



Analysis of Pre-service Teacher's Public Speaking Skills in Explaining Basic Physics Concepts Through Instagram Content

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Abstract: Previously, public speaking should be done in classrooms, halls, or fields attended directly by participants. Nowadays, social media such as Instagram allow users to upload videos, include captions, show videos to everyone, and include a comment column for discussion space. This research aims to determine students' public speaking skills after using Instagram media to present their content. This research is qualitative research with a descriptive approach. The selection of respondents used a saturated sampling technique, namely 32 students taking the Basic Concepts of Physics course for elementary schools. Data collection techniques were carried out through observation, questionnaires, interviews, and literature study. Next, data analysis uses Miles and Huberman analysis. The results and conclusions of this research are: 1) By creating science content on Instagram, students' public speaking skills are in a good category, 2) The project of creating educational content on Instagram is effective in making students learn the material that will be presented, so they can sharpen basic concepts their science and broaden their horizons.

Keywords: basic physics; public speaking; teacher; social media; instagram

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Introduction

Public speaking is often viewed as a one-way communication process, where a speaker addresses an audience. However, this monologue approach has its challenges and tends to yield limited results, as noted in educational literature on active learning (Usera, 2023). Key indicators of effective public speaking skills include confidence, inspiring, attractive, and skillful (Ayu, 2021). In practice, not everyone excels at public speaking. It is one of the most common fears for many individuals (Sawyer, 2016). Research indicates that this fear can lead to what is known as Public Speaking Anxiety (PSA) (Reeves et al., 2022). PSA is classified as a social anxiety disorder and describes the anxiety experienced when delivering a speech or



preparing to speak in front of an audience (Gallego et al., 2022). This anxiety can have detrimental effects on both employment opportunities and educational advancement, particularly in situations where public speaking is essential (Raja, 2017). Therefore, the need for training in public speaking skills within the educational sector is evident.

The revolution of the 21st century has impacted all aspects of life, including education (Saputra, Saprudin, & Sambiri, 2023). This century has introduced significant changes for both teachers and students, who play crucial roles in the learning process. The educational paradigm has shifted toward more modern methods in response to current developments (Saputra, Saprudin, Hamid, et al., 2023). Teachers are adapting their teaching methods by implementing learning models that are recommended for 21st-century education, while students are expected to be more active participants in their learning (Hendra & Rahayu, 2020). Additionally, students need to develop 4C skills essential for achieving the goals of 21st-century education: Critical Thinking and Problem Solving, Communication, Collaboration, and Creativity & Innovation (Jayadi et al., 2020).

One aspect that requires improvement is communication skills. According to Patacsil and Tablatin (2017), communication skills rank as the most important among all soft skills. In the context of the industrial revolution, strong communication abilities are essential for success and survival in a competitive environment (Santika, 2021). For preservice professional teachers, being skilled in communication and problem-solving is crucial for designing engaging and meaningful learning experiences (Argaw et al., 2017). These communication skills extend beyond group discussions to include public speaking. Therefore, Based on Table 3 above, we can observe that the self-confidence indicator has an average percentage of 70.6% or has a good category. This explains that students already have good self-confidence in creating science content that is shared on Instagram. However, if we look in more detail, the statements "I dare to answer questions in the comments" and "I easily interact with other accounts that follow my content" have a percentage below 68% or are in the poor category. The results of this study are supported by (Rahman Hz, 2022) who stated that the highest public speaking anxiety is influenced by other people's opinions, so students are very worried and upset because they will be judged as incompetent speakers. Based on these results, students need to practice self-disclosure so that they can easily interact with other people. The benefits of self-disclosure are, (1) increasing self-knowledge, (2) making you more able to overcome difficulties, (3) making communication more efficient, and (4) creating deeper relationships (Mahfudin & Saragih, 2020).

Effective public speaking skills to meet the demands of 21st-century education and to create stimulating learning opportunities. In the past, public speaking typically took place in classrooms, auditoriums, buildings, or outdoor fields where participants could interact in person. However, in today's digital age, public speaking can also be conducted online through social media platforms. Social media serves as an online medium where users can easily engage, share, and create content, including blogs, social networks, wikis, forums, and virtual worlds (Kustiawan et al., 2022). One of the most popular social media platforms is Instagram, which allows users to post videos and add captions. Additionally, Instagram features a comments section that can serve as a space for discussion. This aspect of Instagram provides a valuable opportunity to practice public speaking (Ramadoni, 2019).

Research indicates that combining public speaking skills with effective social media management can significantly increase the visibility of the content you wish to share, reaching a broader audience beyond just those present in the room (Vidiadari et al., 2021). Additionally, other studies have shown that using Instagram can greatly enhance public speaking skills across various educational settings, including universities (Apriyanti et al., 2018), school students (Azlan & Yunus, 2019), and non-formal courses in English language programs (Hape, 2018). The key elements of novelty in this research are as follows: (1) Students' public speaking is integrated with scientific content, (2) There has been no similar research conducted in the North Maluku area, and (3) It serves as training for preservice teacher in the primary teacher education program at Universitas Khairun, focusing on social media management.

Observations of students in the primary teacher education program at Universitas Khairun reveal that many students feel embarrassed and hesitant when asked to present alone in front of the class. This highlights the need for training in public speaking skills. Courage and self-confidence are essential components of successful public speaking. For preservice teachers, these skills are critical to master; therefore, further research is necessary to assess the effectiveness of various interventions or to identify solutions to the challenges they face in public speaking. This research aims to evaluate students' public speaking abilities after using Instagram as a medium to present their science content.

Method

This research employs a qualitative approach with a descriptive framework. We used a saturated sampling technique, meaning that every member of the population was included in the sample. This method was chosen to allow us to observe the entire group, which consists of 32 students enrolled in the Basic Concepts of Physics course for elementary schools.

The research utilizes primary data gathered from respondents and secondary data derived from relevant literature that supports the findings. Data collection techniques were implemented through observation, questionnaires, interviews, and literature review. The questionnaire, titled "Questionnaire of Public Speaking Skills," comprises four indicators and 21 statements. This research tool is designed to gauge students' opinions and perceptions of the social phenomena they experience. Therefore, the Likert scale presented in Table 1 serves as an appropriate reference for this study.

Table 1. Score Criteria on a Likert Scale

Score	Information
5	Strongly Agree
4	Agree
3	Doubtful
2	Disagree
1	Strongly Disagree

(Sugiyono, 2021)

The questionnaire will be distributed to all respondents, and the results will be interpreted using the scale categories in Table 2.

Table 2. Scale Category

Scale	Percentage (x)	Category
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1,00 - 1,80	20 % < x < 36 %	Very Not Good
1,81 - 2,60	36 % < x < 52 %	Not Good
2,61 - 3,40	52 % < x < 68 %	A Little Good
3,41 - 4,20	68 % < x < 84 %	Good
4,21 - 5,00	84 % < x < 100 %	Very Good

(Sugiyono, 2021)

The data was analyzed using the Miles and Huberman method. This approach was chosen because it consists of clear stages, which makes it easier to plan future work. Additionally, this method is flexible enough to handle complex data, providing a structured framework while still allowing for discoveries. It is effective in gaining in-depth insights from qualitative data.

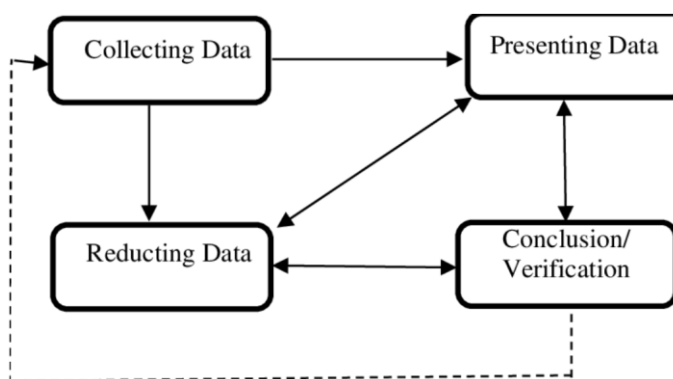


Figure 1. Miles and Huberman Interactive Model Analysis (Sugiyono, 2021)

The Miles and Huberman analysis model consists of four stages: (1) Collecting Data, which involves gathering information through interviews, observations, and/or documentation, (2) Reducing Data, in this stage, data is simplified to focus on relevant information that helps solve problems or answer research questions, (3) Presenting Data, this step entails organizing and combining information to effectively describe the observed situation, and (4) Conclusion, data is integrated into meaningful units, forming categories that adhere to holistic principles and can be interpreted without adding any extra information (Sugiyono, 2021).

Results and Discussion

This research utilizes a qualitative, descriptive approach to evaluate students' public speaking skills following their use of Instagram to present scientific content. Additionally, this study aims to identify the strengths and weaknesses of students' public speaking abilities based on the results of a questionnaire.

During the data collection stage, the results indicated that the majority of students were still hesitant to engage in public speaking. In interviews, students expressed that they were not accustomed to presenting alone in front of the class. Additionally, many felt that explaining the topic material contributed to their lack of confidence and increased anxiety. They shared a fear of making mistakes while presenting. However, one student was willing to explain the material by himself in front of the class. Based on the researcher's observations, there were doubts about his explanation, leading to the presentation being incomplete. When

questioned about the reason for his hesitation, the student revealed that he wanted to finish quickly so he could rejoin his friends.

The researchers asked students to create science content for Instagram, focusing on a simple science experiment. The content included an explanation of the experiment's purpose, required tools and materials, theoretical background, step-by-step instructions for conducting the experiment, observation results, discussion, and conclusions. By sharing content on online platforms, students are better prepared, can reflect on any shortcomings in their presentation, and reach a wider audience. This Instagram-based learning aligns with the 21st-century educational concept known as 3W (Whatever, Whenever, Wherever), which encourages the positive use of social networks like Instagram (Novianti et al., 2020). After uploading their content, students were asked to complete a questionnaire to assess their public speaking skills. The indicators evaluated included (1) confidence, (2) inspiring, (3) attractive, and (4) skillful.

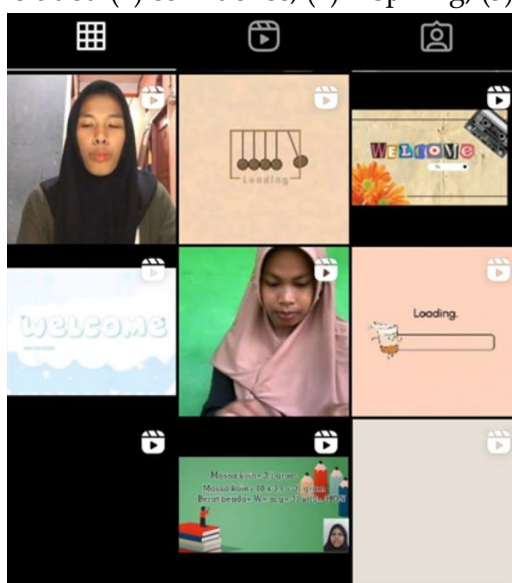


Figure 2. Science Content Uploaded to the Instagram Account

Figure 2 shows an example of content uploaded on Instagram. Topics such as force, elasticity, fluid dynamics, heat, and other basic physics subjects are covered. Students explain these topics and conduct related experiments.

During the data reduction stage, data is simplified to clarify, categorize, direct, eliminate unnecessary information, and organize it until conclusions can be drawn and verified. In this research, data collection was conducted through interviews, observations, and questionnaires. Any data that does not contribute to the research outcomes and conclusions has been excluded, such as interview responses that fall outside the scope of this research.

At the data presentation stage, we will provide a combination of information gathered from interviews, observations, questionnaires, and documentation. Below are the results of a questionnaire completed by 32 students enrolled in the Basic Concepts of Physics course for elementary schools.

Table 3. Questionnaire Results of Public Speaking Skills

No	Indicator	Percentage
1	<i>Confidence</i>	
	a. I dare to upload the science content that I created	71,9 %
	b. I am confident in myself when creating content	72,7 %

	c. I am proud of the abilities I have	79,7 %
	d. I dare answer questions in the comments	66,4 %
	e. I easily interact with other accounts that follow my content	64,1 %
	f. I was brave when asked to create science content with other materials	68,8 %
	The average percentage of confidence indicators	70,6 %
2	<i>Inspiring</i>	
	a. In the content I create, I provide motivation to the audience	69,5 %
	b. I easily get new ideas for creating science content	68,8 %
	c. I am able to use other than Indonesian when creating content	64,8 %
	d. It's easy for me to make jokes to attract the audience	69,5 %
	e. I use polite language	75,8 %
	The average percentage of inspiring indicators	69,7 %
3	<i>Attractive</i>	
	a. I can attract the attention of the audience	68,0 %
	b. I use language that is easy to understand	73,4 %
	c. I always try to provide support to the audience	70,3 %
	d. I am always passionate when creating content	72,7 %
	e. I try to greet the audience in the content I create	71,1 %
	The average percentage of attractive indicators	71,1 %
4	<i>Skillful</i>	
	a. I was able to overcome my nervousness in front of the camera	75,0 %
	b. I act calm when speaking in front of the camera	76,6 %
	c. In my content I use body movements that can support my words	71,9 %
	d. I prepare material before creating content	81,3 %
	e. I like reading books to increase my knowledge	72,7 %
	The average percentage of skillful indicators	75,5 %
	The average percentage of public speaking skills	71,7 %

According to Table 3, the self-confidence indicator has an average percentage of 70.6%, indicating a good level of confidence among students in creating science content shared on Instagram. However, a closer look at specific statements reveals that "I dare to answer questions in the comments" and "I easily interact with other accounts that follow my content" have percentages below 68%, placing them in the poor category. This aligns with the findings of (Rahman Hz, 2022), who noted that high levels of public speaking anxiety are often influenced by concerns about others' opinions, leading students to feel anxious about being judged as incompetent speakers. As a result, it is essential for students to practice self-disclosure to improve their interaction with others. The benefits of self-disclosure include (1) increased self-knowledge, (2) enhanced problem-solving abilities, (3) more effective communication, and (4) the development of deeper relationships (Mahfudin & Saragih, 2020).

The Inspiring Indicator achieved an average percentage of 69.7%, indicating a good performance overall. Most statements in this category were rated positively; however, one statement received a poor rating: "I am able to use other than Indonesian when creating content." This indicates that students' foreign language skills are still lacking. Therefore, students should be more proactive and dedicated in their foreign language studies. The use of foreign languages is becoming increasingly common and is highly valued in schools and various international programs (Andika & Mardiana, 2023). As a result, mastering a foreign language is crucial for navigating the challenges of technological advancement.

Moreover, the attractive indicators achieved an average percentage of 71.1%, which falls into the good category. In this aspect, all statements were also rated positively, indicating that

students excel at creating engaging educational content. This engaging quality is crucial in digital content, as capturing the audience's attention and interest requires compelling material (Maharani & Cahyani, 2023).

The final indicator, "skillful," has an average score of 75.5%, placing it in the good category. All statements related to this indicator also received good ratings, indicating that students generally possess strong skills and abilities in creating educational content on Instagram. Notably, the statement "I prepare material before creating content" garnered a percentage of 81.3%, making it the highest-rated statement among all others. This suggests that the initiative of creating educational content on Instagram effectively encourages students to learn the material they are presenting. As students continue to create content with different topics, they will prepare and study various materials, enhancing their understanding of concepts and broadening their perspectives. This process will ultimately support their readiness to become teachers.

The average result for public speaking skills, based on all the indicators measured, is 71.7%. This indicates that, overall, students possess good public speaking skills, as shown in Table 2. This study suggests that Instagram can be an effective platform for improving public speaking abilities. Research by (Apriyanti et al., 2018) supports this, stating that Instagram is an excellent choice for sharing videos that enhance public speaking skills. Furthermore, it has been observed that students tend to be more motivated when they receive feedback from people they do not know. This sense of being challenged in a new environment fosters their self-confidence and encourages them to perform their best. Similarly, research conducted by (Ihsan & Aulia, 2020) highlights that Instagram has proven to be a successful medium for public speaking courses. Additionally, Instagram can also serve as a tool for building personal branding.

Conclusion

This study aims to assess students' public speaking skills after utilizing Instagram as a platform to deliver their content. The main conclusions drawn from this research are as follows: (1) By creating scientific content on Instagram, students' public speaking skills fall into the good category; (2) The project of creating educational content on Instagram is effective in helping students understand the material they present, thereby enhancing their grasp of basic scientific concepts and expanding their knowledge. For researchers interested in this topic, it is suggested that further studies explore public speaking using other platforms, such as YouTube and others. This innovation can help meet the demands of 21st-century skills and is also valuable for designing engaging learning experiences.

References

- Andika, M., & Mardiana, N. (2023). Edukasi Pentingnya Bahasa Inggris di Era Globalisasi. *BERNAS: Jurnal Pengabdian Kepada Masyarakat*, 4(1), 246–251. <https://doi.org/10.31949/jb.v4i1.3961>
- Apriyanti, D., Syofiani, S., Ramadhan, S., & Mukhaiyar, M. (2018). Improving Students' Public Speaking Skill through Instagram. *Proceedings of the International Conference on Language, Literature, and Education*, 263, 268–271.
- Argaw, A. S., Haile, B. B., Ayalew, B. T., & Kuma, S. G. (2017). The Effect of Problem Based

- Learning (PBL) Instruction on Students' Motivation and Problem Solving Skills of Physics. *EURASIA: Journal of Mathematics Science and Technology Education*, 13(3), 857–871. <https://doi.org/10.12973/eurasia.2017.00647a>
- Ayu, G. F. (2021). *Efektivitas Konseling Kelompok dengan Pendekatan Realita dalam Meningkatkan Kemampuan Public Speaking Siswa di SMA Islam Nurul Jadid Panglegur Pamekasan* [Institut Agama Islam Negeri Madura]. <http://etheses.iaimadura.ac.id/2473/>
- Azlan, N. A. B., & Yunus, M. M. (2019). Integrative Task-Based Learning : Developing Speaking Skill and Increase Motivation via Instagram. *International Journal of Academic Research in Business and Social Sciences*, 9(1), 620–636. <https://doi.org/10.6007/IJARBS/v9-i1/5463>
- Gallego, A., Mchugh, L., Penttonen, M., & Lappalainen, R. (2022). Measuring Public Speaking Anxiety: Self-report, behavioral, and physiological. *Behavior Modification*, 46(4), 782–798. <https://doi.org/10.1177/0145445521994308>
- Hape, N. M. (2018). The Effect of Instagram to Students' Speaking at the Paradise English Course Of Kampung Inggris In 2018. *Jurnal Simki Pedagogia*, 2(11), 1–7. <http://simki.unpkediri.ac.id/detail/14.1.01.08.0049>
- Hendra, Y., & Rahayu, T. (2020). The Effectiveness of Teams Games Tournament (TGT) Learning Model and Make A Match Against Collaboration Ability On Science Content At Fifth Grade Elementary School-Meta Analysis. *International Journal of Elementary Education*, 4(4), 510–518. <https://doi.org/10.23887/ijee.v4i4.30205>
- Ihsan, P., & Aulia, E. R. (2020). Instagram As Medium of Promoting English Speaking Skill: English Edupreneurship. *Jo-ELT (Journal of English Language Teaching) Fakultas Pendidikan Bahasa & Seni Prodi Pendidikan Bahasa Inggris IKIP*, 7(2), 105. <https://doi.org/10.33394/jo-elt.v7i2.3180>
- Jayadi, A., Putri, D. H., & Johan, H. (2020). Identifikasi Pembekalan Keterampilan Abad 21 pada Aspek Keterampilan Pemecahan Masalah Siswa SMA Kota Bengkulu dalam Mata Pelajaran Fisika. *Jurnal Kumparan Fisika*, 3(1), 25–32. <https://doi.org/10.33369/jkf.3.1.25-32>
- Kustiawan, W., Nurlita, A., Siregar, A., Siregar, S. A., Ardianti, I., Hasibuan, M. R., & Agustina, S. (2022). Media Sosial dan Jejaring Sosial. *MAKTABUN: Jurnal Perpustakaan Dan Informasi*, 2(1), 26–30.
- Maharani, S., & Cahyani, L. (2023). Analisis Pengembangan Konten Media Sosial pada Instagram PT. Telekomunikasi Indonesia, Tbk Bandung Tahun 2022. *E-Proceeding of Applied Science*, 9(2), 579–583.
- Mahfudin, B., & Saragih, R. B. (2020). Pengaruh Keterbukaan Diri (Self-Disclosure) terhadap Penyelesaian Tugas Akhir Skripsi. *JURNAL KAGANGA*, 4(1), 18–27. <https://doi.org/10.33369/jkaganga.4.1.18-27>
- Novianti, E. W., Arcana, I. N., & Taufiq, I. (2020). Pengembangan Media Pembelajaran Berbasis Instagram pada Pokok Bahasan Grafik Fungsi untuk Siswa SMA. *UNION: Jurnal Pendidikan Matematika*, 8(3), 333–343. <https://doi.org/10.30738/union.v8i3.8820>
- Patacsil, F. F., & Tablatin, C. L. S. (2017). Exploring the Importance of Soft and Hard Skills as Perceived by It Internship Students and Industry : A Gap Analysis. *Journal of Technology and Science Education*, 7(3), 347–368. <https://doi.org/10.3926/jotse.271>
- Apriyanti, D., Syofiani, S., Ramadhan, S., & Mukhaiyar, M. (2018). Improving Students' Public Speaking Skill through Instagram. *Proceedings of the International Conference on Language, Literature, and Education*, 263, 268–271.
- Ihsan, P., & Aulia, E. R. (2020). Instagram As Medium of Promoting English Speaking Skill: English Edupreneurship. *Jo-ELT (Journal of English Language Teaching) Fakultas*

Pendidikan Bahasa & Seni Prodi Pendidikan Bahasa Inggris IKIP, 7(2), 105.

<https://doi.org/10.33394/jo-elt.v7i2.3180>

- Rahman Hz, B. I. (2022). AN EXPLORATION ON STUDENTS' PUBLIC SPEAKING ANXIETY: STIFIn PERSPECTIVE. *LLT Journal: Journal on Language and Language Teaching, 25(1), 149–159.* <https://doi.org/10.24071/llt.v25i1.4502>
- Raja, F. (2017). Anxiety Level in Students of Public Speaking: Causes and Remedies. *Journal of Education and Educational Development, 4(1), 94–110.* <https://eric.ed.gov/?id=EJ1161521>
- Ramadoni, Y. (2019). The Effect of Using Instagram on Eleventh Grade Students ' Speaking Skill. *RETAIN, 7(1), 123–130.*
- Reeves, R., Curran, D., Gleeson, A., & Hanna, D. (2022). A Meta-Analysis of the Efficacy of Virtual Reality and In Vivo Exposure Therapy as Psychological Interventions for Public Speaking Anxiety. *Behavior Modification, 46(4), 937–965.* <https://doi.org/10.1177/0145445521991102>
- Santika, I. G. N. (2021). *Grand Desain Kebijakan Strategis Pemerintah dalam Bidang Pendidikan untuk Menghadapi Revolusi Industri 4.0.* 9(2), 369–377.
- Saputra, A., Saprudin, S., Hamid, F., & Rahman, N. A. (2023). Optimalisasi Model Project Based Learning terhadap Motivasi Belajar Mahasiswa Calon Guru Fisika Di Era New Normal. *U-Teach: Journal Education of Young Physics Teacher, 4(1), 19–29.* <https://doi.org/10.30599/uteach.v4i1.456>
- Saputra, A., Saprudin, S., & Sambiri, U. (2023). The Analysis of Pre-Service Physics Teachers' Computational Thinking Skills in Designing Computer Simulations of Projectile Motion Using the Scratch Application. *EduLine: Journal of Education and Learning Innovation, 3(4), 629–637.* <https://doi.org/10.30599/uteach.v4i1.456>
- Sawyer, C. R. (2016). Communication Apprehension and Public Speaking Instruction. In *Communication and Learning* (pp. 397–426). <https://doi.org/10.1515/9781501502446-017>
- Sugiyono. (2021). *Metode Penelitian Kualitatif.* Alfabeta.
- Usera, D. (2023). Audience Engagement Techniques in Oral Presentations. *Business and Professional Communication Quarterly, 00(0), 1–12.* <https://doi.org/10.1177/23294906231190575>
- Vidiadari, I. S., Rismayanti, R., & Tunggal, I. D. A. (2021). Pelatihan Public Speaking dan Pemanfaatan Media Sosial pada Komunitas Women March Yogyakarta. *ABDI: Jurnal Pengabdian Dan Pemberdayaan Masyarakat, 3(2), 244–250.* <https://doi.org/10.24036/abdi.v3i2.148>