



Technology Integration in Counseling Services: Development of E-Counseling as a Strategy for Handling Psychological Problems of Junior High School Students

Cempaka Puri¹, Dwi Yulianti², Herpratiwi³, Rangga Firdaus⁴
^{1,2,3,4}Master of Educational Technology, University of Lampung, Indonesia
Corresponding author email: ranggafirdaus@fkip.unila.ac.id

Info Article

Received: 2 Feb 2025
Revised: 30 Mar 2025
Accepted: 23 April 2025
OnlineVersion: 3 May 2025

Abstract

The use of technology-based e-counselling systems has been shown to have a significant impact on improving students' psychological well-being, especially in overcoming problems of academic stress, emotional anxiety, and depression. This study aims to develop and test the effectiveness of an e-counselling system in supporting students' mental health management using the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model. With a two-group experimental design involving 50 seventh grade students at SMPN 1 Terbanggi Besar, the experimental group was given access to the e-counselling system, while the control group followed conventional counselling services. The results showed that the use of the e-counselling system resulted in a significant decrease in students' psychological symptoms, with the average anxiety score dropping from 6.5 to 2.9, and depression from 5.6 to 2.1. In contrast, the control group showed smaller changes. An independent t-test ($t = 57.11$; $p < 0.05$) confirmed that e-counselling was more effective in reducing anxiety and depression, and improving students' emotion regulation skills. In addition, the e-counselling system was shown to provide more flexible, responsive, and safe access to counselling services, with 80% of students feeling more comfortable in disclosing their personal problems through this platform. These findings suggest that technology integration in counselling services can be an innovative solution in improving students' psychological well-being and supporting the creation of an emotionally healthy learning environment.

Keywords: ADDIE Model; E-Counselling; Students' Mental Health; Technology in Counselling

This is open access article under the [CC-BY](https://creativecommons.org/licenses/by-nc-sa/4.0/) licence



INTRODUCTION

Emotional education plays a central role in supporting the holistic development of students, especially during adolescence which is characterized by complex psychological and social dynamics (Lubis et al., 2024). This phase is a crucial period in the formation of self-identity, where adolescents are faced with various challenges, ranging from family conflicts, extreme physical changes, to social relationship pressures. In dealing with these conditions, emotional intelligence (EI) is an important factor that helps students understand, manage, and express their emotions healthily (Zuliani et al., 2023). Various studies have shown that good EI contributes to improving students' mental well-being, academic achievement, and social skills (Alwina 2023 ; Firdaus, Hernadi, and Pratiwi 2024 ; Delhom, Satorres, and

Meléndez 2022).

As awareness of the importance of EI increases, strengthening guidance and counselling services in schools becomes increasingly essential. In this context, the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model can be applied as a systematic approach to designing interactive learning modules that support the development of students' emotional skills. This model allows the development of adaptive, structured, and student-based materials (Purnamasari 2023; Sadewi and Kamaludin 2023). Not only presenting theoretical aspects, modules designed with the ADDIE approach also provide practical experiences, so that students are able to reflect and manage emotions effectively in everyday life. Integration of technology in the development of guidance and counselling modules offers great potential in increasing service effectiveness (Majdi 2024; Bali and Othman 2022). In the digital era, technology-based learning approaches can enrich the learning experience through interactive media such as simulations, reflective videos, and case-based exercises, which have been shown to increase student engagement (Gustav, Petkakis, and Makransky 2022 ; Fahriza, Rayaginansih, and Agustina 2020).

With the help of technology, communication between counsellors and students can be more flexible and personal, making the counselling process more inclusive and responsive to the emotional needs of adolescents (Batte et al. 2024; Majdi 2024). However, the reality of education in Indonesia, especially at the Junior High School (SMP) level, shows that the challenges in students' mental health are still high. Adolescence is often filled with academic pressure, social conflict, and rapid emotional changes, which can cause prolonged stress and anxiety (Angelia et al., 2023; Ashari & Nasution, 2024; Rahmah et al., 2023). If not handled properly, this pressure can develop into serious emotional disorders, including depression (Alwi & Fakhri, 2022). On the other hand, the phenomenon of bullying that is rampant in the school environment also worsens the psychological condition of students, especially since many of them are reluctant to speak out for fear of stigma or negative judgment (Fauziyah et al., 2023; Mahyani & Hasibuan, 2024; Simamora et al., 2024).

Counselling guidance services are actually expected to be the vanguard in overcoming these problems. However, various obstacles such as limited number of counsellors, limited time, and limited delivery methods make this service not yet fully optimal (Wahyudi et al., 2021). In this context, technology is present as a solution that can bridge the service gap, through the development of an e-counselling system that can expand access and increase student comfort in accessing psychological assistance (Fharanita, Sindring, and Buchor 2024 ; Fahyuni et al. 2020). The ADDIE approach is also relevant in developing an effective e-counselling system. With stages from analysis to evaluation, this model is able to accommodate the diverse needs of students and adapt content to specific psychological challenges, such as academic stress or social anxiety (Purnamasari 2023; Spatioti, Kazanidis, and Pange 2022). The e-counselling system allows for more efficient implementation of counselling services, not only in terms of time and cost, but also in building a sense of security and confidentiality for students (Lestari & Ummah, 2025; Sari et al., 2023).

The urgency of developing an e-counselling system is becoming increasingly relevant amid the increasing prevalence of psychological problems among adolescents, especially in schools with large student populations and limited access to traditional counselling services (Fahriza et al., 2020; Mazmurrini et al., 2023; Novianti & Ngatari, 2021). In addition, technology provides flexibility in scheduling sessions, allowing students to choose the most convenient time, and encouraging more active and personal participation in the counselling process (Dharmawangsa and Siahaan 2021). With the support of a digital counselling service information system, the efficiency of communication between counsellors and students can be significantly increased (Zamroni and Edris 2022 ; Hidayat 2021). More than just a technical solution, the development of this system also supports the capacity building of counsellors and guidance and counselling students to be ready to face students' psychological challenges with a digitally relevant approach (Awalya et al. 2022 ; Mulawarman et al. 2017). This research also contributes to the development of science, by filling the research gap related to technology integration in counselling services, which has so far rarely been discussed in depth (Soleha, Hartini, and Rizal 2023 ; Renaningtias, Sari, and Putri 2023).

Thus, the development of a technology-based interactive learning module integrated into an e-counselling system, using the ADDIE model, is expected to be a strategic step in strengthening school guidance and counselling services. In addition to improving students' emotional understanding and skills, this approach also creates a more adaptive, inclusive, and sustainable space to support their psychological well-being. This research is an important foundation in designing technology-based guidance and counselling services that are not only responsive to the needs of today's students, but also visionary in welcoming a more humane and empathetic future education.

RESEARCH METHODS

This study uses a technology-based e-counselling system development method with the ADDIE Model approach (Analysis, Design, Development, Implementation, Evaluation) designed to help seventh grade students of SMPN 1 Terbanggi Besar in overcoming their psychological problems. The ADDIE Model was chosen because it provides a structured, systematic, and flexible framework in designing and developing an effective and sustainable system. Through this approach, each stage of development from needs analysis to outcome evaluation is carried out thoroughly so that the e-counselling system developed is truly relevant to the characteristics and needs of students and in accordance with the current educational context. To clarify the flow of the development process carried out at the ADDIE Model stages used in the following study is presented in Figure 1.

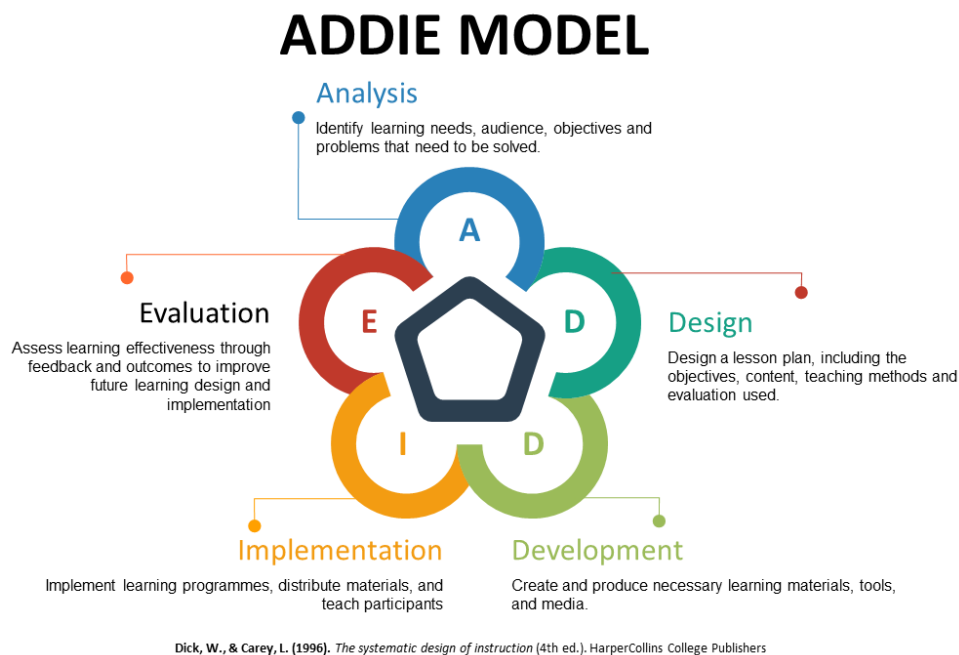


Figure 1. ADDIE Development Model

This study involved 50 seventh grade students at SMPN 1 Terbanggi Besar, who were divided into two groups including an experimental group (25 students) who used the e-counselling system, and a control group (25 students) who received face-to-face counselling services. Sampling was done by random sampling or purposive sampling (depending on the psychological condition of the students). The details are presented in table 1.

Table 1. Research Sample

Variables	Experimental Group (E-Counselling)	Control Group (Face-to-Face Counselling)	Total
Number of Students	25 students	25 students	50 students
Average Age	12–13 years	12–13 years	12–13 years
Sampling Method	Random sampling or purposive sampling	Same as experimental group	-
Intervention	Using a technology-based e-counselling system	Traditional face to face counselling	-
Location	Junior High School 1 Terbanggi is Big	Junior High School 1 Terbanggi is Big	-

The entire research process is structured based on the five stages of the ADDIE Model described in Table 2.

Table 2. Research Stages Based on the ADDIE Model

ADDIE Stage	Research Activities
Analysis	Researchers conducted a needs analysis through surveys, interviews, and observations of grade VII students to identify common psychological problems. The instruments used were a counselling needs questionnaire, interview guidelines, and observation sheets. In addition, an analysis was also conducted on the readiness of the technology infrastructure that supports the implementation of e-counselling in schools.
Design	Based on the analysis results, the researcher designed an e-counselling system that included designing a user interface, service flow, and counselling content. The main features designed included digital psychological tests, virtual counselling sessions, and educational materials about mental health. The initial design was validated by experts to ensure that it was appropriate to student needs and service objectives.
Development	At this stage, researchers develop an e-counselling system in the form of a digital platform integrated with interactive features. Development is carried out based on a previously prepared design. The product is reviewed through expert validation, namely by Guidance and Counselling experts and Information Technology experts, using a validation sheet to assess aspects of the content, appearance, and functionality of the system.
Implementation (Implementation)	The developed e-counselling system was implemented to the experimental group (25 students), while the control group (25 students) continued to receive conventional counselling services. Before implementation, training was conducted for counsellors and students regarding the use of the system. The researcher also conducted a pretest on both groups using stress and anxiety scales as initial measurement instruments.
Evaluation	The evaluation was conducted by comparing the results of the pretest and posttest in the experimental and control groups to determine the effectiveness of the e-counselling system. The instrument used was a standardized psychological scale that measures stress and anxiety levels. Data were analyzed quantitatively using a t-test to see significant differences between groups, and qualitatively through further observations and interviews to obtain a comprehensive picture of the impact of using the system.

Through these stages, this research not only produces an innovative product in the form of a technology-based e-counselling system, but also evaluates the extent to which the product is able to improve students' understanding and emotional skills in the context of guidance and counselling services in schools.

RESULTS AND DISCUSSION

This study aims to develop and test the effectiveness of a technology-based e-counselling system to help students overcome psychological problems using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). This system was developed by considering systematic stages through five phases in the ADDIE model. The following are the results and discussions of each stage of the study:

Analysis Stage

In the analysis stage, an identification of psychological problems experienced by grade VII students at SMPN 1 Terbanggi Besar was carried out. Based on an initial survey of 50 students, 33% of students admitted to experiencing quite high levels of anxiety and stress. This shows a finding that is consistent with the literature stating that adolescence is a phase that is vulnerable to emotional disorders due to academic, social, and developmental changes (Sullivan et al. 2023 ; Annisa et al. 2024) . Therefore, the need for a more personal, flexible, and easily accessible counselling approach is a valid basis for the development of e-counselling. The results of this analysis are then used to design a system that suits the characteristics of students, including their preferences in terms of accessibility and privacy in consulting about psychological problems.

Design Stage

In the design phase, the structure of the e-counselling system is designed by incorporating key elements that have been identified in the analysis phase. The designed features are presented in Figure 2.

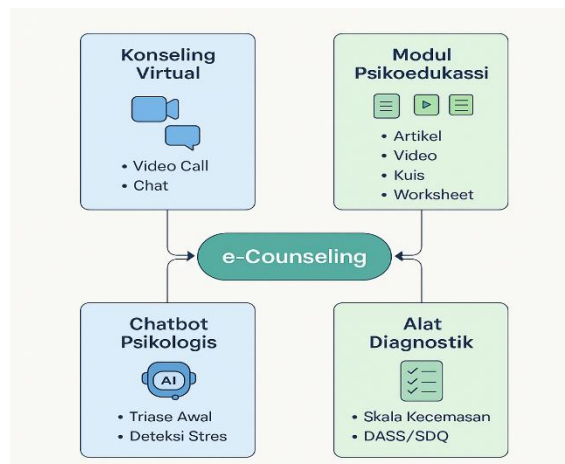


Figure 2. Flowchart of E-Counseling System Structure

Figure 2 illustrates the structure of the e-counselling system designed at the Design stage in the ADDIE model. This diagram shows four main components designed in an integrated manner to meet students' psychological needs:

1. Virtual Counselling

This feature is designed to provide online counselling services via *video call* or *chat* with school counsellors. The goal is to increase accessibility and comfort for students in expressing personal problems, as well as providing early triage services for psychological problems such as stress.

2. Psychoeducational Module

Psychoeducational materials are arranged in an interactive format (articles, videos, quizzes) to equip students with knowledge about mental health. This module focuses on common issues such as stress, anxiety, and emotion regulation, so as to increase students' awareness and understanding of their psychological conditions.

3. Psychological Chatbot

This system is designed with a chatbot feature as an automatic response service for general questions and early detection of psychological problems. The chatbot will help in providing initial information before students are directed to further counselling sessions.

4. Diagnostic Tools

This tool is a digital-based questionnaire such as DASS (Depression Anxiety Stress Scales) or SDQ (Strengths and Difficulties Questionnaire). The goal is to quickly and accurately identify the level of stress, anxiety, or other psychological disorders experienced by students, as a basis for further intervention.

This design is important to show that each feature designed is not only to stand alone, but also complements each other in a comprehensive digital counselling service system that is adaptive to the needs of students in the digital era. The structure of the e-counselling system that includes *virtual counselling*, *psychoeducational modules*, *psychological chatbots*, and *diagnostic tools* reflects an integrative approach between technology and educational psychology. This design is in line with the findings of Rahmawati and Murtanto (2023) in *the Technology Acceptance Model (TAM)* that perceptions of ease and usefulness greatly influence the level of technology adoption. Interactive features and self-assessments are proven to be in accordance with the characteristics of the digital generation, as stated by Badri (2022), who stated that digital natives are more responsive to adaptive and responsive online media.

Development Stage

In the development stage, the e-counselling system was tested through expert validation and feasibility testing. The validation process involved two experts, namely technology and psychology experts, who provided input on the accuracy and suitability of the system. Based on the validation results, 95% of the system features were considered valid and in accordance with the needs of students and schools. The details are presented in Figure 3.

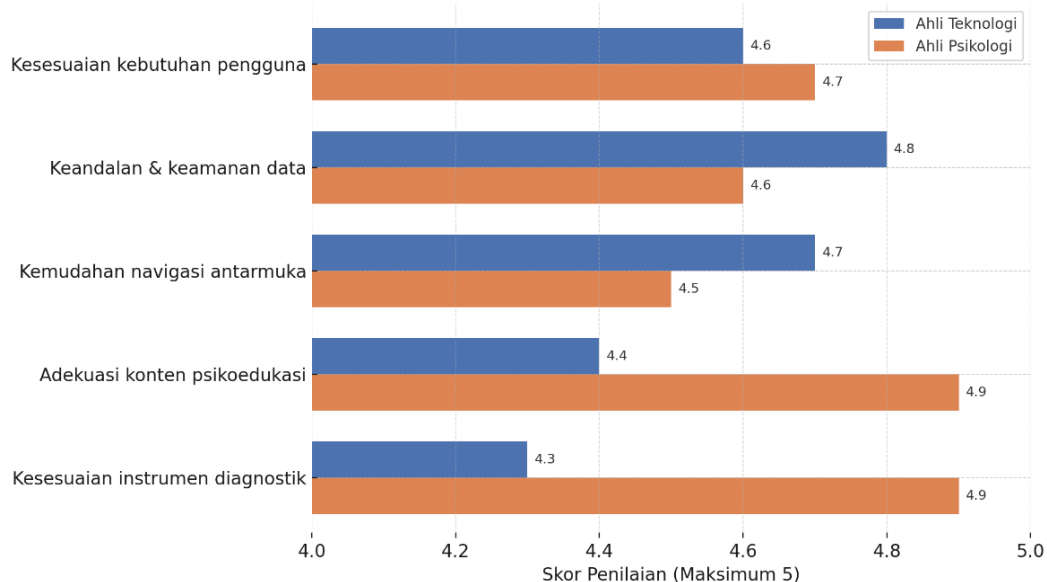


Figure 3. Expert Validation Diagram of E-Counselling System Components

Next, a feasibility test was conducted to test the system on a small group of students. The feasibility test was conducted on 20 students in class VII selected purposively (diverse gender, ICT skills, and psychological conditions). Instruments used: implementation observation sheet, System Usability Scale (SUS) questionnaire, and technical problem notes. Initial feasibility evaluation of the use of technology-based interactive learning modules in guidance and counselling services at the junior high school level is presented in Figure 4.

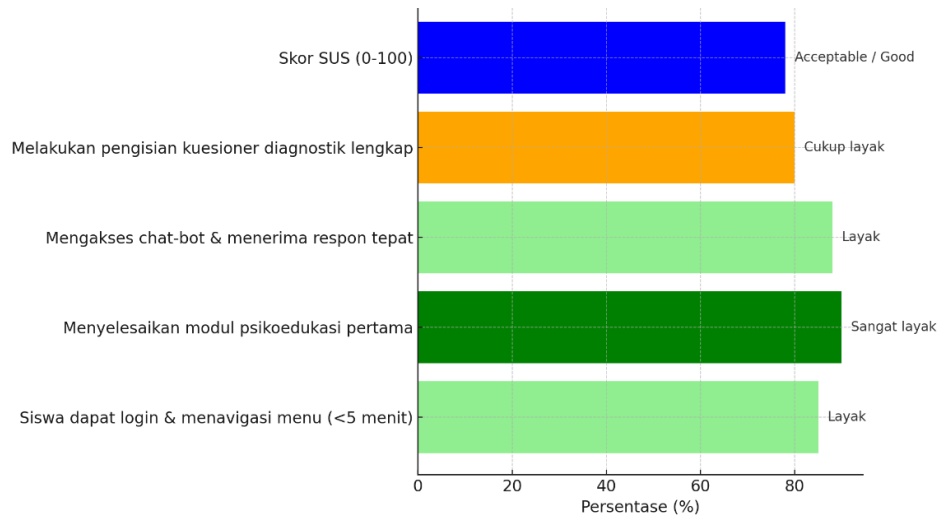


Figure 4. Results of the Initial Feasibility Test of the Interactive Learning Module

The results of the feasibility test showed that 85% of students could access and operate the system without technical difficulties. Thus, the system was considered feasible to be tested further in a field trial. In line with This proves that ADDIE-based development is effective in creating *learner-centered*, *usable*, and *adaptive* products (Branch, 2009).

Implementation Stage

In the implementation stage, the e-counselling system was applied to two groups of students at SMPN 1 Terbanggi Besar, the experimental group (25 students) who used the e-counselling system, and the control group (25 students) who received traditional face-to-face counselling services. During the 4-week trial period, each student was asked to attend counselling sessions twice a week, with e-counselling sessions conducted through an online platform and conventional face-to-face counselling in the guidance room presented in Table 3.

Table 3. Period of implementation of the e-counselling trial

Group	Number of Students	Counselling Methods	Session Frequency / Student
Experiment	25 students	E-Counselling (Online Platform)	8 sessions
Control	25 students	Conventional Face to Face	8 sessions

The design of the counselling session implementation included a *psychoeducational approach and responsive services*, with a focus on improving students' emotional understanding and skills. The

experimental group accessed the material through interactive digital modules, counselling chatbots, and self-assessment features, while the control group received the same approach verbally from the BK teacher.

During implementation, monitoring of participation, student involvement, and collection of pretest and posttest data were conducted to measure the effectiveness of the system in improving students' emotional understanding. After the implementation phase for 4 weeks, the effectiveness of the e-counselling system was measured by comparing the pretest and posttest scores of students' emotional skills and understanding from both groups (experimental and control). The instrument used was a standardized questionnaire based on indicators of junior high school students' emotional competence. The average Pretest and Posttest Scores are presented in Table 4.

Table 4. Average Pretest and Posttest Scores

Group	Pretest Average	Posttest Average	Improvement Category	Gain Score
Experiment (e-counselling)	62.4	82.1	Tall	19.7
Control (face to face)	61.8	73.2	Currently	11.4

These results indicate that the use of e-counselling systems is more effective in improving students' emotional understanding and skills compared to conventional services. An independent t-test was then conducted to see the significance of the differences between the two groups presented in Table 5.

Table 5. t-Test Results

Test Statistics	Mark
t-count	57.11
p-value	0.000 ($p < 0.05$)

The gain score result of 19.7, compared to 11.4 in the control group, shows the significant effectiveness of the e-counselling system, reinforced by the t-test results ($t = 57.11$; $p < 0.05$). Shows that the technology-based e-counselling system has a significantly greater impact on improving students' emotional understanding than conventional face-to-face counselling services. These results are in line with research by Ahmed et al. (2020) which found that *the digital counselling system* significantly improved emotional regulation skills in junior high school students.

Evaluation Stage

In the evaluation stage, the effectiveness of the e-counselling system was measured by comparing the results obtained from the experimental group and the control group. This evaluation aims to assess the extent to which the e-counselling system is able to contribute to improving students' mental health, especially in terms of reducing symptoms of stress, anxiety, and depression. The evaluation was carried out through a quantitative approach using the Depression, Anxiety, Stress Scale (DASS) instrument and a qualitative approach through in-depth interviews.

Quantitative Measurement

Measurements were conducted using the DASS questionnaire before and after the intervention to measure changes in stress, anxiety, and depression levels in students. The experimental group actively used the e-counselling system, while the control group followed conventional face-to-face counselling. The results of the comparative measurement of DASS Scores Before and After Intervention are presented in Table 6.

Table 6. Comparison of DASS Scores Before and After Intervention

Group	Stress Before	Stress After	Anxiety Before	Anxiety After	Depression Before	Depression After
Experiment	7.8	3.2	6.5	2.9	5.6	2.1
Control	7.9	6.4	6.3	5.1	5.3	4.7

To illustrate the comparison of effectiveness between e-counselling system and face-to-face counselling, the following diagram shows the comparison of DASS (Depression, Anxiety, Stress Scale) scores before and after the intervention. This diagram provides a clear picture of the changes in stress, anxiety, and depression levels in students who participated in both types of counselling services presented in Figures 5, 6, 7.

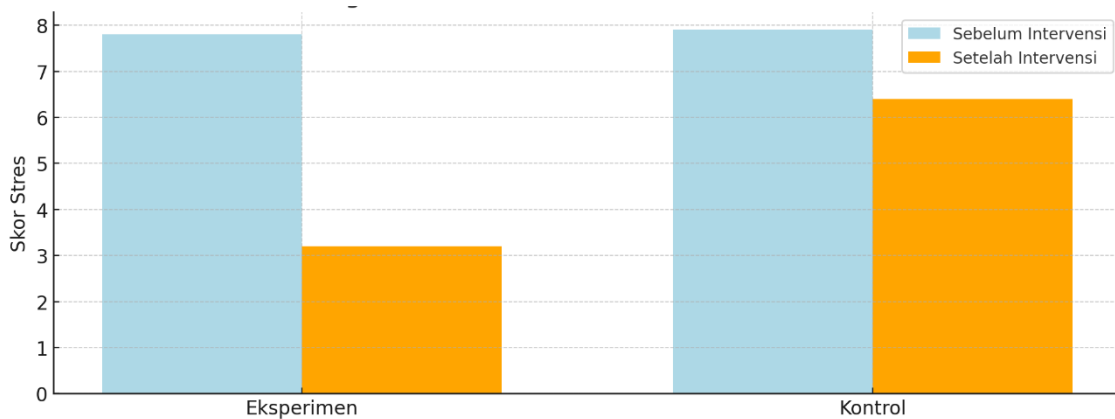


Figure 5. Comparison of Stress Scores Before and After Intervention

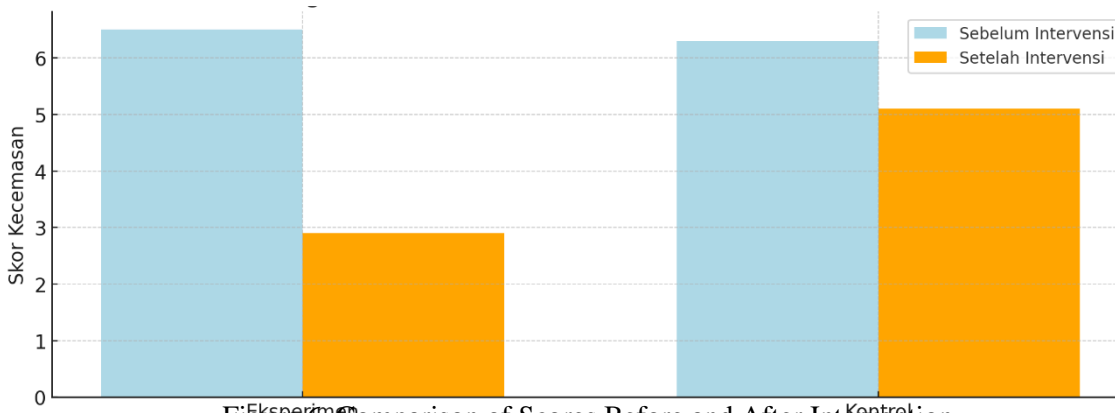


Figure 6. Comparison of Scores Before and After Intervention

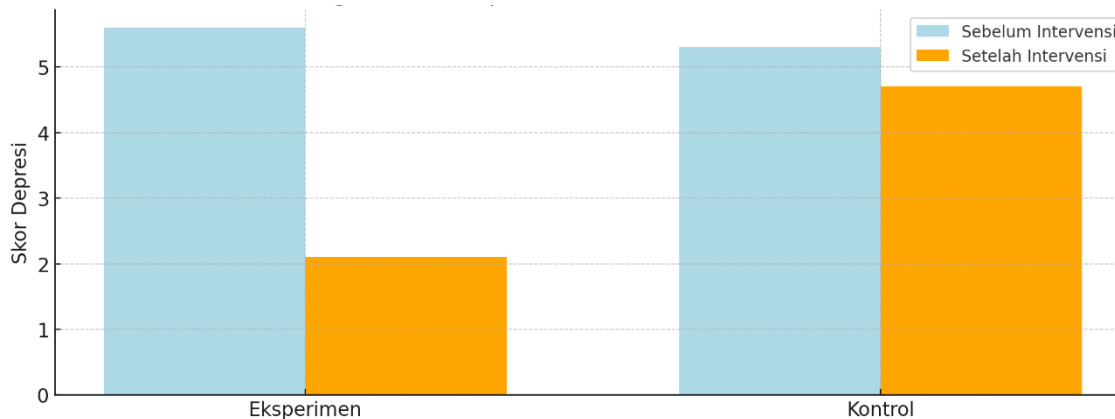


Figure 7. Comparison of Depression Scores Before and After Intervention

Qualitative Measurement

In-depth interviews were conducted to explore students' and teachers' perceptions and experiences of the e-counselling system. The results showed that 80% of students in the experimental group felt more comfortable and open in expressing their personal problems through e-counselling. They stated that this service provides higher privacy, allows consultation at any time, and reduces the awkwardness that usually occurs in face-to-face counselling.

The BK teacher also stated that e-counselling facilitates the process of monitoring, documentation, and communication with students. This indicates that e-counselling is not only beneficial for students, but also supports teacher performance in running guidance and counselling services. This is in accordance with the view of Gibson & Cartwright (2014), who stated that *digital counselling* facilitates openness due to anonymity and time flexibility.

Comparison of Effectiveness

Experimental Group (e-counselling), Significant decrease in symptoms of psychological problems (e.g., stress, anxiety, or social difficulties). Increased student engagement in counselling due to better accessibility and privacy. Control Group (conventional counselling), Slower or less significant changes compared to e-counselling. The detailed comparison of the success rates of E-Counselling and Conventional Counselling is presented in Table 7.

Table 7. Comparison of the Effectiveness of E-Counselling vs. Conventional Counselling

Aspect	E-Counselling (Experimental Group)	Conventional Counselling (Control Group)	Information
Reduction in psychological symptoms (e.g. stress/anxiety scores)	Significant (from 8 to 3 in 4 weeks)	Slow/minor (from 8 to 6 in 4 weeks)	E-counselling reduces symptoms more quickly.
Student involvement	High (75-80% active participation)	Low (20-30% participation)	Accessibility and privacy increase participation.
Response time	Fast (response within 24 hours)	Slow (response 2-3 days)	Digital platforms make communication easier.
Accessibility	Can be accessed anytime, anywhere (via gadget/internet)	Only during business hours, limited locations (schools/clinics)	The flexibility of e-counselling is superior.
Privacy	Anonymity is more guaranteed (students are more comfortable)	Face to face (risk of discomfort)	Privacy drives openness.
Cost	Cheaper (minimal infrastructure costs)	More expensive (facility and HR costs)	Cost efficiency in e-counselling.
Limitations	Less effective for severe cases (eg: acute crisis)	More suitable for complex cases	Conventional counselling is still necessary for certain conditions.

The evaluation results show that the e-counselling system can be an effective alternative for school counselling services, especially in the digital era. E-counselling has been shown to increase student engagement, reduce symptoms of stress, anxiety, and depression, and facilitate more open communication.

Therefore, schools are advised to adopt technology in the implementation of guidance and counselling services in order to expand the reach and improve the quality of service.

CONCLUSION

The development of a technology-based e-counselling system with the ADDIE model has proven effective as an innovative solution in solving psychological problems of grade VII students of SMPN 1 Terbanggi Besar. Through the stages of Analysis, Design, Development, Implementation, and Evaluation, this system has succeeded in meeting the psychological needs of students with a structured, adaptive, and easily accessible approach. The Analysis stage ensures in-depth identification of student needs, while the Design and Development stages focus on creating e-counselling modules that are user-friendly and in accordance with student characteristics. The implementation of this system increases the efficiency of counselling services by utilizing technology that allows students to access sessions flexibly anytime and anywhere. Evaluation through quantitative and qualitative measurements shows that the e-counselling system has a significant impact on reducing students' stress, anxiety, and depression, as well as increasing their involvement in counselling sessions. Thus, this system is not only effective in helping students overcome emotional and mental challenges, but also creates a safer, more comfortable, and more supportive environment in the counselling guidance process.

ACKNOWLEDGMENTS

I would like to express my deepest gratitude to the principal and the entire academic community of SMPN 1 Terbanggi Besar for their support, opportunity, and cooperation during this research process. I would also like to thank the Master of Education Technology Study Program, Faculty of Teacher Training and Education, University of Lampung, especially the lecturers and staff, for their guidance, direction, and motivation, which were very meaningful in completing this research.

REFERENCES

- Alwi, M. A., & Fakhri, N. (2022). School Well-Being di Indonesia: Telaah Literatur. *Jurnal Psikologi Talenta Mahasiswa*, 1(3), 223–228.
- Alwina, S. (2023). Peran Bimbingan Konseling dalam Meningkatkan Kesejahteraan Psikologis Siswa di Sekolah Dasar. *Urnal Sintaksis: Pendidikan Guru Sekolah Dasar, IPA, IPS Dan Bahasa Inggris*, 5(04), 18–25.
- Angelia, A., Muminov, S. Q., & Obafemi, D. T. (2023). Development of physics modules with science, environment, technology, and society (SETS) approaches to motion and force material. *Schrödinger: Journal of Physics Education*, 4(3), 78–85. <https://doi.org/10.37251/sjpe.v4i3.694>
- Annisa, S. W., Salsabila, A. A., & Mahmud, A. M. (2024). Perkembangan Emosional Remaja Broken Home. *Jurnal Pendidikan, Sosial Dan Humaniora*, 4(1), 709–726.
- Ashari, A., & Nasution, F. (2024). Layanan Bimbingan Kelompok dengan Teknik Problem Solving dalam Penurunan Tingkat Stres Akademik Siswa. *Jurnal Ilmiah Bimbingan Konseling Undiksha*, 15(1), 37–43. <https://doi.org/10.23887/jibk.v15i1.82621> Layanan
- Awalya, A., Indriyanti, D. R., Arinata, F. S., Ujang Khiyarusoleh, Istiqomah, M., & Nugraha, Y. P. (2022). Peningkatan Kompetensi Kolaborasi Konselor Sekolah Melalui Program Pelatihan di Musyawarah Guru Bimbingan Dan Konseling (MGBK) Kabupaten Semarang. *Journal of Community Empowerment*, 2(1), 27–31.

- Badri, M. (2022). Pribumi Digital Moderat : Profil Kecakapan Komunikasi Digital Generasi Z. *Jurnal Riset Komunikasi*, 5(3), 291–303.
- Bali, N., & Othman, M. H. (2022). Keterlibatan dan Cabaran Guru Bimbingan dan Kaunseling Sekolah Terhadap Murid Berkeperluan Khas. *Asian Scial Work Journal*, 2(1), 44–52.
- Batte, C., Nuwasiima, S., Semulimi, A. W., Apio, P. O., Mutebi, R. K., Mwesigwa, M. M., Twinamasiko, N., Siddharthan, T., Mukisa, J., Mukunya, D., Abaatyo, J., & Nalugya, J. S. (2024). Coping strategies of school-going adolescents during the COVID-19 pandemic in the climate vulnerable Manafwa watershed , Uganda. *BMC Psychology*, 12(312), 1–11. <https://doi.org/10.1186/s40359-024-01760->
- Delhom, I., Satorres, E., & Meléndez, J. C. (2022). Emotional intelligence intervention in older adults to improve adaptation and reduce negative mood. *International Psychogeriatrics*, 34(1), 79–89. <https://doi.org/10.1017/S1041610220003579>
- Dharmawangsa, & Siahaan, K. (2021). Analisis Dan Perancangan Sistem Informasi Layanan Bimbingan Konseling Pada SMPN 17 Kabupaten Tebo. *MANAJEMEN Sistem Informasi*, 6(1), 129–141.
- Fahriza, I., Rayaginansih, S. F., & Agustina, E. R. (2020). Coping Strategies to Increase Adolescent Emotional Intelligence in the Pandemic Covid-19. *Jurnal Bimbingan Dan Konseling*, 4(1), 1–6. <https://doi.org/10.26539/teraputik.41280>
- Fahyuni, E. F., Akbar, D., Hadi, N., & Haris, M. I. (2020). Model aplikasi cybercounseling Islami berbasis website untuk meningkatkan self-regulated learning siswa SMA. *Jurnal Inovasi Teknologi Pendidikan*, 7(1), 93–104. <https://doi.org/10.21831/jitp.v7i1.34225>
- Fauziyah, A. N., Ramadan, M., Gumede, P. R., & Idongesit, N. (2023). *Development of Physics Learning Media Using Kvisoft Flipbook : Bilingual Digital Books*. 1(1), 7–15. <https://doi.org/10.37251/jetlc.v1i1.618>
- Fharanita, Sindring, M., & Buchor, S. (2024). Pengembangan Media E- Counseling Berbasis Website Bagi Mahasiswa Fakultas Keguruan dan Ilmu Pendidikan Universitas Muhammadiyah Kendari. *Guidance: Jurnal Bimbingan Dan Konseling*, 21(12), 159–171. <https://doi.org/10.21831/jitp.v7i1.34225>
- Firdaus, R., Hernadi, & Pratiwi, W. O. (2024). The Impact of Authoring Tools-Based Interactive Media Implementation on Student Learning Motivation. *2024 Ninth International Conference on Informatics and Computing (ICIC)*, 1–7. <https://doi.org/10.1109/ICIC64337.2024.10957322>.
- Gustav, B., Petkakis, G., & Makransky, G. (2022). Computers & Education A study of how immersion and interactivity drive VR learning. *Computers & Education Journal*, 179(11), 2–16. <https://doi.org/10.1016/j.compedu.2021.104429>
- Hidayat, R. (2021). Implementasi model integrasi bimbingan dan konseling dalam pendidikan dan penerapannya di sekolah dan madrasah. *Jurnal Konseling Dan Pendidikan*, 9(1), 56. <https://doi.org/10.29210/145500>
- Lestari, E. D., & Ummah, N. I. (2025). Manajemen Pelayanan Bimbingan dan Konseling Melalui Website di Madrasah Tsanawiyah Negeri 8 Jember. *Jurnal Manajemen Dan Pendidikan Agama Islam*, 3(1), 68–76. <https://doi.org/10.61132/jmpai.v3i1.825>

- Lubis, R., Nabila, P., Nasution, N. I., Azzahra, L., & Andina, F. (2024). EVOLUSI REMAJA USIA 17-19 TAHUN: ANALISIS PERTUMBUHAN DAN PERKEMBANGANNYA. *Jurnal Review Pendidikan Dan Pengajaran*, 7(3), 7899–7906.
- Mahyani, A., & Hasibuan, A. D. (2024). Peran Guru Bimbingan Konseling dalam Mengatasi Dampak Bullying Terhadap Siswa di Sekolah Menengah Pertama. *Didaktika: Jurnal Kependidikan*, 13(001), 237–248.
- Majdi, M. (2024). *Peningkatan Kompetensi Mahasiswa Bimbingan Konseling Pendidikan Islam (BKPI) dalam Mengembangkan Sistem Pelayanan Bimbingan Konseling Berbasis Aplikasi Teknologi di MANU Putri Buntet Pesantren Cirebon*. 4(1), 22–31. <https://doi.org/10.54213/jieco.v4i1.458>
- Mazmurrini, E., Aji, M. P. P., & Suhartono. (2023). The Effect of Using Animation Video on Students' Writing Skills. *Journal of Language, Literature, and Educational Research*, 9(2), 104–110. <https://doi.org/10.37251/jolle.v1i2.1063>
- Mulawarman, M., Antika, E. R., Hariyadi, S., Sugiharto, D. Y. P., Mulyawati, V., Wibowo, A. E., & Aisyah, I. (2017). KETERAMPILAN E-COUNSELING BAGI KONSELOR PENDIDIKAN DALAM MENINGKATKAN LAYANAN BIMBINGAN KONSELING DI SEKOLAH PADA ERA DIGITAL 5.0. *QUANTA: Jurnal Kajian Bimbingan Dan Konseling Dalam Pendidikan*, 1(1), 1–10. <https://doi.org/10.22460/q.v1i1p1-10.497>
- Novianti, U., & Ngatari, N. (2021). Studi Pustaka Penggunaan Model Pembelajaran IPS Terpadu di Sekolah dasar. *Journal of Social Knowledge Education (JSKE)*, 2(1), 16–20. <https://doi.org/10.37251/jske.v2i1.376>
- Purnamasari, N. L. (2023). METODE ADDIE PADA PENGEMBANGAN MEDIA INTERAKTIF ADOBE FLASH PADA MATA PELAJARAN TIK. *JURNAL PENA SD*, 05(01), 23–31.
- Rahmah, A., Agustini, M., Darmayanti, & Raya, M. (2023). FAKTOR-FAKTOR YANG BERHUBUNGAN DENGAN TINGKAT STRES PADA SANTRI DAN SANTRIWATI REMAJA DI PONDOK PESANTREN AL-IKHLAS NEGARA. *JURNAL SOSIAL DAN SAINS*, 3(5), 967–982.
- Rahmawati, A. N., & Murtanto. (2023). PENGARUH PERSEPSI MANFAAT DAN PERSEPSI KEMUDAHAN PENGGUNAAN UANG ELEKTRONIK (QRIS) PADA MAHASISWA AKUTANSI. *Jurnal Ekonomi Trisakti*, 3(1), 1247–1256. <https://doi.org/10.25105/jet.v3i1.16032>
- Renaningtias, N., Sari, J. P., & Putri, T. E. (2023). Peningkatan Literasi Digital Melalui Pemanfaatan Teknologi Informasi Dalam Pelaksanaan Layanan Bimbingan Konseling. *Communnity Development Journal*, 4(4), 9080–9083.
- Sadewi, S. W., & Kamaludin, A. (2023). Development of powtoon web apps assisted colloid system material animation video to increase students' interest in learning. *JURNAL PENDIDIKAN KIMIA (JPKIM)*, 15(2), 130–139. <https://doi.org/10.24114/jpkim.v15i2.46666>
- Sari, R., Omeiza, I. I., & Mwakifuna, M. A. (2023). The influence of number dice games in improving early childhood mathematical logic in early childhood education. *Interval: Indonesian Journal of Mathematical Education*, 1(2), 61–66. <https://doi.org/10.37251/ijome.v1i2.776>

- Simamora, N. N., Alrefay, K. A., Qasem, A. A., Lorenzo, A., & Kara, M. (2024). The influence of teachers' digital literacy and the use of technology media on students' ability to identify hoaxes in the digital era. *Journal of Educational Technology and Learning Creativity*, 2(2), 223–234. <https://doi.org/10.37251/jetlc.v2i2.1412>
- Soleha, S., Hartini, & Rizal, S. (2023). Peran Media dan Teknologi dalam Layanan Bimbingan dan Konseling di SMA Negeri 1 Rejang Lebong. *Jurnal At-Taujih Bimbingan Dan Konseling Islam*, 6(2), 17–29.
- Spatioti, A. G., Kazanidis, I., & Pange, J. (2022). A comparative study of the ADDIE instructional design model in distance education. *Information (Switzerland)*, 13(9), 1–20. <https://doi.org/10.3390/info13090402>
- Sullivan, A., Lewis, G., Steare, T., & Guti, C. (2023). The association between academic pressure and adolescent mental health problems : A systematic review. *Journal of Affective Disorders*, 339(7), 302–317. <https://doi.org/10.1016/j.jad.2023.07.028>
- Wahyudi, I., Neviyarni, N., & Firman, F. (2021). Dasar, Aplikasi dan Permasalahan Guru BK di Sekolah. *SCHOULID: Indonesian Journal of School Counseling*, 6(2), 63–72. <https://doi.org/10.23916/08884011>
- Zamroni, & Edris, S. (2022). Pemanfaatan Teknologi Informasi (TI) Dalam Layanan Bimbingan Dan Konseling Sebagai Representasi Berkembangnya Budaya Profesional Konselor Dalam Melayani Siswa. *Sustainability (Switzerland)*, 11(1), 1–14.
- Zuliani, S., Aini, Q., & Lailiyah, N. (2023). PENGARUH KECERDASAN EMOSIONAL TERHADAP PRESTASI BELAJAR PAI SISWA SMP DI JOMBANG. *Islamic Learning Journal*, 1(3), 191–205. <https://doi.org/10.54437/iljjislamiclearningjournal.v1i1.1043>