or part of the software that is built is following the objectives to be achieved.

The test was carried out in the development environment of the evaluation model application program and supervision of counselling skills. Alpha testing is carried out by an internal team of researchers before being released to external users. Beta testing is a system test for users or external parties who have the potential to use the evaluation model application program and supervision of counselling skills.

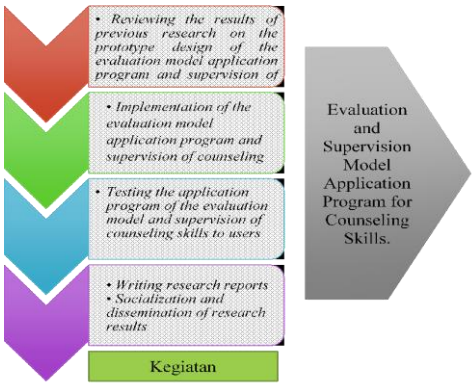


**Fig. 1. Research flow chart.**

## 3. Result and Discussion

System analysis aims to identify the problems that exist in the system and determine the needs of the system being built. The analysis includes problem analysis, analysis of the current system, analysis of system architecture, analysis of non-functional requirements, and analysis of functional requirements.

### 3.1. Block diagram system

Block diagram of website-based counselling skills evaluation and supervision application as shown in Fig. 2. Students record videos during counselling activities, then the video recordings are uploaded to the application system and stored in the database. Then the lecturer can evaluate the counselling process from the video recordings that have been stored in the database. The lecturer's assessment process is carried out using evaluation instruments and supervision of counselling skills in learning basic counselling skills.

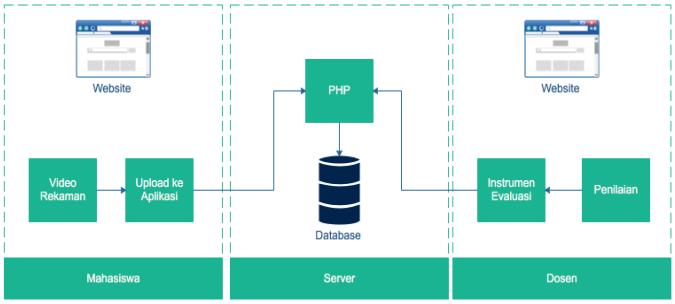


**Fig. 2. Block diagram system.**

### 3.2. System architecture

Research on the development of a prototype design application program for evaluation models and counselling skills resulted in a system architecture design that was divided into two areas, client and server. About the system architecture, as shown in Fig. 3, the client area consists of a system in the form of a frontend website as an interface with users consisting of lecturers and students. The server area consists of three main parts, namely the web server, the system logic environment, and the MySql.

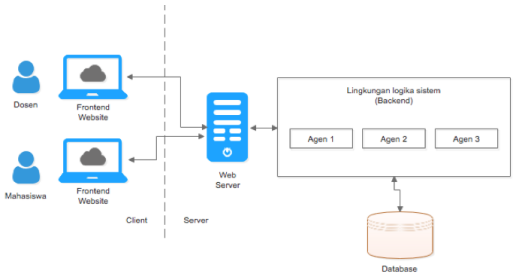


**Fig. 3. Prototype design application program for evaluation models and counselling skills.**

### 3.3. Analysis of non-functional requirements

Analysis of non-functional requirements describes the system support requirements needed to run the software that is built. The analysis of non-functional requirements will be made consist of an analysis of software requirements, and an analysis of hardware requirements. Hardware requirements analysis is a breakdown of non-functional requirements related to hardware specifications and related to the software development process. The analysis of hardware requirements is mentioned in Table 1. The analysis of software requirements is mentioned in Table 2.

**Table 1. Hardware requirements.**

| No. | Type | Specification |
|---|---|---|
| 1 | Processor | Dual Core |
| 2 | RAM | 4 GB |
| 3 | Harddisk | 512 GB |
| 4 | Monitor | 14 Inch LED |

**Table 2. Software requirements.**

| No. | Type | Specification |
|---|---|---|
| 1 | Operating System | Microsoft Windows 10 |
| 2 | Browser | Google Chrome |
| 3 | Web Server | XAMPP |
| 4 | Text Editor | Microsoft Visual Studio |
| 5 | DFD Tool | Astah Community |
| 6 | Mockup Tool | Mockup Balsamiq |

### 3.4. Analysis of function requirements

A context diagram is a diagram that describes the scope of the system or how the system interacts with its environment (Fig. 4). The system is represented by a circle, while the environment is represented by an external entity which is represented by a square. The interaction between the system and external entities is represented by the flow of data depicted by arrows flowing from external entities to the system (as input) or vice versa from the system to external entities (as output).

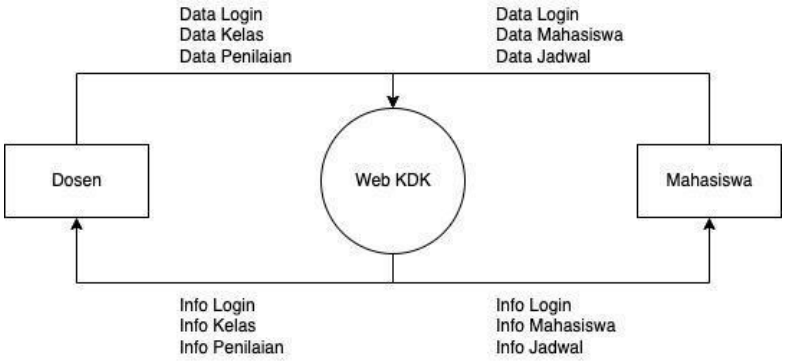


**Fig. 4. Context diagram.**

DFD is a technique that describes the flow of data or information used (Fig. 5). DFD is made if the Context Diagram there is still a process that must be explained in more detail. The following is a DFD on the Web Application of the system to be built.

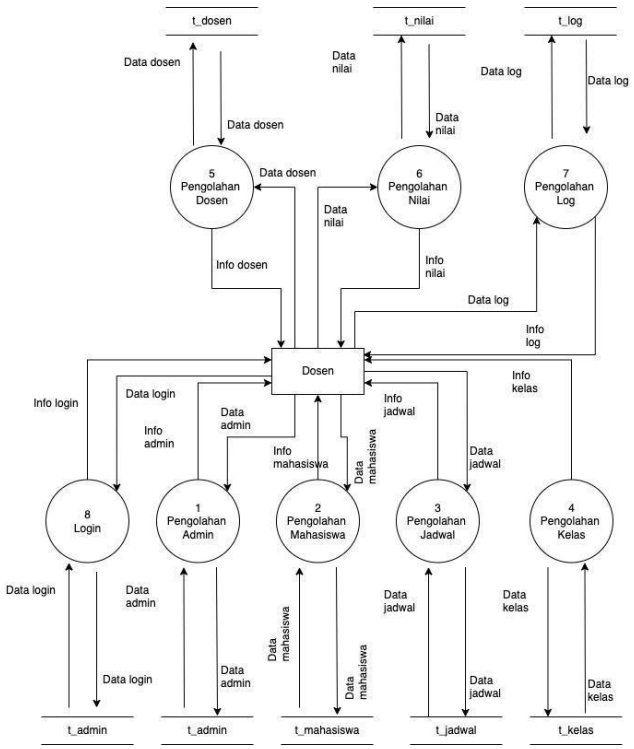


**Fig. 5. Data flow diagram.**

## 4. Results and Discussion

System implementation is the stage to apply the design that has been done to the system so that it is ready for operation. System implementation includes hardware implementation, software implementation, data implementation, and interface implementation.

### 4.1. Data implementation

Database implementation is an implementation based on a previously created database design. Physically the implementation of this database uses MySQL. The builder syntax of the used database is mentioned in Table 3.

### 4.2. User Interface Implementation

The implementation of the interface contains a description of each appearance of the software that is built. The implementation of the software interface that is built consists of the name of the interface or the file that represents it. The application in this research can be accessed via the internet at the address http://kdk-upi.web.id/ as shown in Fig. 6.

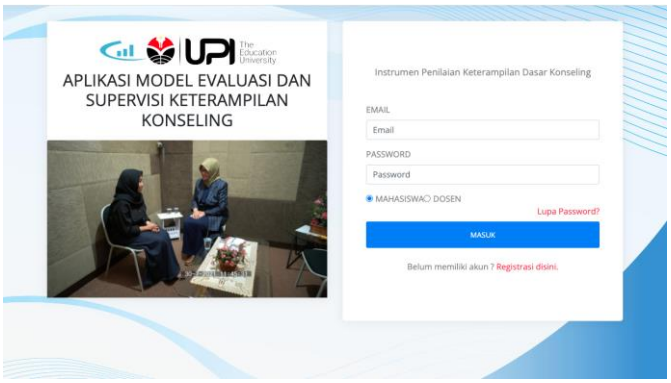


**Fig. 6. Homepage of application.**

**Table 3. MySQL data implementation.**

| No. | Name | SQL Query |
|---|---|---|
| 1 | t_dosen | CREATE TABLE `t_dosen` (<br>`id ` int(11) NOT NULL,<br>`nip ` varchar(50) NOT NULL,<br>`nama ` varchar(200) NOT NULL,<br>`email ` varchar(200) NOT NULL,<br>`password ` varchar(200) NOT NULL,<br>PRIMARY KEY (`id `)<br>) ENGINE=InnoDB DEFAULT CHARSET=latin1; |
| 2 | t_mahasiswa | CREATE TABLE `t_mahasiswa` (<br>`id ` int(11) NOT NULL,<br>`nim ` varchar(50) NOT NULL,<br>`nama ` varchar(200) NOT NULL,<br>`email ` varchar(200) NOT NULL,<br>`password ` varchar(200) NOT NULL,<br>PRIMARY KEY (`id `)<br>) ENGINE=InnoDB DEFAULT CHARSET=latin1; |
| 3 | t_kelas | CREATE TABLE `t_kelas ` (<br>`id` int(11) NOT NULL,<br>`nama ` varchar(200) NOT NULL,<br>`status` varchar(50) NOT NULL,<br>`email` varchar(200) NOT NULL,<br>PRIMARY KEY (`id `),<br>CONSTRAINT `t_mahasiswa_ibfk_1` FOREIGN KEY (`email `) REFERENCES `t_dosen` (`email `) ON DELETE CASCADE ON UPDATE CASCADE<br>) ENGINE=InnoDB DEFAULT CHARSET=latin1; |
| 4 | t_rubrik | CREATE TABLE `t_rubrik` (<br>`id ` int(11) NOT NULL,<br>`nama ` varchar(200) NOT NULL,<br>`status ` varchar(200) NOT NULL,<br>`kode ` varchar(200) NOT NULL,<br>PRIMARY KEY (`id `) |

| No. | Name | SQL Query |
|---|---|---|
| | | ) ENGINE=InnoDB DEFAULT CHARSET=latin1; |
| 5 | t_deskripsi | CREATE TABLE `t_deskripsi ` (<br>`id` int(11) NOT NULL,<br>`penjelasan ` varchar(200) NOT NULL,<br>`jawaban_a` varchar(50) NOT NULL,<br>`jawaban_b` varchar(200) NOT NULL,<br>`jawaban_c` varchar(200) NOT NULL,<br>`id_rubrik` int(11) NOT NULL,<br>PRIMARY KEY (`id `),<br>CONSTRAINT `t_deskripsi_ibfk_1` FOREIGN KEY (`id_rubrik `) REFERENCES `t_deskripsi` (`id `) ON DELETE CASCADE ON UPDATE CASCADE<br>) ENGINE=InnoDB DEFAULT CHARSET=latin1; |
| 6 | t_hasil | CREATE TABLE `t_hasil` (<br>`id ` int(11) NOT NULL,<br>`id_evaluasi ` int(11) NOT NULL,<br>`id_deskripsi ` int(11) NOT NULL,<br>`nilai` varchar(50) NOT NULL,<br>PRIMARY KEY (`id `),<br>KEY `id_jenis_cetakan` (`id_jenis_cetakan`),<br>KEY `id_evaluasi ` (`t_evaluasi `),<br>CONSTRAINT `t_hasil_ibfk_1` FOREIGN KEY (`id_evaluasi`) REFERENCES `t_evaluasi` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,<br>CONSTRAINT `t_hasil_ibfk_3` FOREIGN KEY (`email`) REFERENCES `t_mahasiswa` (`email`) ON DELETE CASCADE ON UPDATE CASCADE,<br>) ENGINE=InnoDB DEFAULT CHARSET=latin1; |
| 7 | t_evaluasi | CREATE TABLE `t_evaluasi` (<br>`id ` int(11) NOT NULL,<br>`tanggal ` varchar(20) NOT NULL,<br>`url_video ` varchar(200) NOT NULL,<br>`keterangan ` varchar(200) NOT NULL,<br>`id_kelas ` int(11) NOT NULL,<br>`email` varchar(50) NOT NULL,<br>PRIMARY KEY (`id `),<br>KEY `id_kelas ` (`id_kelas `),<br>KEY `email ` (`email `),<br>CONSTRAINT `t_evaluasi_ibfk_1` FOREIGN KEY (`id_kelas `) REFERENCES `t_kelas` (`id`) ON DELETE CASCADE ON UPDATE CASCADE,<br>CONSTRAINT `t_evaluasi_ibfk_3` FOREIGN KEY (`email`) REFERENCES `t_mahasiswa` (`email`) ON DELETE CASCADE ON UPDATE CASCADE,<br>) ENGINE=InnoDB DEFAULT CHARSET=latin1; |

In the application, there are two user roles, namely as a lecturer and as a student. Lecturers can create classes and make evaluation assignments. after making a class

the lecturer can start filling out the instrument as shown in Figs. 7 and 8. The present study is in line with current literature [17-21], in which the use of internet and web can be used for improving students' learning outcome.

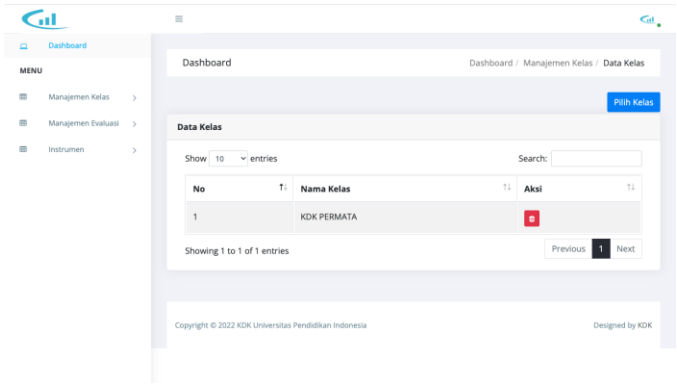


**Fig. 7. Create class from lecturer dashboard.**

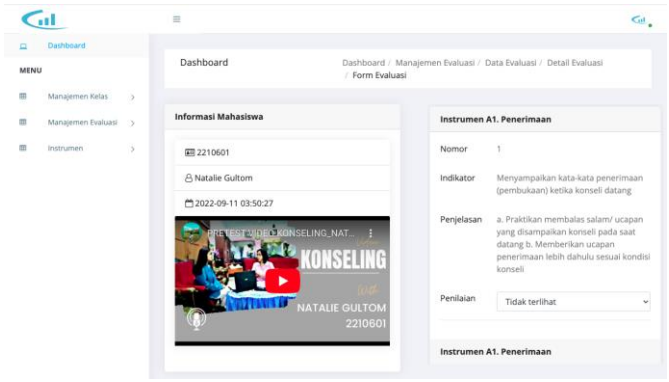


**Fig. 8. Fill the instrument from.**

## 5. Conclusions

Based on the research results that have been carried out, this research is an advanced learning innovation development research that seeks to develop an evaluation and supervision model application program that is innovative, effective, efficient, and standardized. This study discusses the design of a website-based evaluation and supervision system, system testing, and system integration. The system built is web-based using multi-agent technology with a client/server approach to access and receive information from the database to users to achieve their work.

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