

DEVELOPMENT GUIDANCE AND COUNSELLING EXPERT SYSTEM

Intan Sari¹, Riri Okra², Gusnita Darmawati³, Ira Oktarini⁴

¹²³⁴Universitas Sjech M. Djamil Djambek Bukittinggi, rezkintan87@gmail.com

Submission : May 28,2024

Revised : june 03,2024

Accepted : june 04,2024

Published : june 11,2024

Abstract

Guidance and counseling are integral parts of the education system, which includes management and leadership, educational learning, and independent guidance and counseling components. As a vital element of education, guidance and counseling support students in achieving independence by helping them understand and accept themselves, make informed decisions, and solve daily life problems effectively, ultimately leading to happiness and well-being. The 21st century, characterized by globalization and rapid technological advancements, has brought significant changes to human life. Information technology has permeated almost every field, including guidance and counseling. Expert systems, which mimic human decision-making by leveraging computer-stored knowledge, are increasingly used in this context. These systems assist guidance and counseling teachers by facilitating their primary tasks: developing and implementing guidance programs, evaluating their effectiveness, analyzing outcomes, and following up with students or clients.

Keywords: Expert systems, Guidance and counseling

1. Introduction

Guidance and counseling is one component of education. The role of guidance and counseling in education is to facilitate the development of the potential of students/counselees and direct students/counselees to be able to independently find effective ways to solve problems in everyday life. stated "The achievement of independence for students/counselees is characterized by the ability to understand themselves and their environment well, accept their own strengths and weaknesses, be able to motivate and direct themselves in making the right decisions, and be responsible for the decisions they have taken so that the participants students can find happiness and prosperity in their lives (Sinaga et al., 2022) ." The implementation of guidance and counseling in schools is regulated in Permendikbud Number 111 of 2014. In line with this, Minister of Education and Culture Regulation Number 21, 22, 23 of 2016 concerning content standards and process standards, and assessment standards for primary and secondary education.

Furthermore, Menpan Decree No. 84/1993 in article 4 emphasizes that the main duties of guidance teachers are to prepare guidance programs, implement guidance programs, evaluate the implementation of guidance, analyze the results of implementation of guidance, and follow up in guidance programs for students who are the teacher's responsibility. guidance and counseling.

(Fitria, 2019) in the 21st century era is characterized as a century of openness/globalization century, which means that human life in this century is experiencing fundamental changes that are different from the way of life in the previous century. In the previous century, learning was teacher-centered, while in the 21st century it is student-centered. Apart from that, the 21st century was marked by the very rapid development of



information technology, the development of automation, where many routine and repetitive jobs began to be replaced by machines, both production machines and computer machines. In line with that, (Albina et al., 2022) stated "An interesting learning model in the 21st century is information seeking. Search for information needed to improve learning skills, literacy skills, life skills, skills and attitudes as well as towards technology." Thus, in the 21st century era, educators can competently use technology to automate work that is routine and repetitive.

Educators are able to adapt to technological developments in the 21st century, so educators must begin steps of change, namely changing traditional patterns towards digitalization of knowledge such as expert guidance and counseling systems. The guidance and counseling expert system is designed to make things easier for guidance and counseling teachers preparing guidance and counseling programs, implementing guidance and counseling programs, implementing guidance programs, evaluating the implementation of guidance and counseling, analyzing the results of implementing guidance and counseling, and following up on guidance and counseling programs for students.

2. Method

In this research, researchers used literature review research. Library research is a method that uses data collection from library sources, including books, magazines and other print media, or can be obtained from photos and videos. This research method uses library research methods. The research object is a collection of several articles from various sources, books, documents and other references related to the role of guidance and counseling teachers in bullying in the alpha generation. The data analysis technique used in this research is an analysis method which is divided into three stages, namely displaying data, reducing data and drawing conclusions. To validate the data, source triangulation is used

3. Results and Discussion

Doctor Syawaludin as a speaker at the 2024 Bukittinggi International Counseling Conference / BICC guidance and counseling study program, Bukittinggi State Islamic University, said that the challenges of the 21st century include; The volatility of the world is changing rapidly, turbulently, unstable, and unpredictable, no one can predict that this century of commerce is very fast and unpredictable, the Uncertainty of the future is full of uncertainty. History and past experience are no longer relevant in predicting probabilities and something that will happen (uncertainty), the complexity of the modern world is more complex than before, problems and consequences are more layered, interconnected and influence each other, environmental ambiguity is increasingly confusing, unclear and difficult to understand. This condition requires guidance and counseling teachers to adapt to advances in information technology.

The application of Information Technology (IT) has now spread to almost all fields, including guidance and counseling. Information and communication technology has brought changes in various sectors, including the world of counseling. The use of information technology as a means of improving the quality of services and operations has brought about major changes. The development of this application can be measured by the implementation of an expert system which has the advantage of speed of access to develop guidance and

counseling programs, implement guidance and counseling programs, implement guidance programs, evaluate implementation of guidance and counseling, analysis of the results of implementation of guidance and counseling, and follow-up in guidance and counseling programs for students or clients based on guidance and counseling operational guidelines.

An expert system is a computer-based system that uses knowledge, facts and human reasoning techniques to solve problems that usually require human expertise or expertise (Desiani & Arhami, 2006). There are two inference techniques in expert systems, namely chaining and backward chaining. To make it easier to access Web services, the author uses a programming language, namely PHP. PHP is a programming script that is located and executed on the server. One of them is to receive, process and display data from static pages into dynamic pages. PHP users allow writers to do Web designing. T Sutojo, EM (2011). Says the Web is a system related to documents used as a medium for displaying text, images, multimedia, and others on the internet network. So that Web-based expert systems can be used whenever and wherever service users are located.

In 2012 Asabere & Enguah implemented their research expert system entitled Integration of Expert Systems in Mobile Learning. The ability of an expert system to transform an expert's knowledge into a system using the forward chaining method and the simple additive weighting method. An example of applying this method is by calculating the weight given by experts (Guidance and Counseling) and the value made by system users in the form of an assessment of the causes they experience. So that guidance and counseling teachers can provide solutions to student problems.

The expert system that the author will design is a development of an expert system in research on integration of expert systems in mobile learning which is based on the main tasks of guidance and counseling teachers. By using the guidance and counseling service management mechanism stated in the guidance and counseling operational guide.

Ministry of Education and Culture. (2016) regarding Operational Guidelines for Implementing Guidance and Counseling in Schools explains The mechanism for managing guidance and counseling services, sequentially, the mechanism for managing guidance and counseling is organized and includes the stages of needs analysis, planning, implementation, evaluation, reporting and further development of the guidance and counseling program. The management mechanism for guidance and counseling services is as follows;

1. Needs Analysis

Guidance and counseling programs are designed based on data on the needs of students, schools and parents. Needs data is collected and used to update the goals and plans for the guidance and counseling program. Guidance and counseling are planned, implemented and evaluated as well as followed up based on priority data on needs which is facilitated in fulfillment in the field of guidance and counseling components. Nurkencana, W. (1993) stated "The needs of students, educational units and parents are identified using various non-test and test instruments or by collecting facts, self-reports, observations and tests conducted by counselors or guidance and counseling teachers or other authorized parties. The identification results are analyzed and interpreted to determine priority levels for guidance and counseling services." In this case (Fadhilla, 2014) explains "techniques for understanding students, in general, techniques for understanding the characteristics of students/counselees used in

guidance and counseling include test and non-test techniques". Test techniques are techniques for understanding individuals using standardized test instruments.

Guidance and counseling teachers who have a license through certification training can use the test instruments they have studied. For those who do not yet have a license to administer psychological tests, schools can collaborate with trusted psychological testing agencies. Furthermore, non-test techniques are valuable for understanding individuals using standardized and non-standard instruments. Non-test assessment techniques commonly used for guidance and counseling purposes include observation, interviews, questionnaires, sociometry, documentation, and biographies or autobiographies.

2. Planning

Planning (action plans) as a useful tool for responding to needs that have been identified, implementing special stages to meet needs, identifying parties responsible for and arranging schedules for annual and semester programs and their implementation, so that from the start the efficiency and effectiveness of the program and accountability measurement plan. The guidance and counseling program is planned as an annual program and a semester program.

3 Implementation

Implementation of guidance and counseling must estimate aspects of data collection and counseling must pay attention to aspects of data use and time use spread throughout the academic calendar. The first aspect is the use of data. Data collection will provide important information in program implementation and will be needed to evaluate the program in relation to progress. data achieved by students/counselees is collected throughout the process of implementing guidance and counseling so that by planning what is done and what is not donewhat has changed or improved, the data collected is divided into three; first aspect; short-term data, namely end-of-activity data, long-term data, working on collection data from a certain time period, for example a semester program, then the data in question is data for one semester formeasuring indicators of progress towards achieving predetermined goals and long-term data is the final data of a series of programs, for example the annual program which is data on the results of all activities and their impact on personal development, social, learning, career of students,the second aspect is the use of time spread across the academic calendar. The proportion of planning time spread over the calendaracademic. The proportion of planning and implementation time for each component and field of guidance and counseling must take into account the level of the educational unit students' needs for the number of guidance and counseling teachers. Number of students, number of guidance and counseling teachers, number of students served.The main attention is directed to the needs of students as a result of the analysis of student needs in the distribution of guidance and counseling teacher time in each component of the guidance and counseling program must also pay attention to the class level in the educational unit. Most of the guidance and counseling teacher's time (80%-85%) is for direct service to students, the rest (15%-20%) is for management and administration activities. The guidance and counseling activity calendar as program planning for all components and areas of guidance and counseling is arranged in line with the educational unit academic calendar.

4 Evaluation

Evaluation in guidance and counseling is the process of making systematic considerations regarding effectiveness in achieving the objectives of the guidance and counseling program based on certain standard measures. Thus, evaluation is a systematic process of collecting and analyzing information about the efficiency and effectiveness of the impact of guidance and counseling programs and services on students' personal, social, learning and career development. Evaluation is related to accountability, namely as a measure of how much the guidance and counseling objectives have been achieved.

5 Reporting

Reporting on the process and results of program implementation is intended to answer the question of how students develop as a result of guidance and counseling services. The report will be used as support for follow-up programs to ensure the success of subsequent program implementation. Short-term reports will facilitate the evaluation of short-term program activities. Mid-term and long-term reports will reflect progress towards change in all educators in the content and format of reports in line with the need to convey information effectively to all stakeholders. The report will also provide important information for the professional development required for guidance and counseling teachers

6 Follow Up

Follow-up on program reports and implementation of guidance and counseling will be an important tool in continuing to support the program as planned. Supporting every student served. Supports the use of appropriate materials, documents the perception process and program results in detail, documents the short-medium and long-term impacts, analyzes the effectiveness of the program being continued, revised or discontinued, improves the program and is used to support changes in the school system.

So, mechanism management of guidance and counseling services is an ingredient in developing a guidance and counseling expert system. Examples include the application of a guidance and counseling expert system for assessing assessment data sets and their interpretation, program planning including guidance and counseling services and service materials that will be provided to students, implementation of guidance and counseling services, evaluation of activities, and follow-up.

4. Conclusion

The 21st century is marked as a century of openness/globalization, which means that human life in this century is experiencing fundamental changes that are different from the way of life in the previous century. The 21st century is marked by the very rapid development of information technology and the development of automation where many routine and repetitive jobs are starting to be replaced by machines, both production machines and computer machines. The application of Information Technology (IT) in the 21st century has spread in almost all fields, including guidance and counseling. An expert system is an information system that tries to adopt human knowledge for decision making which is usually used by an expert in a particular field. This system adopts human knowledge to computers.

System guidance and counseling experts are one of the breakthroughs in the 21st century to make it easier for guidance and counseling teachers to carry out their main tasks, including; preparing guidance and counseling programs, implementing guidance and counseling programs,

implementing guidance programs, evaluating the implementation of guidance and counseling, analyzing the results of implementing guidance and counseling, and following up in guidance and counseling programs for students

The expert system that will be designed uses the guidance and counseling service management mechanism stated in the guidance and counseling operational guide; 1) Needs Analysis, 2) program planning, 3) implementation, 4) evaluation, 5) Reporting, 6) Follow up. It is hoped that this guidance and counseling expert system can become one of the choices for guidance and counseling teachers in carrying out their main duties.

References

- Albina, M., Safiâ, A., Gunawan, M. A., Wibowo, M. T., Sitepu, N. A. S., & Ardiyanti, R. (2022). Model pembelajaran di abad ke 21. *Warta Dharmawangsa*, 16(4), 939–955.
- Desiani, A., & Arhami, M. (2006). Konsep kecerdasan buatan. *Yogyakarta: Andi Offset*.
- Fadhilla, Y. (2014). Instrumentasi Non Tes dalam Konseling. *Bukittinggi: Institut Agama Islam Negeri Bukittinggi*.
- Fitria, Q. E. (2019). *PENGARUH PENGGUNAAN MODEL PEMBELAJARAN SAINS TEKNOLOGI MASYARAKAT (STM) DAN PROBLEM BASED LEARNING TERHADAP KEMAMPUAN BERPIKIR KRITIS*. universitas pendidikan indonesia.
- Sinaga, M. H. P., Qurrata, K., & Andini, V. (2022). Pola pelaksanaan manajemen bimbingan dan konseling di sekolah menengah atas. *Bulletin of Counseling and Psychotherapy*, 4(1), 110–116.