

Improving the quality of guidance and counseling services through android-based data collection information technology

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Submitted : 10-10-2024, Revised : 11-11-2024, Accepted : 20-11-2024

Abstract: Services have a vital role in helping students face various challenges. However, conventional services often encounter obstacles, especially with the increasing number of students requiring guidance. This research aims to enhance the quality of guidance and counseling services through the implementation of Android-based information technology for student data collection. This study employs the ADDIE development model. The analysis phase is carried out through expert testing. The developed application is designed with consideration for data security, user privacy, as well as ease of access and service flexibility. Evaluation is conducted through feasibility tests by experts in guidance and counseling, media, and information technology, along with trials involving end-users. The research results indicate that the Android-based data collection system received high ratings in feasibility, accuracy, ease of use, and usability. The implementation of this system enables administrative efficiency, more measurable student progress monitoring, and the provision of more personalized and responsive services.

Keywords: Information technology; Dataset; Guidance and counseling

Introduction

Education is a crucial element in individual development, and guidance and counseling services play a vital role in helping students overcome various challenges (Altine & Bilyaminu, 2021; Amalianita et al., 2023; Gysbers & Henderson, 2014). However, conventional services often face obstacles, especially when the number of students requiring guidance increases significantly. Therefore, there is a growing need to leverage information technology to enhance the quality of guidance and counseling services. In this context, Android-based platforms emerge as an ideal choice due to their widespread popularity and ability to provide better accessibility for users.

The implementation of Android-based information technology is not only a practical solution but also creates opportunities to utilize data more effectively. Android applications can serve as valuable tools for collecting data on individual needs and preferences (Beierle et al., 2020; Fitrianti et al., 2023). Analyzing this data can form the basis for tailoring guidance and counseling strategies, resulting in more personalized services that align with each student's specific needs. Additionally, student engagement can be enhanced using technology, as the younger generation is generally more familiar with Android-based devices.

Data security and privacy are also key focuses in improving this service. By designing an Android application with strict privacy policies, user trust in the system can be strengthened. Additionally, the flexibility of time and location in receiving guidance and counseling services can be enhanced through an Android application, allowing individuals to access support without being restricted by physical location or specific time constraints. As part of the response to the globalization of education, improving the quality of guidance and counseling services through Android-based information technology is a progressive step toward equipping

individuals with relevant skills and knowledge to navigate an ever-changing world (Kergel et al., 2018).

At the initial stage of this research, we conducted pre-field data collection to understand users' needs and expectations regarding guidance and counseling services. Surveys were administered to groups of students and individuals who utilize these services. User profiles included demographic information such as age, gender, and educational background. We also explored their familiarity with Android-based devices and their comfort level in using technology within the context of guidance and counseling.

The survey results provided insights into the types of counseling services most needed by users, such as academic counseling, career counseling, or social-personal counseling. Preferences regarding service timing and frequency were also identified, offering a clearer picture of how these services can be integrated into users' daily routines.

Evaluating conventional guidance and counseling services was another focus, as we gathered feedback on users' experiences with traditional methods. The findings offered valuable insights into the strengths and weaknesses of existing services, serving as a foundation for designing improvements and enhancing service quality through the application of information technology.

Data collection also addressed aspects of security and privacy in using Android-based services. The extent to which users trust the security and privacy of their data emerged as a key factor in application development. Additionally, perceptions of flexibility and accessibility through Android applications compared to traditional methods were examined to understand the impact of technological changes on user engagement. This preliminary data provides a strong foundation for further design, ensuring that the implementation of Android-based information technology will have a positive impact on improving the quality of guidance and counseling services for users.

Method

This study aims to improve the quality of guidance and counseling services through the implementation of Android-based information technology for data collection. The research employs a development methodology based on the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation).

The analysis phase begins with identifying the needs and challenges in guidance and counseling services. A literature review is conducted to understand current trends and best practices in integrating information technology into these services. As an initial step, a survey is conducted to assess users' technological proficiency and gather insights into their preferences for Android-based guidance and counseling services.

During the design phase, the structure of the Android application is developed, incorporating key elements such as participant identity, evaluation tools, and counseling modules. Strict data security and privacy criteria are enforced. Additionally, methods for collecting and storing relevant data sets are identified. The development phase involves building the Android application according to the established design. Information technology is leveraged to facilitate data collection and provide interactive counseling tools. All development stages prioritize ensuring data security and user privacy.

In the implementation phase, internal testing is conducted with the development team and relevant experts to evaluate the application's functionality and security. A pilot test follows, involving a small group of initial users to gather valuable early feedback. The evaluation phase includes experts from various fields, such as guidance and counseling, media, and information technology. Assessments focus on the application's appeal, accuracy, usability, and ease of use. Revisions are made based on expert feedback before proceeding to user trials. The user trial phase involves five end-users to measure their experience and gather further feedback. To assess effectiveness, a test is conducted with 30 randomly selected teachers. Data analysis is

performed using Aiken's analysis and qualitative analysis, while the trial results are analyzed using a t-test.

Results and Discussion

The assessment is conducted by involving experts in guidance and counseling, media, and information technology. The evaluation utilizes both quantitative and qualitative approaches. The expert assessment results are presented in Tables 1–3 below.

Table 1: Results of the Guidance and Counseling Expert Assessment

No	Criteria	Expert Evaluation	Agreement Relevance	
			V Coefficient ($\sum s / [n(c-1)]$)	Category
Feasibility Aspect				
1.	The website description aligns with data collection studies in guidance and counseling.	4	1	Highly Feasible
2.	The menus in the Android-based data collection application align with the required guidance and counseling services for students.	4	1	Highly Feasible
3.	The Android-based data collection system provides benefits.	4	1	Highly Feasible
4.	The Android-based data collection system facilitates users in student data collection.	4	1	Highly Feasible
Total			1	Highly Feasible
Accuracy Aspect				
1.	The language used in the Android-based data collection application	4	1	Highly Accurate
2.	The flow and structure of data collection presented in the Android-based application	4	1	Highly Accurate
Total			1	Highly Accurate
Usability Aspect				
1.	Procedure and steps for using the Android-based data collection sy	3	0.66	Fairly Useful
2.	Features of the Android-based data collection system	4	1	Highly Useful
Total			0.8	Highly Useful
Ease Aspect				
1.	Instructions for using the Android-based data collection	3	0.66	Fairly Easy
2.	Operating the Android-based data collection system.	4	1	Highly Easy
3.	School data entry menu	4	1	Highly Easy
4.	Student personal data entry menu	4	1	Highly Easy
5.	Home visit data entry menu enu.	4	1	Highly Easy
6.	Student IQ data entry menu.	4	1	Highly Easy
7.	Student invitation menu.	4	1	Highly Easy

Total	0.94	Highly Easy
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Based on Table 1, the Android-based data collection system for guidance and counseling services has been rated as highly effective by experts. In terms of feasibility, the website description and application menus were deemed highly feasible, with 100% agreement. Experts also agreed that the system provides benefits and facilitates user interaction, resulting in an overall feasibility rating of "highly feasible".

Regarding accuracy, both the application's language and the flow/structure of data collection were approved as highly accurate, with 100% agreement. Similarly, the usability aspect received positive evaluations, with system features rated as highly useful, although the procedural steps for usage were considered fairly useful, with a 66% agreement. Nevertheless, the overall usability rating remains categorized as highly useful.

The ease-of-use aspect showed that the system's user instructions and operations were rated as good, with a score of 3 and a 66% agreement. However, all data entry menus were assessed as very easy to use, leading to an overall ease-of-use rating of "very easy."

Overall, the system received positive expert evaluations, with high ratings for feasibility, accuracy, usability, and ease of use. This indicates that the Android-based data collection system meets expert expectations and needs in providing guidance and counseling services.

Table 2 Result for Media Experts and Information Technology Experts

Usability Aspect					
No	Criteria	Evaluation		Agreement Relevance	
		Media Expert	IT Expert	Koefisien V ($\sum s/[n(c-1)]$)	Categori
Attractiveness Aspect					
1	Website Appearance	4	4	1	Very Attractive
2	Color Harmony	4	4	1	Very Attractive
3	Font	3	3	0,75	Very Attractive
Total				0,91	Very Attractive
Accuracy Aspect					
1	Steps	4	4	1	Very Accurate
2	Persentation	4	4	1	Very Accurate
3	Layout	3	4	0.83	Very Accurate

4	Menu	4	4	1	Very Accurate
5	Language	4	4	1	Very Accurate
6	Spelling	4	4	1	Very Accurate
7	Font	3	3	0.75	Very Accurate
Total				0,94	Sangat Tepat
Usability Aspect					
1	Usage Procedure	4	3	0,833	Very Useful
2	Features	4	3	0,833	Very Useful
Total				0,833	Very Useful
Ease of Use Aspect					
1	Features	4	3	0,833	Very Easy
2	Language	3	4	0,833	Very Easy
Total				0,833	Very Easy

The Android-based data collection system successfully passed the usability evaluation conducted by media experts and Information Systems (IS) experts. In assessing attractiveness, the website's appearance, color harmony, and font usage received very high ratings, with an overall attractiveness rating of "very attractive." Similarly, in terms of accuracy, aspects such as usage procedures/steps, presentation order, layout, menus, language, spelling, and font size were highly rated by both experts, resulting in an overall accuracy rating of "very accurate."

In the usability context, the procedural steps and system features were considered highly useful by media experts, although there was a slight difference in perspective from IS experts. However, the high level of agreement indicates that the overall usability aspect can still be classified as "very useful." The ease-of-use aspect also received positive evaluations, with both media and IS experts agreeing that the application's features and language are very easy to use.

Overall, the evaluation results indicate that this Android-based data collection system is highly attractive, highly accurate, highly useful, and very easy to use. Differences in assessment between media and IS experts do not diminish the high level of agreement, ensuring that the application meets usability standards and provides a comfortable user experience. In conclusion, these evaluation results confirm that the system has great potential to deliver a satisfying and effective user experience in guidance and counseling services.

Table 3 User Test Assessment

No	Interval	Criteria	Frekuensi	%	Fk	%k
1	Strongly Agree	126 – 150	2	40	2	40
2	Agree	103 – 125	3	60	5	100

3	Somewhat Agree	79 – 102	-	-	-	-
4	Disagree	54 – 78	-	-	-	-
5	Strongly Disagree	30 – 53	-	-	-	-

In the frequency distribution analysis of respondents' responses to the assessment criteria, it was observed that the majority of respondents provided positive evaluations of the given criteria. A total of 40% of respondents rated "Strongly Agree" within the score range of 126 to 150, indicating a high level of agreement with the criteria. Furthermore, approximately 60% of respondents expressed agreement (Score Interval: 103 – 125), although the average score did not reach the "Strongly Agree" level. Nevertheless, this significant percentage indicates a fairly high level of agreement with the criteria.

The effectiveness test results show an improvement in the quality of guidance and counseling services provided by counseling teachers, from planning and implementation to service outcomes. There was an increase in the average pre-test score of 77.3667, which rose to 85.8. The average increase is presented in the following table:

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 pre tes	77.3667	30	10.99681	2.00773
pos tes	85.8000	30	7.88888	1.44031

Untuk uji hipotesis menunjukkan nilai signifikan sebesar $0.000 < 0.05$, hal ini menunjukkan bahwa terjadi Peningkatan Kualitas Layanan Bimbingan dan Konseling Melalui Teknologi Informasi Himpunan Data Berbasisi Android. Adapun hasil uji hipotesis ditunjukkan pada tabel 5.

Tabel 5 uji hipoetsis

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pre tes - pos tes	8.43333	8.28244	1.51216	-11.52605	-5.34062	5.577	29	.000

Android-based data collection services for Guidance and Counseling (BK) teachers and schools have a very important impact on managing information and increasing the effectiveness of educational services (Darmawan & Dwikurnaningsih, 2021; Efendi et al., 2019; Haling et al., 2023). First, administrative efficiency is a key factor that helps BK teachers and school staff manage student data more quickly and efficiently. Counseling information, academic achievement, and student personal data can be easily accessed through this platform, simplifying administrative tasks.

Furthermore, monitoring of student development becomes more detailed and measurable with the collected data. BK teachers can systematically observe changes in student behavior or special needs, allowing for more timely responses (Nuraini, 2023; Situmorang et al., 2018). This data is the basis for designing more targeted and personalized guidance programs for each individual student, maximizing the benefits of guidance services. (Nuraini, 2023; Situmorang et al., 2018). Data ini menjadi dasar untuk merancang program bimbingan yang lebih terarah dan personal untuk setiap individu siswa, memaksimalkan manfaat layanan bimbingan.

Providing personalized counseling services is also a key aspect. By utilizing student data, guidance counselors can design interventions that are tailored to students' individual characteristics and needs. This helps in providing more effective and relevant counseling services (Karp et al., 2021; Kezar et al., 2023). In addition, collaboration between teachers and schools becomes more efficient, with data easily shared to provide holistic support to students.

Evaluation and service improvement are also facilitated through the collected data. School counselors can assess their performance and the effectiveness of counseling programs, enabling the development of better services in the future. Lastly, the Android-based data aggregation service opens opportunities to enhance communication with students' parents. Transparent and easily accessible information can increase parental involvement in supporting students' development, creating synergy between home and school. Overall, the Android-based data aggregation service is not just an administrative tool but also a strategic instrument for improving the quality of guidance and counseling services while optimizing education in the school environment.

Conclusions and Suggestions

This study highlights the success of the Android-based data aggregation service in improving the quality of guidance and counseling services in schools. Evaluations from guidance and counseling experts, media experts, and information technology experts indicate that this system performs excellently in terms of feasibility, accuracy, usefulness, and ease of use. Compared to previous studies, this research introduces new innovations in system development, providing an effective solution for enhancing guidance services in the school environment.

User testing revealed that the majority of respondents provided positive feedback on this service, reflecting strong acceptance in its practical implementation. The overall results confirm that the Android-based data aggregation service holds significant potential for improving the efficiency and quality of guidance and counseling services. This innovation is expected to open opportunities for further development, ultimately contributing to the improvement of education quality in the future.

References

- Altine, Z., & Bilyaminu, A. (2021). An Appraisal of Guidance and Counseling in Effective Teaching and Learning in Schools: Trends and Challenges. *Global Academic Journal of Humanities and Social Sciences*, 3 (1): 53, 66.
- Amalianita, B., Eliza, R., Nurnilamsari, R. P. P., Rahmayanty, D., & Niki, U. (2023). Peran pendidikan karakter remaja di sekolah serta implikasi terhadap layanan bimbingan dan konseling. *JRTI (Jurnal Riset Tindakan Indonesia)*, 8(2), 276–283.
- Beierle, F., Tran, V. T., Allemand, M., Neff, P., Schlee, W., Probst, T., Zimmermann, J., & Pryss, R. (2020). What data are smartphone users willing to share with researchers? Designing and evaluating a privacy model for mobile data collection apps. *Journal of Ambient Intelligence and Humanized Computing*, 11, 2277–2289.
- Darmawan, Y. A., & Dwikurnaningsih, Y. (2021). *Pengembangan model manajemen layanan informasi karir berbasis ICT bagi peserta didik SMA*.
- Efendi, M. A., Riswandi, R., & Dahlan, S. (2019). The Application Development of Various Types of Professionals for Android Based on Information Services Career Senior High School Students State 6 Bandar Lampung. *International Journal of Research and Innovation in Social Science (IJRISS)*, 3(IX), 494–498.
- Fitrianti, F., Novriansyah, A., Mildawati, R., Dewi, S. H., & Agus, F. (2023). Microsoft Excel Program Training at the Dumai Petroleum Vocational School, Riau Province. *Dinamisia: Jurnal Pengabdian Kepada Masyarakat*, 7(4), 942–948.
- Gysbers, N. C., & Henderson, P. (2014). *Developing and managing your school guidance and counseling program*. John Wiley & Sons.
- Haling, A., Kasim, M., Nurhikmah, N. H., Anas, M., & Ramli, A. M. (2023). E-Counseling Program Based on Android as Digital Consultation Media. *Jurnal Penelitian Dan Pengembangan Pendidikan*, 7(2).
- Karp, M., Ackerson, S., Cheng, I., Cocatre-Zilgien, E., Costelloe, S., Freeman, B., Lemire, S., Linderman, D., McFarlane, B., & Moulton, S. (2021). Effective Advising for Postsecondary Students: A Practice Guide for Educators. WWC 2022003. *What Works Clearinghouse*.
- Kergel, D., Heidkamp, B., Telléus, P. K., Rachwal, T., & Nowakowski, S. (2018). The Digital Turn in Higher Education. *Proc. International Perspectives on Learning and Teaching in a Changing World. Wiesbaden: Springer*. <https://doi.org/10.1007/978-3-658-19925-8>.
- Kezar, A., Kitchen, J. A., Estes, H., Hallett, R., & Perez, R. (2023). Tailoring programs to best support low-income, first-generation, and racially minoritized college student success. *Journal of College Student Retention: Research, Theory & Practice*, 25(1), 126–152.
- Nuraini, N. (2023). PEMBELAJARAN PENDIDIKAN AGAMA ISLAM BAGI SISWA BERKEBUTUHAN KHUSUS. *JIP: Jurnal Ilmu Pendidikan*, 1(6), 960–976.
- Situmorang, D. D. B., Mulawarman, M., & Wibowo, M. E. (2018). Effect of assertive training on cyber bullying behavior for students. *Konselor*, 7(2), 40. <https://doi.org/10.24036/020187210294-0-00>