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Bridging the gender gap: Investigating disparities in student communication skills in the digital education era

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Abstract:
Communication skills are one of the primary skills that students must possess. Previous research has shown a tendency for communication skills to differ based on gender. Therefore, this study aims to investigate how learning in the digital era can improve communication skills among prospective teachers and to explore whether there are differences in communication skills based on gender. This study uses a comparative descriptive method to assess the level of students' communication skills, considering gender as one of the influencing factors. The sample consists of 19 male students and 19 female students selected through quota sampling. Data analysis conducted using SPSS shows that overall communication skills are "good," except for multilingual skills, which are "adequate." The results indicate that students' communication skills are generally good, as evidenced by oral participation such as expressing opinions and asking questions, as well as written work. Communication progress is influenced by learning based on digital technology. Based on gender, there is no significant difference between male and female students, indicating that both are able to develop communication skills at similar levels when given equal educational opportunities. This study contributes to scientific research by demonstrating that the use of digital technology in the learning process can enhance students' communication skills. Additionally, this study proves that with equal education, gender differences do not affect communication skills. These findings can help in designing more inclusive and effective learning strategies to develop communication skills in the digital era.

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INTRODUCTION

In general learning activities, there is a noticeable disparity in communication patterns, where some students are more active in participating and interacting with the learning material, while others tend to be passive or less engaged in classroom discussions. Communication patterns between students and teachers also differ, as some students are more inclined to ask questions or express opinions, whereas others prefer to remain silent or provide brief responses, as noted by O'Connor et al. (2017) and Yashima et al. (2016). These differences are also believed to be influenced by gender factors, according to Allen (2023), Hall & Sandler (1982), and Ruthotto et al. (2020). The term "communication" originates from the Latin word communis, meaning "together," which highlights the collective nature of exchanging information, as explained by Etkin et al. (2022) and de Moor et al. (2022). Conceptually, communication involves disseminating knowledge, thoughts, values, and news with a specific purpose, a view supported by Huh (2020), Yeşil (2010), Nurhalizah et al. (2020), and Mahanal et al. (2022). The purposes of communication may include expanding information distribution, encouraging participation, or reaching agreements on shared matters. Overall, communication is closely related to interaction.

Based on several preliminary studies, interaction and communication between teachers and students are considered crucial in learning (Asrar et al., 2018; Batista et al., 2021; Priadi, 2020; Šejtanić & Ilić, 2016). Communication skills enable students to express new ideas and information to build knowledge and achieve learning objectives. Effective communication between teachers and students, as well as among students, also supports the success of the learning process (Munna & Kalam, 2021; Šejtanić & Ilić, 2016; Xie & Derakhshan, 2021). Physics Education students, as prospective teachers, need strong communication skills to act as facilitators and motivators for their students, making communication training by lecturers essential. Polakova et al. (2023) emphasize that communication skills are the most required soft skills in the workforce. The digital era encourages the use of digital learning resources and platforms (Sudibjo et al., 2019; Mudjijanti & Srimulyani, 2023; Sutiah & Supriyono, 2024), making it important to assess their impact on students' communication skills. Additionally, gender affects communication and language processing. Gregersen & Røyneland (2009), Holmes (2013), and Kusters & Lucas (2022) highlight differences in neural activity between men and women. Yavuz & Güzel (2020) found women slightly outperform men in communication, while Lovell et al. (2009) emphasize women's strengths in non-verbal communication and cultural sensitivity.

Although previous studies have emphasized the importance of interaction and communication between teachers and students, as well as the role of communication skills in achieving learning objectives, few studies have systematically examined the level of student communication skills in the context of digital learning. In addition, although gender differences in communication and language processing have been identified, empirical evidence on how these differences affect students' communication skills in digital education environments remains limited. Therefore, despite communication being recognized as an important soft skill and the increasing prevalence of digital learning, research has yet to bridge the relationship between gender, digital learning, and students' communication competence. This study aims to address this gap by investigating (1) the level of student communication skills and (2) differences in communication skills based on gender in the digital education era.

This study aims to describe the level of students' communication skills in the context of learning in the digital era and to analyze these skills from a gender perspective. Through this research, it is expected to gain a more comprehensive understanding of how students develop their communication abilities when engaged in digital learning processes, as well as to identify whether there are significant differences between male and female students. The findings of this study are expected to provide theoretical contributions to the development of studies on

communication skills in digital education, particularly in relation to gender equality issues. Practically, this research can serve as input for educators and educational institutions in designing more effective learning strategies to enhance students' communication skills equally, regardless of gender. In addition, the study may serve as a reference for future research focusing on the development of communication competence in the digital era.

This study hypothesizes that gender significantly impacts the communication skills of prospective physics teacher students at UIN Imam Bonjol Padang. Additionally, it considers that digital learning experiences also play a vital role in shaping these skills, especially given the shift toward digital education environments. The research aims to examine how both gender and digital learning experiences influence the communication competencies of these future teachers. The study's focus is on understanding the combined effects of gender and digital learning on students' communication abilities, which is essential for developing effective teacher training programs in the digital era. By analyzing these factors, the study seeks to provide insights into optimizing educational strategies to enhance communication skills among aspiring physics teachers, ensuring they are well-prepared for modern teaching challenges.

METHOD

This study employs a comparative descriptive method to evaluate students' communication skills and to analyze the influence of gender factors in the context of digital technology-based learning, as highlighted by Guillen-Gamez et al. (2021) and Qazi et al. (2022). Sampling was conducted using the quota sampling method, which is a non-probability technique where researchers determine a specific number of subgroups that represent certain population characteristics. In this study, a quota of 19 male and 19 female students was established, resulting in a total sample of 38 participants. The limited sample size reflects the study's focus, which only involved Physics Education students at UIN Imam Bonjol Padang. While quota sampling enables the representation of targeted subgroups, researchers such as Guillen-Gamez et al. (2021) and Qazi et al. (2022) have noted its limitations, including the potential for selection bias and the limited generalizability of findings to the broader population.

This study collected data through a questionnaire instrument designed to measure students' communication skills. The questionnaire was developed based on seven leading indicators. First is understanding, managing, and creating effective communication, including those utilizing digital technology. Second, the level of confidence in conveying ideas or concepts. Third, appropriate language to the content and context is adjusted to the intended audience. Fourth, an honest and responsible attitude towards the information, ideas, or thoughts conveyed. Fifth is the ability to listen to and respect the opinions of others. Sixth, the use of logical and structured thinking patterns by applicable rules. Seventh, skills in communicating using more than one language. These indicators reflect relevant communication competencies in the context of digital technology-based learning, as emphasized in 21st-century education.

Furthermore, the student communication skills scores obtained from the questionnaire will be calculated and analyzed with the assistance of the SPSS application. The analysis using SPSS is conducted to test the hypotheses. The hypotheses in this research are as follows:

Hypothesis (Ho):	There is no significant difference between the average communication skills of male and female students **I have: $\mu_A = h_B$**
Alternative hypothesis (Ha):	there is a significant difference between the average communication skills of male and female students **I have: $\mu_A \neq h_B$**

Before performing an independent samples t-test, it is important to ensure that the data meet the assumptions of normality and homogeneity of variance. The normality assumption requires that the data within each group are normally distributed. This can be tested using tests such as the Shapiro-Wilk or Kolmogorov-Smirnov. If the data are not normally distributed, the t-test results may not be valid. The assumption of homogeneity of variance, or equality of variances, means that the two groups have similar variances. Levene's Test is one standard method used to test this assumption. If this assumption is violated, the standard t-test may give misleading results, and alternatives such as Welch's t-test may be considered. Ensuring these two assumptions are met is critical to the validity and reliability of the independent samples t-test results.

RESULTS AND DISCUSSION

Results

Student communication skill level

Students in the Tadris Physics study program are individuals whose primary graduate profile is geared toward becoming prospective Physics teachers. In addition to receiving instruction in various competencies related to the teaching profession, such as pedagogical, personality, social, and professional competencies, students are also equipped with various soft skills, including communication skills. This emphasis on communication skills is vital for educators, mainly when undertaking roles as facilitators, tutors, motivators, and learning engineers for students. The lecture process plays a pivotal role in honing these competencies and skills.

Table 1
Evaluation of Students' Communication Skills by Gender

No.	Indicator	Average Score	
		Male	Female
1	The ability to understand, manage, and create effective communication, including communication that utilizes technology,	3,58	3,53
2	Confidence in expressing ideas	3,42	3,42
3	Language usage in line with content context and adapted to the audience	3,47	3,63
4	Demonstrating an honest and responsible attitude towards conveyed information, ideas, or thoughts,	3,42	3,26
5	Listening and respecting others' opinions	3,10	3,26
6	Using logical and structured thought processes according to applicable rules	3,26	3,37
7	Multilingual communication skills.	2,68	2,79

The indicators of communication skills provide a comprehensive basis for assessing the quality of students' communication, both male and female. The ability to understand, manage, and create effective communication, including the use of technology, shows relatively balanced results, with male students scoring slightly higher (3.58) compared to female students (3.53). Confidence in expressing ideas is the same for both groups (3.42), indicating that gender does not significantly influence students' self-assurance in this aspect. In contrast, female students perform better in using language appropriate to the content, context, and audience (3.63 versus 3.47), suggesting greater sensitivity in adapting communication styles. On the other hand, male students score slightly higher in demonstrating honesty and responsibility toward conveyed information (3.42 versus 3.26).

In interpersonal communication, female students show stronger listening skills and respect for others' opinions (3.26 versus 3.10), while logical and structured thinking processes are slightly higher among female students as well (3.37 versus 3.26). Multilingual communication skills remain the lowest for both groups, with males scoring 2.68 and females 2.79, indicating an area that requires significant improvement. Overall, the data highlight both similarities and differences in

communication skills between genders, underscoring the importance of targeted interventions to strengthen specific aspects of communication in digital-era learning.

Communication skills of male and female students

the communication skills of male and female students showed similar average scores, namely 3.28 and 3.32. Male students excelled in honesty and responsibility, while female students excelled in using appropriate language, adaptation to the audience, and logical and structured thinking patterns. This finding aligns with previous studies that showed no significant differences in interpersonal communication skills between male and female students. However, educators and education stakeholders need to be aware of this finding and develop learning strategies that support the development of interpersonal communication skills for both genders.

Figure 1

Communication Skills of Male and Female Students

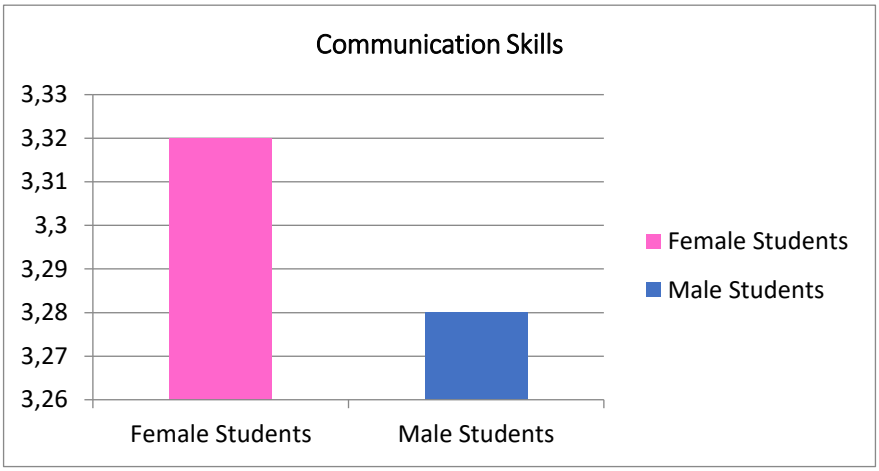

Figure 1 shows the communication skills of male and female students, with average scores above 3 for both groups: 3.28 for male students and 3.32 for female students. Students confirm that the lecture process significantly enhances their communication skills. During lectures, frequent discussions help develop both verbal and non-verbal communication skills. Verbal communication involves spoken language, while non-verbal communication includes supportive signals such as facial expressions and intonation. In discussions, students express their opinions using verbal communication, supported by intonation, facial expressions, and body movements, which are forms of non-verbal communication. These discussion activities effectively improve students' verbal communication skills. Additionally, question-and-answer sessions during discussions cultivate active listening, respect for diverse viewpoints, and accountability for the ideas presented.

Discussion

Gender Differences and Similarities in Communication Skills Among College Students

The learning process in the Physics Education Program follows a student-centered approach in accordance with the curriculum, as stated by Schreurs & Dumbraveanu (2014) and Dunbar & Yadav (2022). In this approach, lecturers act as facilitators who encourage students to actively construct their own knowledge. The integration of digital technology in learning further enhances students' communication skills, both male and female (Qazi et al., 2022). The findings of this study show that the average score of communication skills was above 3, namely 3.28 for male students and 3.32 for female students, indicating that both were in the "good" category with no significant differences.

Class discussions emerged as the most effective activity in developing verbal and nonverbal communication skills. Milawati et al. (2022) explained that verbal communication includes spoken language, while nonverbal communication involves intonation, facial expressions, and body movements. These findings are consistent with Iverson (2010) and Hömke et al. (2017), who emphasized the importance of discussion in fostering speaking skills. Muslim (2020) further highlighted that participatory learning through group discussion significantly improves students' communication abilities. Both male and female students were actively involved in this process, indicating that gender was not a major differentiating factor.

In addition to oral communication, students were also trained to write academic papers, which strengthened their written communication skills. Hikmawati et al. (2021) asserted that analyzing scientific journal articles can improve pre-service teachers' communication skills. In this aspect, female students tended to be more meticulous in constructing arguments, while male students were more prominent in small-group discussions, showing different tendencies, yet resulting in balanced outcomes. Scientific communication skills, such as creating tables, graphs, and systematic reports, also became a focus of learning. Nurlaelah (2020) emphasized that the ability to read, present, and interpret data is an integral part of scientific communication. The integration of digital technology further reinforced these skills, as Sasabillah et al. (2023) found that digital literacy contributes positively to communication, collaboration, and creativity. Students also made use of citation tools such as EndNote and Mendeley (Feinstein, 2008; Taylor, 2002; Aksnes et al., 2019) to produce academic writing.

However, multilingual communication skills remained low, with an average score of 2.68. Of the 38 respondents, only 10 students felt confident in communicating actively or passively in a foreign language. Although lecturers often encouraged students to refer to international journal articles written in English, students still assessed their multilingual communication as being at a basic level. This low score indicates that digital technology tends to foster dependency on translation applications such as Google Translate. This finding is in line with Bin Dahmash (2020) and Van Nguyen (2023), who highlighted that the use of translation tools can reduce students' motivation for independent foreign language learning.

Overall, the findings indicate significant similarities between male and female students in major communication skills (verbal, nonverbal, written, and scientific), with only minor differences in communication style and foreign language use. These findings affirm that gender does not substantially limit the development of communication skills, as long as students have equal access to education and technology.

Student communication skills viewed from a gender perspective

Previous research has pointed out gender-related differences in the neuropathological processes of language. Gregersen and Røyneland (2009) interpret findings from functional magnetic resonance imaging (fMRI) studies by noting that, during phonological tasks, men predominantly activate the left hemisphere of the brain, whereas women tend to engage both the left and right inferior frontal gyrus. Holmes (2013) provides an analytical perspective, suggesting that this broader neural activation among women reflects a more integrative cognitive approach to language processing compared to men's lateralized specialization. Adding to this, Kusters and Lucas (2022) offer a comparative interpretation, emphasizing that while these neurological variations are observable, they do not necessarily result in meaningful differences in communicative performance or language efficiency. Consistent with this view, Gregersen, in Introduction to Language Studies, argues that although the neural mechanisms of men and women may diverge, such differences are not indicative of disparities in linguistic competence or effectiveness.

However, historical evidence suggests variations in speaking styles between men and women. These differences may contribute to the observed patterns in communication skills, as shown by the research results that male students tend to perform slightly better in demonstrating an honest and responsible attitude towards conveyed information, ideas, or thoughts (with an average score of 3.42). In contrast, female students excel in language usage aligned with content context and adapted to the audience (with an average score of 3.63), as well as in listening and respecting others' opinions (average score of 3.26) and using logical and structured thought processes according to applicable rules (average score of 3.37).

Further investigations suggest that social factors, particularly access to education, play a decisive role in shaping gendered differences in language use. Gregersen and Røyneland (2009) interpret these findings by arguing that unequal educational opportunities between boys and girls often result in more pronounced variations in speaking styles. Holmes (2013) further analyzes this by emphasizing that such disparities are not simply linguistic phenomena but are deeply rooted in broader social structures that reinforce gender hierarchies. Kusters and Lucas (2022) provide a comparative perspective, noting that while educational inequality magnifies linguistic differences, in more equitable contexts these distinctions tend to diminish, suggesting that social environments mediate linguistic outcomes as much as, if not more than, biological predispositions. From a historical standpoint, Munira et al. (2020) highlight that in earlier periods, women's restricted access to education reinforced the perception of men as more powerful and prestigious figures, thereby granting greater authority to men's speech. Rafikova and Voronin (2024) add that cultural traditions, which positioned men as leaders and women in subordinate roles, further sustained male linguistic dominance, with men's words considered more influential and more frequently heard. Taken together, these perspectives indicate that the perception of male speech as inherently more authoritative is less a reflection of linguistic capability and more a product of historically entrenched social and cultural inequalities.

Scholars argue that when men and women receive equal educational opportunities, women often show greater sensitivity to linguistic norms and status-related variations. Gregersen and Røyneland (2009) interpret this as women's tendency to adopt socially prestigious language forms, while Holmes (2013) emphasizes that such awareness often produces more careful and refined communication styles. Kusters and Lucas (2022) provide a comparative perspective, noting that this sensitivity does not necessarily indicate superior communication skills, but rather reflects women's stronger orientation toward normative expectations. Findings of this study align with these views. Female students obtained slightly higher average communication skill scores than males, suggesting attentiveness to language norms. However, further statistical analysis using an independent t-test produced a two-tailed significance value of 0.763, above 0.05, indicating no significant gender-based differences. Thus, although small variations exist, gender is not a determining factor in overall communication competence when educational opportunities are equal.

Based on the research results, the establishment of an inclusive educational ecosystem without gender-based differentiation plays an important role in fostering equality, including in communication skills. Cronin and Roger (1999) emphasize that building a fair and balanced educational ecosystem across genders is crucial, as it creates conditions where both men and women can actualize their abilities equally. The findings of this study support that argument, showing that Physics Education students, who were given equal treatment and access to digital-based learning, demonstrated comparable communication skills across genders. This suggests that when women are freed from the assumption of being subordinates whose ideas must take second place to men's, their communication competence emerges at the same level as their male peers. In this way, the study reinforces Cronin and Roger's interpretation that gender equality in

education is not merely normative but has tangible effects on students' performance, particularly in communication.

Conclusion

The significant finding of this study is that the overall level of students' communication skills is generally categorized as 'good.' Proficient communication skills are evident in oral expressions, such as opinions, questions, or participation in class discussions and written forms, including assignments or scientific papers. The advancement of communication skills is influenced by the learning process utilizing digital technology. When considering gender differences, there appears to be no significant distinction between the communication skills of male and female students. Men and women can develop communication skills at relatively similar levels when afforded the same educational opportunities.

The study results show that students' communication skills are in the "good" category, with no significant differences between genders. This supports that digital technology-based learning can improve communication skills evenly, indicating that technology integration in the learning process can effectively develop students' overall communication competencies. Practically, these results encourage educators and policymakers to continue integrating digital technology into the learning curriculum to strengthen students' communication skills and create an inclusive and supportive learning environment.

This study's limitation is its limited sample size, as it focuses on physics education students at UIN Imam Bonjol Padang. To obtain more reliable research results, further research can be conducted by taking a larger sample size and exercising more control over treatments in digital-era learning activities. Based on the findings that students' communication skills are classified as good without gender differences, further research is recommended to explore the role of digital media, collaborative contexts, self-development programs, and extracurricular activities in supporting communication improvement. This is important to formulate more effective and equitable development strategies.

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REFERENCES

Aksnes, D. W., Langfeldt, L., & Wouters, P. (2019). Citations, citation indicators, and research quality: An overview of basic concepts and theories. *SAGE Open, 9*(1). https://doi.org/10.1177/2158244019829575

Alkathiri, S. A. N., Bakhiet, S. F. A., & Dutton, E. (2024). The effectiveness of a training program based on active learning strategies in developing the creative thinking skills of female students with learning disabilities. *Cogent Education, 11*(1). https://doi.org/10.1080/2331186X.2024.2413235

Allen, B. J. (2023). *Difference matters: Communicating social identity*. Waveland Press. https://books.google.com/books?hl=en&lr=&id=nV2mEAAAQBAJ&oi=fnd&pg=PR1&dq=These+differences+in+communication+patterns+are+assumed+to+also+be+influenced+by+gender+factors&ots=a3BfEqQ8pX&sig=pdD7RWXITdgYez80iL9lpBo0e-s

Asrar, Z., Tariq, N., & Rashid, H. (2018). The impact of communication between teachers and students: A case study of the Faculty of Management Sciences, University of Karachi, Pakistan. *European Scientific Journal, ESJ, 14*(16), 32. https://doi.org/10.19044/esj.2018.v14n16p32

Batista, J., Santos, H., & Marques, R. P. (2021). The use of ICT for communication between teachers and students in the context of higher education institutions. *Information, 12*(11), 479. https://doi.org/10.3390/info12110479

Bin Dahmash, N. (2020). 'I can't live without google translate': A close look at the use of google translate app by second language learners in Saudi Arabia. *Arab World English Journal, 11*(3), 226–240. https://dx.doi.org/10.24093/awej/vol11no3.14

Craig, R. J., & Amernic, J. H. (2006). PowerPoint presentation technology and the dynamics of teaching. *Innovative Higher Education, 31*, 147–160. https://doi.org/10.1007/s10755-006-9017-5

Cronin, C., & Roger, A. (1999). Theorizing progress: Women in science, engineering, and technology in higher education. *Journal of Research in Science Teaching, 36*(6), 637–661. https://doi.org/10.1002/(SICI)1098-2736(199908)36:6<637::AID-TEA4>3.0.CO;2-9

Dabengwa, I. M., Moyo, S., Ncube, S., Gashirai, T. B., Makaza, D., Makoni, P., … Mandaza, D. (2024). Exploring digital competences in Zimbabwean secondary schools using a multimodal view: A hermeneutical phenomenography study. *Cogent Education, 11*(1). https://doi.org/10.1080/2331186X.2024.2387911

Dahmani, N., Ali, W., Aboelenein, M., Alsmairat, M. A. K., & Faizi, M. (2024). From classroom interaction to academic success: Tracing the mediating role of effective communication in faculty-student dynamics. *Cogent Education, 11*(1). https://doi.org/10.1080/2331186X.2024.2377847

de Moor, E. L., Nelemans, S. A., Becht, A. I., Meeus, W., & Branje, S. (2022). Personality development across adolescence and young adulthood: The role of life transitions and self-concept clarity. *European Journal of Personality, 37*(5), 587–604. https://doi.org/10.1177/08902070221119782

Dunbar, K., & Yadav, A. (2022). Shifting to student-centered learning: Influences of teaching a summer service learning program. *Teaching and Teacher Education, 110*, 103578. https://doi.org/10.1016/j.tate.2021.103578

Eckhaus, E., Wadmany, R., & Davidovitch, N. (2024). Student perceptions of the benefits and shortcomings of slideshows as evaluation tools. *Cogent Education, 11*(1). https://doi.org/10.1080/2331186X.2024.2388979

Etkin, P., De Caluwé, E., Ibáñez, M. I., Ortet, G., & Mezquita, L. (2022). Personality development and its associations with the bifactor model of psychopathology in adolescence. *Journal of Research in Personality, 97*, 104205. https://doi.org/10.1016/j.jrp.2022.104205

Feinstein, J. (2008). The importance of accurate references in journals. *Editors' Bulletin, 4*(3), 100–102. https://doi.org/10.1080/17521740802651237

Gregersen, F., & Røyneland, U. (2009). Introduction: Sociolinguistics. *Nordic Journal of Linguistics, 32*(2), 185–189. https://doi.org/10.1017/S0332586509990023

Guillen-Gamez, F. D., Mayorga-Fernández, M. J., & Contreras-Rosado, J. A. (2021). Incidence of gender in the digital competence of higher education teachers in research work: Analysis with descriptive and comparative methods. *Education Sciences, 11*(3), 98. https://doi.org/10.3390/educsci11030098

Hall, R. M., & Sandler, B. R. (1982). *The classroom climate: A chilly one for women?* https://eric.ed.gov/?id=ED215628

Hawken, L., Duran, R. L., & Kelly, L. (1991). The relationship of interpersonal communication variables to academic success and persistence in college. *Communication Quarterly, 39*(4), 297–308. https://doi.org/10.1080/01463379109369807

Hikmawati, H., Sahidu, H., Ayub, S., & Kosim, K. (2021). Peningkatan keterampilan komunikasi mahasiswa calon guru melalui kegiatan analisis artikel ilmiah dari jurnal nasional. *Unram Journal of Community Service, 2*(2), 33–37. https://doi.org/10.29303/ujcs.v2i2.32

Holmes, J. (2013). *An introduction to sociolinguistics* (4th ed.). Routledge. https://doi.org/10.4324/9781315833057

Hömke, P., Holler, J., & Levinson, S. C. (2017). Eye blinking as addressee feedback in face-to-face conversation. *Research on Language and Social Interaction, 50*(1), 54–70. https://doi.org/10.1080/08351813.2017.1262143

Huh, J. (2020). Smart communication for a digital world. *Journal of Interactive Advertising, 20*(3), 240–243. https://doi.org/10.1080/15252019.2020.1849693

Iverson, J. M. (2010). Developing language in a developing body: The relationship between motor development and language development. *Journal of Child Language, 37*(2), 229–261. https://doi.org/10.1017/S0305000909990432

Kusters, A., & Lucas, C. (2022). Emergence and evolutions: Introducing sign language sociolinguistics. *Journal of Sociolinguistics, 26*, 84–98. https://doi.org/10.1111/josl.12522

Lovell, B., Lee, R. T., & Brotheridge, C. M. (2009). Gender differences in the application of communication skills, emotional labor, stress-coping and well-being among physicians. *Archives: The International Journal of Medicine, 2*(3), 273+. https://link.gale.com/apps/doc/A209537187/HRCA?u=anon~6fdb4b2a&sid=googleScholar&xid=f52abf91

Mahanal, S., Zubaidah, S., Setiawan, D., Maghfiroh, H., & Muhaimin, F. G. (2022). Empowering college students' problem-solving skills through RICOSRE. *Education Sciences, 12*(3), 196. https://doi.org/10.3390/educsci12030196

Milawati, C., Cangara, H., & Arianto. (2022). Utilization of new media in tourism marketing communication: Marketing strategy conducted by Government Tourism Office of West Sulawesi. In *Proceedings of the International Conference on Communication, Policy and Social Science (InCCluSi 2022)* (pp. 246–254). Atlantis Press. https://doi.org/10.2991/978-2-494069-07-7_30

Mudjijanti, F., & Srimulyani, V. A. (2023). The impact of e-learning on student interest during the Covid-19 pandemic. *European Journal of Education and Pedagogy, 4*(3), 135–142. https://doi.org/10.24018/ejedu.2023.4.3.693

Munira, S., Hossain, A., & Nessa, M. (2020). Gender and sex based differences in lexical directions: A study on language theories. *Advances in Applied Sociology, 10*, 93–102. https://doi.org/10.4236/aasoci.2020.104007

Munna, A. S., & Kalam, M. A. (2021). Teaching and learning process to enhance teaching effectiveness: A literature review. *International Journal of Humanities and Innovation (IJHI), 4*(1), 1–4. https://doi.org/10.33750/ijhi.v4i1.102

Muslim, A. (2020). Implementasi pembelajaran partisipatif melalui focus group discussion dalam meningkatkan kemampuan komunikasi mahasiswa. *Jurnal Paedagogy, 4*(1), 15–20. https://doi.org/10.33394/jp.v4i1.3019

Nurhalizah, S., Zubaidah, S., Mahanal, S., & Setiawan, D. (2020). RICOSRE for the empowerment of students' creative thinking skills. *AIP Conference Proceedings, 2215*(1), 030010. https://doi.org/10.1063/5.0000560

Nurlaelah, I., Widodo, A., Redjeki, S., & Rahman, T. (2020). Analisis kemampuan komunikasi ilmiah peserta didik pada kegiatan kelompok ilmiah remaja berbasis riset terintegrasi keterampilan proses sains. *Quagga: Jurnal Pendidikan dan Biologi, 12*(2), 194–201. https://journal.uniku.ac.id/index.php/quagga/article/view/2899

O'Connor, C., Michaels, S., Chapin, S., & Harbaugh, A. G. (2017). The silent and the vocal: Participation and learning in whole-class discussion. *Learning and Instruction, 48*, 5–13. https://psycnet.apa.org/doi/10.1016/j.learninstruc.2016.11.003

Penciner, R. (2013). Does PowerPoint enhance learning? *Canadian Journal of Emergency Medicine, 15*(2), 109–112. https://doi.org/10.2310/8000.2013.130756

Polakova, M., Suleimanová, J. H., Madzik, P., Copus, L., Molnarova, I., & Polednova, J. (2023). Soft skills and their importance in the labour market under the conditions of Industry 5.0. *Heliyon, 9*(8), e18670. https://doi.org/10.1016/j.heliyon.2023.e18670

Priadi, R. (2020). Teacher communication effectiveness in the learning process. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences, 3*(4), 3433–3444. https://doi.org/10.33258/birci.v3i4.1378

Qazi, A., Hasan, N., Abayomi-Alli, O., Hardaker, G., Scherer, R., Sarker, Y., Kumar Paul, S., & Maitama, J. Z. (2022). Gender differences in information and communication technology use & skills: a systematic review and meta-analysis. *Education and information technologies, 27(3)*, 4225–4258. https://doi.org/10.1007/s10639-021-10775-x

Qureshi, M. A., Khaskheli, A., Qureshi, J. A., Raza, S. A., & Yousufi, S. Q. (2021). Factors affecting students' learning performance through collaborative learning and engagement. *Interactive Learning Environments, 31*(4), 2371–2391. https://doi.org/10.1080/10494820.2021.1884886

Rafikova, A., & Voronin, A. (2024). Unveiling gender differences: A semantic differential approach to studying mindsets in language learning. *International Journal of Multilingualism*, 1–22. https://doi.org/10.1080/14790718.2024.2338735

Ruthotto, I., Kreth, Q., Stevens, J., Trively, C., & Melkers, J. (2020). Lurking and participation in the virtual classroom: The effects of gender, race, and age among graduate students in computer science. *Computers & Education, 151*, 103854. https://doi.org/10.1016/j.compedu.2020.103854

Sasabillah, S., Ningsih, S., Putri, A. G. E., & Sastrawati, E. (2023). Pemanfaatan literasi digital untuk meningkatkan inovasi dan kreativitas pada mahasiswa (PGSD). *Jurnal Sinestesia, 13*(2), 1133–1142. Retrieved from https://sinestesia.pustaka.my.id/journal/article/view/455

Schreurs, J., & Dumbraveanu, R. (2014). A shift from teacher centered to learner centered approach. *International Journal of Engineering Pedagogy (iJEP), 4*(3), 36–41. https://doi.org/10.3991/ijep.v4i3.3395

Šejtanić, S., & Ilić, M. (2016). Verbal interaction between pupils and teachers in the teaching process. *European Journal of Education Studies*. http://oapub.org/edu/index.php/ejes/article/view/315

Smith, D. P., & Francis, N. J. (2022). Engagement with video content in the blended classroom. *Essays in Biochemistry, 66*(1), 5–10. https://doi.org/10.1042/EBC20210055

Sudibjo, N., Idawati, L., & Harsanti, H. R. (2019). Characteristics of learning in the era of Industry 4.0 and Society 5.0. In *Proceedings of the International Conference on Education Technology (ICoET 2019)* (pp. 276–278). Atlantis Press. https://www.atlantis-press.com/proceedings/icoet-19/125925095

Sutiah, & Supriyono. (2024). Enhancing online learning quality: A structural equation modeling analysis of educational technology implementation during the COVID-19 pandemic. *Telematics and Informatics Reports, 16*, 100175. https://doi.org/10.1016/j.teler.2024.100175

Taylor, D. M. (2002). The appropriate use of references in a scientific research paper. *Emergency Medicine Australasia, 14*(2), 166–170. https://doi.org/10.1046/j.1442-2026.2002.00312.x

Tegegne, B., & Wondimu, H. (2024). Emotional intelligence and effective communication as predictors of organizational commitment among Ethiopian public university instructors. *Cogent Education, 11*(1), 2312031. https://doi.org/10.1080/2331186X.2024.2312031

Van Nguyen, M. (2023). Google Translate for writing in an online English class: Vietnamese learners' perceptions and performances. *The EuroCALL Review, 30*(1), 5–17. https://doi.org/10.4995/eurocall.2023.18246

Wulandari, A., Wibowo, D. E., & Arifin, M. (2022). Pergeseran pembelajaran berbasis student centered learning. *PEGAS (Jurnal Pendidikan Guru Sekolah Dasar), 1*(1), 1–5.

Xie, F., & Derakhshan, A. (2021). A conceptual review of positive teacher interpersonal communication behaviors in the instructional context. *Frontiers in Psychology, 12*, 708490. https://doi.org/10.3389/fpsyg.2021.708490

Yashima, T., Ikeda, M., & Nakahira, S. (2016). Talk and silence in an EFL classroom: Interplay of learners and context. In J. King (Ed.), *The dynamic interplay between context and the language learner* (pp. 104–126). Palgrave Macmillan. https://doi.org/10.1057/9781137457134_7

Yavuz, S., & Güzel, Ü. (2020). Evaluation of teachers' perception of effective communication skills according to gender. *African Educational Research Journal, 8*(1), 134–138. https://doi.org/10.30918/AERJ.82.20.010

Yeşil, H. (2010). The relationship between candidate teachers' communication skills and attitudes towards the teaching profession. *Procedia - Social and Behavioral Sciences, 9*, 919–922. https://doi.org/10.1016/j.sbspro.2010.12.259