



Development of Communication Competency for Counseling Service Instruments for Prospective Counselors: Confirmatory Factor Analysis

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ABSTRACT

To support the success of guidance and counselling services, communication competence is a crucial aspect that prospective counsellors must possess. This study used a quantitative approach, collecting numerical data to test the quality of a developed instrument. Data were collected from 400 prospective counsellor student respondents. This study aimed to develop and test the validity and reliability of a communication competence instrument in guidance and counselling services for prospective counsellors. The instrument was developed based on Heyms' communicative competence theory. The instrument development process included determining indicators, writing items, pilot testing, and testing psychometric properties through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) using SPSS. The analysis showed that the instrument had excellent sample adequacy (KMO = 0.930) and a strong factor structure, with six main factors cumulatively explaining more than 50% of the total variance. Significant factor loading values (≥ 0.40) were used for item selection, with most items showing a strong correlation with the formed factors. The results of this analysis provide evidence of the validity of the developed instrument. Thus, the guidance and counselling service instrument is comprehensive and structured, suitable for students of other relevant education programs.

INTRODUCTION

Background

Educational personnel are individuals who play an active role in the teaching and learning process, both in schools and outside, such as teachers and lecturers. They are educational personnel qualified as teachers, lecturers, counsellors, supervisors, instructors, facilitators, and other titles according to their fields of expertise and contribute to the implementation of education (Ping & Poernomo, 2021). In education, education personnel are human resources with great potential in improving the quality of national education (Ana Merdekawaty, 2023). Based on Law Number 20 of 2003 concerning the National Education system, education personnel are members of the community who devote themselves and are appointed to support the implementation of education. Educators are lesson planners who teach, guide, train, and evaluate students.

In daily life, education personnel have tasks to teach and train learners academically and in non-academic fields. The role of educators is not limited to delivering material, but also to being facilitators, motivators, and mentors who can create a conducive learning environment. All roles and functions of education personnel are closely related to communication competence, which is very important for educators to possess. In education, effective communication between teachers is critical to support improving learning quality in schools (Fauzan & Miyono, 2024). Therefore, good communication is important in improving the quality of education in the school environment.

Communication competence for teachers, lecturers, and counsellors requires proper speaking structure, adjusting style and language according to context, adjusting the message to be delivered, as well as social context and client needs. According to Dell Hymes and Lillis (2006), communicative competence is an individual's ability to encompass implicit knowledge and appropriate use of language according to social context. Communication competence becomes one of the main aspects that must be possessed by educators such as teachers, lecturers, and counsellors. Mastery of good communication skills provides the foundation to listen effectively, so that counsellors can assist clients to change and grow into true individuals (Ivey et al., 2013 in Setiyowati et al., 2019). Specifically for counsellors, communication competency is highly needed to build a therapeutic relationship between counsellor and client, so clients feel comfortable and open to solving their problems.

Counsellors possess various competencies that are the fundamental basis for delivering counselling services. These competencies must be possessed and applied by prospective counsellors. According to Permendiknas No. 27 of 2009 concerning academic qualifications and counsellor competencies, the competencies that guidance and counselling teachers/counsellors must master include four competency domains: pedagogical competence, personality competence, social competence, and professional competence. A quality personality is an irreplaceable key in establishing an effective counselling relationship (Insani & Astuti, 2024). The main focus of this study is communication competence. This aspect requires attention because prospective and practising counsellors still have not optimally performed these competencies, especially in communication, which can affect the quality of counselling services.

In counselling services, communication is the main tool for building effective relationships, understanding the counselee's problems, and helping achieve responsible solutions (Sofia Alwi, 2019). Therefore, good communication skills are crucial for prospective counsellors to carry out their duties professionally. In research Nurhayani, Khairuddin (2024), the implementation of the counseling teacher MAN 1 Medan has proven mastery of the four competencies (pedagogical, personality, social, and professional competencies), which will make counseling teachers able to understand the character and needs of students, and display a personality that can be used as an example, such as faith and piety. A counsellor assists students or counselees in self-development and independent problem-solving.

Although many counsellors have mastered basic communication skills, significant weaknesses remain in communication competence during counselling services. Research by Samad et al. (2022) at several junior and senior high schools in Makassar revealed that 12.5% of counsellors experienced weaknesses in communication skills when providing counselling services. This is an obstacle because weak communication will reduce the effectiveness of counselling guidance services in schools. This indicates that basic mastery of communication is insufficient to meet the needs of effective and professional services.

This finding aligns with Setiyowati et al. (2019), who involved 120 prospective counsellor students from three state universities in Java. They showed that although most students had mastered basic communication skills, the lack of mature communication attitudes and advanced communication skills hinder professionalism in counseling guidance services. Limitations in counsellors' communication, knowledge, and skills also contributed to counselling failure.

Therefore, improving communication competence that includes basic aspects and advanced attitudes and abilities is necessary to support the effectiveness and professionalism of counselling guidance services.

Limitations in communication competence cause counsellors to face difficulties building confidence, empathy, and deep understanding. In research by [Samad, Jabu, et al. \(2022\)](#), factors hindering communication include biological and psychological barriers or low concentration, gender barriers, socio-cultural misunderstandings causing diverse perceptions, and inappropriate use of communication media. These obstacles emphasise how critical counsellors' communication competence is to ensure successful counselling process outcomes. This aligns with [Purnomo & Basuki \(2024\)](#), who stated that low communication skills prevent counsellors from building trust, empathy, and deep understanding with students. Poor communication skills will hinder counsellors from accurately understanding and responding to students' feelings, thoughts, and experiences.

Communication competence or public speaking skills are necessary in counselling guidance services to manage communication effectively and support counselling success. According to [Qomariyah et al. \(2024\)](#), good communication allows counsellors better to understand situations, feelings, and learners' needs. This skill greatly influences the success of the counselling process and the quality of services provided. Therefore, developing communication competence becomes the main focus in coaching prospective counsellors.

This shows that there is still an urgent need to improve counsellors' communication competence in order to be able to provide counselling guidance services that are more effective, responsive, and according to professional standards. Thus, communication competence is the focus of research to measure the extent of the quality of counselling guidance services provided by prospective counsellors, which is still limited and has not been thoroughly developed and validated. Most instruments available to the general public have not gone through in-depth validity testing using modern statistical methods such as Confirmatory Factor Analysis (CFA).

In research by [Dian et al. \(2024\)](#), analysis using Confirmatory Factor Analysis proved that confirmatory factor analysis is a crucial stage in instrument development. CFA ensures that the instrument developed is valid and reliable as a relevant and appropriate measuring tool used in various fields, including education. Therefore, developing a comprehensive and valid instrument is very important to fill the void so that it can provide an accurate and reliable measuring tool for thoroughly and consistently assessing the communication competence of prospective counsellors. This strengthening aligns with the importance of evaluating counsellors' performance and communication competence in positive interactions with the school community, which is the foundation of counsellor professionalism ([Sancaya et al., 2020](#)). With a valid and reliable instrument, the evaluation of counsellor candidates' communication competence can be carried out objectively and has a real impact on improving the quality of counselling guidance services in the educational environment.

METHODS

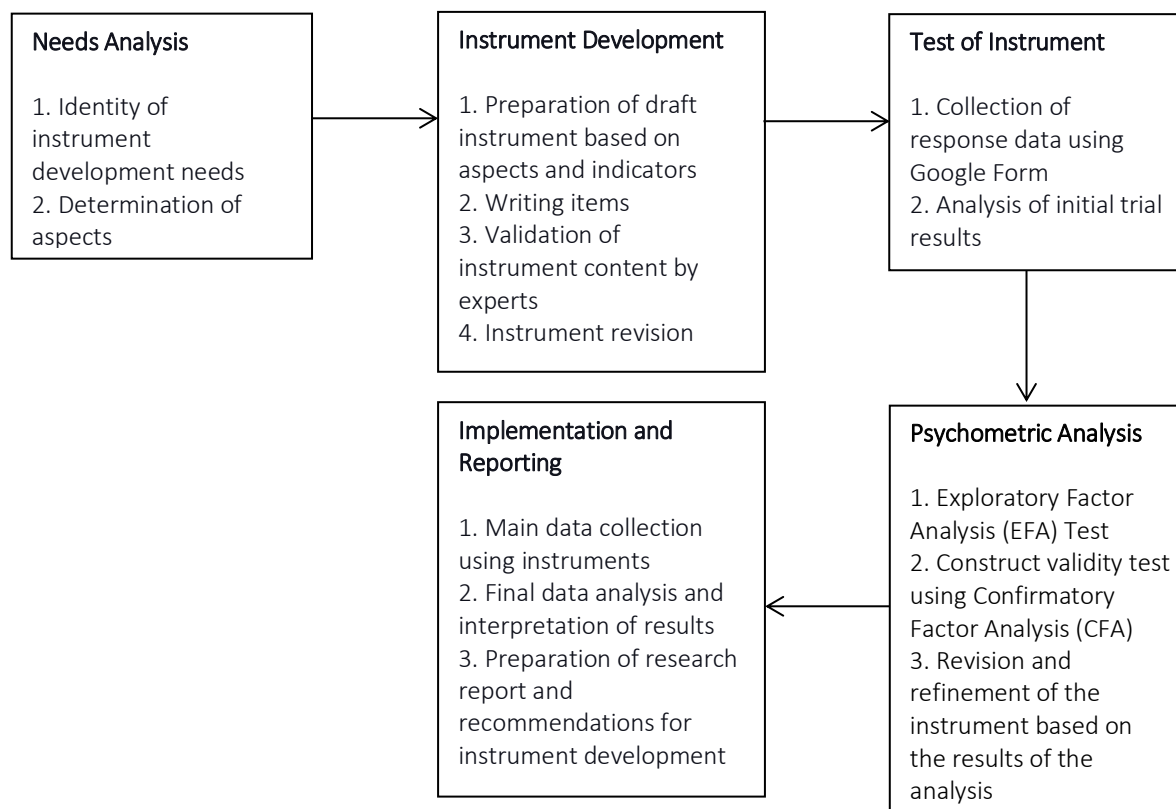


Figure 1. Steps of Instrument Development

This study employs a quantitative approach to test the quality of instruments designed to measure communication competence in counselling guidance services for prospective counsellors. The instrument consists of several items developed based on Hymes' (1974) theory of communicative competence, which includes aspects of understanding norms, context, and purpose of communication. The research subjects involved 400 prospective counsellor students from various universities in Indonesia (the distribution of research subjects is in Table 1).

Table 1. Distribution of Research Subjects

No	Domicile	Number
1.	Central Java	218
2.	West Java	40
3.	East Java	18
4.	Jakarta	30
5.	Banten	12
6.	Yogyakarta	27
7.	Kalimantan	25
8.	Sumatera	19
9.	Sulawesi	5
10.	Nusa Tenggara Barat	6
TOTAL		400

Data were collected from 400 respondents through the distribution of a developed instrument, which was then analyzed using psychometric methods with the assistance of SPSS software through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The analysis was conducted in stages, starting with Principal Component Analysis (PCA) using Varimax

rotation to explore the factor structure, followed by Confirmatory Factor Analysis (CFA) to validate the factorial structure. The results indicate that testing the instrument's validity and reliability through EFA and CFA using SPSS produced an instrument with a valid factor structure and excellent reliability in comprehensively measuring the communication competence of prospective counsellors ([Harun et al., 2022](#)).

The first stage involved establishing the measurement area by defining the construct of counselling guidance services competence through several main dimensions: verbal communication, anxiety management, body language, counselee adaptation, material mastery, time management, and ethical compliance. Next, behavioural indicators were operationalized based on theoretical concepts, dimensional components, and the most relevant indicators.

The second stage included item writing, which involved selecting the stimulus format (questions or statements) and the appropriate response format, while considering principles for preparing valid and easy-to-understand instruments. In the third stage, item testing was conducted on subjects under actual test conditions using online media such as Google Forms, complete with clear instructions and an attractive layout so that the responses reflected real conditions.

The fourth stage involved testing the instrument's psychometric properties by assessing dimensionality to determine whether the instrument is unidimensional, multidimensional or multidimensional with correlated dimensions. In this process, two commonly used factor analysis methods are Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA) tests. EFA is used to explore the factor structure of the data without prior assumptions about the number or relationship of factors, helping to identify empirical patterns and latent factors. According to [Tavakol & Wetzel \(2020\)](#), who summarize the theory and application of factor analysis from Tabachnick and Fidell (2013), Floyd and Widaman (1995), and Gorsuch (1983), factor analysis is an important method in the development and validation of research instruments, CFA serves as testing and confirming a predetermined factor model based on theoretical results or EFA results, by assessing the extent to which the data fit the model through various model fit indices. The combined use of Exploratory Factor Analysis and Confirmatory Factor Analysis allows research to thoroughly ensure the instrument's construct validity, from exploration to confirmation of the expected factor structure.

The final stage in developing the communication competency measurement instrument for prospective counsellors involved implementation and reporting. At this stage, the instrument that has been comprehensively refined is applied to a wide sample of counselling education program students. Data collected from instrument users are then analyzed in depth to interpret the results of measuring communication competence. According to [Aurynisa \(2025\)](#), reporting the results of instrument testing is very important to ensure that measuring instruments are not only technically valid and reliable but also applicable and useful for improving the quality of counselling guidance services. Clear and comprehensive reporting is the basis for counselling professionals to make effective and targeted interventions. Without good reporting, instruments, although valid and reliable, can lose their practical benefits in improving the quality of services.

RESULT AND DISCUSSION

Counselling Guidance Services is a forum where counsellors assist counsees in overcoming problems, foster development in students or clients, and provide learning in the form of psychological, personal, career, social and academic domains through group and individual activities. According to Badjuraman, as cited in [Ramlah \(2018\)](#), Guidance Counselling Services aims to help individuals face and resolve problems. It consists of a series of programs that enable students to live independently and develop optimally. This is where communication competence is needed for prospective counsellor students and simultaneously for students to improve their language and individual communication skills.

Based on the results of Confirmatory Factor Analysis analysis conducted to test the construct validity of the communication competency instrument in counselling guidance services for prospective counsellors, namely:

Table 2. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.930
Bartlett's Test of Sphericity	Approx. Chi-Square	6078.296
	df	630
	Sig.	.000

The results of 0.930 show that the showloped counselling communication competency instrument has met the sample adequacy requirements for factor analysis. This value is in the very good category, so the factor structure generated from this data is reliable and representative. While the results of Bartlett's Test of Sphericity, which shows a Chi-Square value of 6078.296 with a degree (df) of 630 and a significance value of 0.000 (<0.05), indicate that there is sufficient correlation between items in the instrument, so that factor analysis can be continued to identify the dimensional structure of the measured communication competence.

Table 3. Total Variance Explained

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Loadings			Loadings			Loadings		
	% of	Cumulative %		% of	Cumulative %		% of	Cumulative %	
Total	Variance		Total	Variance		Total	Variance		Total
1	9.861	27.392	27.392	9.861	27.392	27.392	7.105	19.737	19.737
2	4.882	13.562	40.955	4.882	13.562	40.955	5.276	14.656	34.392
3	1.454	4.039	44.994	1.454	4.039	44.994	2.554	7.095	41.487
4	1.295	3.598	48.592	1.295	3.598	48.592	1.864	5.179	46.666
5	1.106	3.071	51.662	1.106	3.071	51.662	1.604	4.454	51.120
6	1.022	2.839	54.502	1.022	2.839	54.502	1.218	3.382	54.502

Extraction Method: Principal Component Analysis.

The results of the Total Variance Explained analysis show that the model of the instrument of communication competence of counselling guidance services consists of six main factors. However, it was conceptually expected that there would be eight factors. This factor reduction can be explained by the high correlation between several theoretical dimensions that combine several factors into one, resulting in a simpler model, in accordance with empirical data. Brown (2015) and O'Rourke & Hatcher (2013) in [Ismiyanti \(2022\)](#) state that Confirmatory Factor Analysis (CFA) is very suitable for determining construct validity and instrument reliability. This process is part of construct validation that balances the theoretical basis and empirical evidence, so the instrument is statistically strong and remains guided by the relevant theoretical framework.

Construct validity tested through CFA assures that the six validated factors have comprehensively represented the dimensions of communication competence in the context of counselling guidance services. However, the eight theoretical aspects remain an important conceptual foundation that serves as a reference for further instrument development. Further

evaluation and revision of items and factor models can be done so that aspects that have not been empirically included can be strengthened and accommodated according to theory.

Table 4. Rotated Component Matrix Results on Each Instrument Item

Statement Item	Rotated Component matrix
I didn't notice the distance between me and the audience when speaking in public	.747
I rarely pay attention to the room's lighting and layout when talking during counselling services	.670
I did not know the client's background before preparing the material	.725
I have difficulty adapting the language to the audience's education/position	.659
I make sure the audience can understand the main message	.539
I evaluate whether the objectives were achieved after the presentation	.574
I did not adjust the presentation material to the audience's needs and interests	.732
I speak according to the time given without exceeding the limit or being too short	.627
I don't like waiting for other people's turn to talk, so I end up interrupting them	.700
When I speak in public, I use voice intonation to emphasise important points	.656
When I speak in public, my expression is flat, and it is difficult to show a facial expression that matches the content of the message	.611
When I speak publicly, I still feel tense and unflexible when conveying material and messages to the audience	.534
When I speak in public, I effectively use slides, images, or audio media (if available) to support the flow of the conversation	.581
I can adjust communication media to the room conditions, target audience and existing facilities to convey the message clearly	.711
When public speaking, I choose appropriate, rich and varied vocabulary for my presentation	.575
Sometimes I use difficult or unfamiliar terms to some of the audience, so the message is not conveyed well	.635
When public speaking, I avoid inappropriate words during the presentation	.779
I cannot deal with interruptions or questions from the audience calmly and professionally	.636
I use language appropriate to the audience's expected communication genre	.749
I cannot adapt if there is a sudden change in the genre or format of the show	.368

Table 4 presents the results of the rotated factor matrix of the items in the counselling service communication competence instrument, analyzed using Principal Component Analysis (PCA) with Varimax rotation. This factor rotation aims to simplify interpretation by optimising the factor

loading value, so that each item significantly contributes to one dominant factor and minimises multiple attachments to other factors. Based on the analysis results, especially if the number of respondents reaches 400, the factor loading value considered significant in SPSS is between ≥ 0.30 to ≥ 0.40 . This aligns with recommendations by [Suprpto & Chang \(2015\)](#), which state a minimum loading value of ≥ 0.40 as the limit for retaining items on a scale.

Based on the rotation results, most items show a fairly high loading value above 0.50, indicating a strong relationship between the item and the dependent factor. The analysis is carried out by referring to the absolute highest loading value when determining the placement of items to the right factor. From the data obtained, the item with the highest loading of 0.779 was found in the norms aspect associated with factor six. In addition, other variables have also been selected based on significant and theoretically relevant loading values. Generally, loading with an absolute value > 0.50 is considered strong enough to associate a variable with a particular factor, so it is worth maintaining in the instrument.

Some items, such as SET3 (loading 0.747 on factor 1), PART7 (0.729 on factor 1), and NORM29 (0.779 on factor 5), show strong associations with these factors. This indicates that these items represent the factors' dimensions clearly and consistently. However, some items show the highest loading pattern for one factor, which shows considerable loading for others. This condition indicates cross-loading, which is the unclear association of items to only one factor, which can reduce the accuracy of interpretation and the overall construct validity of the instrument.

Varimax rotation has succeeded in maximising the dominant factor's loading weight while minimising the items' attachment to other factors, making the factor structure clearer and more defined. This is important to ensure that each item validly measures the desired dimension, increasing the accuracy of interpretation and the strength of the construct validity of the counselling guidance service communication competency instrument. Thus, the item selection process based on this factor loading value pays attention to statistical numbers and considers theoretical relevance. Hence, the instrument of communication competence of counselling guidance services for prospective counsellors developed has high validity and reliability and can measure constructs precisely and comprehensively.

Overall, this instrument has undergone a validity and reliability testing process using exploratory (EFA) and confirmatory factor analysis (CFA), with results showing adequate internal consistency. Therefore, this instrument is suitable for prospective counsellors and counsellors who need to measure communication competence in the context of counselling guidance services. This statement is in line with the findings in the research on the development of communication competency instruments and positive interactions of counselors towards the school community by Sancaya et al., (2020) which shows that the instruments developed have adequate validity and reliability and are accepted by experts and practitioners, making them suitable for use as a counselor performance evaluation tool in the context of communication and positive interactions.

CONCLUSION

The development of the instrument of communication competence of counselling services for prospective counsellors in this study has gone through systematic stages, from determining dimensions, preparation and selection of items, to psychometric testing using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The analysis results show that the instrument developed has excellent validity and reliability, with a KMO value of 0.930 and Cronbach's alpha above 0.96. The factor structure consists of six main factors that can explain more than 50% of the data variance, with most items having significant factor loading values above 0.40. The item selection process pays attention to statistical aspects and theoretical relevance, so that this instrument can measure the communication competence of prospective counsellors appropriately, comprehensively, and applicably. Thus, this instrument is suitable for use by various parties who

need to measure communication competence in counselling guidance services for evaluation, development, and further research purposes.

REFERENCES

- Ana Merdekawaty. (2023). Peran tenaga kependidikan dalam meningkatkan pendidikan. *Jurnal Ilmu Pendidikan*, 8(1), 82–88. [Google scholar](#)
- Aurynisa, M. (2025). *Analisis Validitas dan Reliabilitas dalam Asesmen Psikologi: Konsep dan Implikasinya bagi Konseling Profesional*. 3(1), 47–51. [Google scholar](#)
- Dian, R., Putri, P., & Febrilia, Y. (2024). Confirmatory Factor Analysis (CFA) on the Quality of Critical Thinking Instruments, Motivation, and Learning Achievement of Learners. *PENDAGOGIA: Jurnal Pendidikan Dasar*, 4(2), 73–84. <https://jurnal.educ3.org/index.php>
- Fauzan, R., & Miyono, N. (2024). Peran Guru Dalam Komunikasi Efektif Melalui Komunitas Belajar. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 09(04), 17–23. [Google scholar](#)
- Harun, M. M., Jaafar, W. M. W., Ismail, A., & Noah, S. M. (2022). Reliability and validity of adapted cross-cultural counselling inventory-revised on the sample of undergraduate counsellor trainees. *International Journal of Evaluation and Research in Education*, 11(4), 1861–1872. <https://doi.org/10.11591/ijere.v11i4.22510>
- Insani, N., & Astuti, B. (2024). Pengembangan Kualitas Pribadi Konselor Secara Profesional dalam Pelayanan Bimbingan Konseling. *JKI (Jurnal Konseling Indonesia)*, 9(2), 97–107. <https://doi.org/10.21067/jki.v9i2.10300>
- Ismiyanti, D. A. (2022). Construct validity and construct reliability test of learning motivation of grade iii students in cawas sub-district, klaten district using confirmatory factor analysis. *Social, Humanities, and Education Studies (SHEs): Conference Series*, 5(6), 895–904. <https://jurnal.uns.ac.id/shes>
- Lillis, T. M. (2006). Communicative Competence. *Encyclopedia of Language & Linguistics*, January, 666–673. <https://doi.org/10.1016/B0-08-044854-2/01275-X>
- Nurhayani, Khairuddin, L. W. A. (2024). Kompetensi Guru BK Dalam Pelaksanaan Layanan Konseling Individu di MAN 1 Medan. *Pendidikan Dan Ilmu Sosial*, 2(1), 40–46. [Google scholar](#)
- Ping, T., & Poernomo, S. A. (2021). Tugas dan Fungsi Manajemen Pendidik dan Tenaga Kependidikan. *Gaudium Vestrum: Jurnal ...*, 5(1), 1–12. [Google scholar](#)
- Purnomo, A., & Basuki, A. (2024). A Systematic Literature Review: Emerging Challenges in Indonesian School Counselling to Confront Student's Mental Health Issues and its Alternative Solution. *International Journal of Multicultural and Multireligious Understanding*, 11(4), 265–278. <http://ijmmu.comhttp://dx.doi.org/10.18415/ijmmu.v11i4.5597>
- Qomariyah, I. N., Maradika, A. W. Y., Amelia, U. N., Firdausi, F. S., Akbar, A. F., & Muwakhidah, M. (2024). Komunikasi Interpersonal Konselor dalam Layanan Bimbingan dan Konseling Menurut Perspektif Siswa. *Teaching, Learning and Development*, 2(2), 77–82. <https://doi.org/10.62672/telad.v2i2.43>
- Ramlah. (2018). Pentingnya layanan bimbingan konseling bagi peserta didik. *Jurnal Al-Mau'izhah*, 1(1), 70–76. [Google scholar](#)
- Samad, S., Haris, H., & Malik, A. (2022). the Effect of Personal and Social Competences on Counselors' Responsive Services. *Curricula: Journal of Teaching and Learning*, 7(1), 1–11. <https://doi.org/10.22216/curricula.v7i1.902>
- Samad, S., Jabu, B., Abduh, A., & Arham, M. (2022). Challenges In Implementing Intercultural Counselling In Indonesian Educational Contexts: University Students' Perceptions. *Journal of Positive School Psychology*, 6(6), 10177–10182. <http://journalppw.com>
- Sancaya, S. A., Krisphianti, Y. D., Hanggara, G. S., & Muzaki, M. F. (2020). Keberterimaan Instrumen Penilai Kompetensi Komunikasi dan Interaksi Positif Konselor Terhadap Masyarakat Sekolah. *Nusantara of Research : Jurnal Hasil-Hasil Penelitian Universitas Nusantara PGRI Kediri*, 6(2),

105–114. <https://doi.org/10.29407/nor.v6i2.13603>

Setiyowati, A. J., Pali, M., Wiyono, B. B., & Triyono, T. (2019). Structural model of counseling competence. *Cakrawala Pendidikan*, 38(1), 45–62. <https://doi.org/10.21831/cp.v38i1.21509>

Sofia Alwi, F. (2019). PROSES KOMUNIKASI GURU BIMBINGAN KONSELING DALAM MENGATASI SISWA YANG BERMASALAH DALAM PROSES BELAJAR (Studi Kasus SMA Muhammadiyah 2 Yogyakarta). *G-Couns: Jurnal Bimbingan Dan Konseling*, 2(2), 258–268. <https://doi.org/10.31316/g.couns.v2i2.72>

Suprpto, N., & Chang, T. (2015). Research on university student 's self-efficacy scale in science education : A systematic review. *Proceedings of the IConsSE FSM SWCU*, 120–129. [Google scholar](https://scholar.google.com/citations?view_op=view_citation&hl=id&user=93333333333333333333&citation_for_view=93333333333333333333:120-129)

Tavakol, M., & Wetzel, A. (2020). Factor Analysis: a means for theory and instrument development in support of construct validity. *International Journal of Medical Education*, 11, 245–247. <https://doi.org/10.5116/ijme.5f96.0f4a>

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