

**DIGITAL COMPETENCE AND ARTIFICIAL INTELLIGENCE
READINESS AS PREDICTORS OF TECHNOLOGY
INTEGRATION AMONG SCIENCE TEACHERS IN PUBLIC
SECONDARY SCHOOLS IN ANAMBRA STATE**

Ginika Joy Akachukwu

ginikajoy652@gmail.com; 08135943952,
<https://orcid.org/0009>

Alice Morenike Olagunju

amolagunju@yahoo.com
Dept. of Science and Technology Education,
University of Ibadan, Ibadan.

Abstract

This study examined digital competence and artificial intelligence (AI) readiness as predictors of technology integration among science teachers in public secondary schools in Anambra State. A predictive correlational design was adopted. The study involved 118 science teachers across three selected Local Government Areas. Data were collected using the Teachers' Digital Competence Questionnaire, Artificial Intelligence Readiness Questionnaire for Teachers, and Teachers' Technology Integration Questionnaire, with Cronbach's alpha coefficients of 0.88, 0.82, and 0.85, respectively. Data were analysed using means, standard deviations, and simple and multiple linear regression. Findings showed high levels of digital competence ($M = 2.83$) and AI readiness ($M = 2.88$). Digital competence ($\beta = .496$, $p < .05$) and AI readiness ($\beta = .362$, $p < .05$) significantly predicted technology integration. Together, the two variables explained 28% of the variance in technology integration. The study concludes that strengthening teachers' digital competence and AI readiness could enhance technology integration.

Keywords: *Digital competence, artificial intelligence readiness, technology integration, science teachers, public secondary schools*

Introduction

The rapid growth of digital technologies and artificial intelligence is reshaping education, from teaching and learning to assessment and

professional practice. Teachers are now expected not only to demonstrate subject expertise and pedagogy but also to select, evaluate, and apply digital tools meaningfully in their classrooms. Digital competence has therefore become a cornerstone of modern teaching, as technology's benefits depend not only on access but also on teachers' capacity to use it effectively.

Digital competence goes beyond operating devices; it requires the knowledge, skills, and attitudes to apply technology critically, safely, and responsibly. The European Commission's DigCompEdu framework highlights six dimensions of teacher competence: professional engagement, digital resources, teaching and learning, assessment, empowering learners, and fostering students' own digital skills (European Commission, 2017; Redecker, 2017). Thus, digital competence encompasses both technical and pedagogical dimensions and provides a strong foundation for technology-supported teaching. Evidence from Nigeria indicates that science teachers are still developing these competencies. Ogegbo (2023), for example, found that secondary-school science teachers in Lagos State were predominantly at the Integrator (B1) level of digital proficiency, suggesting that although teachers could use digital technologies, they needed further development in selecting and integrating appropriate technologies into pedagogical practice.

Technology integration, meanwhile, refers to the purposeful use of digital tools to support instructional goals, learner engagement, and problem-solving. It differs from technology access because the availability of technological resources does not necessarily translate into meaningful classroom use. Similarly, digital competence reflects teachers' capacity to use technology, whereas technology integration concerns its actual application in instructional practice. Ifinedo et al. (2019) found that technological knowledge and related teacher characteristics contributed to technology integration among Nigerian teacher educators. These findings suggest that teachers' technological competencies help explain their use of technology for educational purposes.

The emergence of artificial intelligence has further expanded the technological competencies expected of teachers. AI applications can support lesson preparation, content generation, assessment, feedback,

differentiated instruction and professional learning. However, their use also raises concerns about accuracy, privacy, bias, academic integrity, transparency and ethical responsibility. These developments have therefore created the need to consider teachers' AI readiness as a distinct professional construct. AI readiness refers to teachers' preparation to know, adopt and use AI tools appropriately, and includes relevant knowledge, confidence, willingness to use AI, interaction with AI-supported technologies and awareness of ethical considerations. Ramazanoglu and Akin (2025) conceptualised teacher AI readiness as confidence in using technology, the ability to engage effectively with students through AI tools, and a strong sense of ethical responsibility in its application.

Although AI readiness is related to digital competence, the two constructs are not synonymous. A teacher may be proficient with presentation software, online platforms, and digital assessment tools yet lack the knowledge or confidence to use generative AI appropriately. UNESCO (2024) emphasised competencies such as human-centred thinking, AI pedagogy, and professional learning. In science education, where experimentation, data analysis, and visualisation are central, both digital competence and AI readiness are vital for effective teaching. Thus, AI readiness may add another dimension to preparedness for technology integration in an educational environment increasingly shaped by AI.

These issues are particularly relevant to science education, as science teaching involves observation, experimentation, data collection, analysis, modelling, visualisation and inquiry. Digital technologies can support these activities through simulations, virtual laboratories, interactive visualisations and digital data-collection tools, while AI can help teachers prepare lessons, generate questions, support differentiated learning and assess. However, using these technologies effectively requires teachers to have appropriate digital competence and to be ready to engage with emerging technologies responsibly. Recent evidence has also highlighted AI's growing relevance to Nigerian education.

Muhammad et al. (2025) identified opportunities for AI in Nigerian teacher education, including assessment, professional development, personalised learning and classroom practice, while noting challenges that may constrain implementation.

Investigating these variables is particularly important in public secondary schools in Anambra State. Science teachers work in school contexts where access to technology, professional development, and institutional support may shape their ability to integrate digital technologies. Although previous studies have examined teacher digital competence and technology-related factors in Nigeria, empirical evidence remains limited regarding the independent and joint predictive contributions of digital competence and AI readiness to technology integration among science teachers in public secondary schools in Anambra State. The emergence of AI also raises an important question: Is general digital competence alone sufficient to explain technology integration, or does teachers' preparedness for AI provide additional predictive value? Therefore, this study examined digital competence and artificial intelligence readiness as predictors of technology integration among science teachers in public secondary schools in Anambra State.

Method

This study employed a predictive correlational design to examine the relationships among teachers' digital competence, AI readiness, and technology integration. The study was conducted in three Local Government Areas (LGAs) in Anambra State: Nnewi North, Nnewi South, and Ekwusigo, selected through simple random sampling. The focus was on public secondary schools within these LGAs. The study population comprised 118 science teachers from 33 public secondary schools. They taught Biology, Chemistry, Physics, and other science-related subjects. Because the population was manageable, we used a total enumeration approach, allowing all 118 teachers to participate. We collected data using three validated instruments: the Teachers' Digital Competence Questionnaire (TDCQ), the Artificial Intelligence Readiness Questionnaire for Teachers (AIRQT), and the Teachers' Technology Integration Questionnaire (TTIQ). The instruments were validated by experts in science education, educational technology, and measurement and evaluation. We established reliability through a pilot study with teachers outside the study population but with similar characteristics. Cronbach's alpha coefficients of 0.88, 0.82, and 0.85 were obtained for the TDCQ, AIRQT, and TTIQ, respectively, confirming strong internal consistency. Data collection spanned four weeks. Descriptive statistics, including means, standard deviations, and percentages, were used to address the research

questions. To test the hypotheses, simple linear regression examined the individual predictive contributions of digital competence and AI readiness, while multiple regression assessed their combined effect. All hypotheses were tested at the 0.05 significance level.

Result

Research Question One: To what extent do science teachers in public secondary schools in Nnewi North, Nnewi South, and Ekwusigo demonstrate digital competence?

Table 1: The Extent to Which Science Teachers in Public Secondary Schools Across Nnewi North, Nnewi South, and Ekwusigo Demonstrate Digital Competence

S/N	Items	HC	MC	SC	NC	Mean	St.D
1	I use digital technologies to improve my science teaching	32 26.9%	56 47.1%	28 23.5%	3 2.5%	2.98	0.78
2	I participate in online professional learning activities.	18 15.1%	23 19.3%	41 34.5%	37 31.1%	2.18	1.04
3	I use digital technologies to reflect on and improve my science teaching.	28 23.5%	61 51.3%	19 16.0%	11 9.2%	2.89	0.87
4	I use online resources to keep myself updated on developments in science teaching and learning.	37 31.1%	45 37.8%	24 20.2%	13 10.9%	2.90	0.99
5	I can search for appropriate digital resources for teaching science.	32 26.9%	61 51.3%	20 16.8%	6 5.0%	3.00	0.80
6	I can evaluate the credibility of digital teaching resources before using them.	42 35.3%	51 42.8%	18 15.1%	8 6.7%	3.08	0.90
7	I can modify existing digital resources to suit my teaching objectives.	47 39.5%	40 33.6%	23 19.3%	9 7.6%	3.06	0.96
8	I can use digital tools to promote students'	12 10.1%	35 29.4%	43 36.1%	29 24.4%	2.25	0.94

	collaboration.						
9	I can select appropriate digital tools for different science topics.	35 29.4%	45 37.8%	28 23.5%	11 9.2%	2.87	0.94
10	I can use multimedia resources to explain difficult science concepts.	49 41.2%	39 32.8%	21 17.6%	10 8.4%	3.06	0.96
11	I can use digital technologies to facilitate students' active participation.	20 16.8%	49 41.2%	37 31.1%	13 10.9%	2.64	0.89
12	I can use digital tools to administer classroom assessments and provide feedback to students.	21 17.6%	35 29.4%	42 35.3%	21 17.6%	2.47	0.98
13	I can select appropriate digital tools for different science topics.	30 25.2%	49 41.2%	28 23.5%	12 10.1%	2.82	0.93
14	I can analyse students' digital assessment results to improve my instruction.	58 48.7%	43 36.1%	11 9.2%	7 5.9%	3.27	0.86
15	I can use digital platforms to communicate professionally with other teachers.	29 24.4%	49 41.2%	30 25.2%	11 9.2%	2.81	0.91
16	I can use digital technologies to accommodate students with different learning needs.	43 36.1%	36 30.3%	25 21.0%	15 12.6%	2.90	1.04
17	I can teach students how to evaluate the credibility of scientific information obtained online.	31 26.1%	32 26.9%	36 30.3%	20 16.8%	2.62	1.05
18	I can create digital learning materials for my students.	50 42.0%	38 31.9%	19 16.0%	12 10.1%	3.06	0.99
19	I use digital tools for	32	45	32	10	2.83	0.92

	assessing students' learning.	26.9%	37.8%	26.9%	8.4%		
20	I can guide students when they encounter simple technological problems during learning.	36 30.3%	48 40.3%	26 21.8%	9 7.6%	2.93	0.91
Weighted Mean = 2.83 Criterion Mean = 2.50							

Table 1 showed that teachers reported generally high digital competence, with a weighted mean of 2.83, compared with the criterion mean of 2.50. For example, most teachers indicated they could evaluate the credibility of online teaching resources (Mean = 3.08) and adapt digital materials to suit instructional goals (Mean = 3.06). However, teachers scored lower on participating in online professional learning (Mean = 2.18) and on using digital tools to foster student collaboration (Mean = 2.25). These findings suggest that while teachers are confident in using and adapting resources, professional networking and collaborative applications remain areas for improvement.

Research Question Two: How prepared are science teachers to adopt and use artificial intelligence tools in teaching?

Table 2: Science Teachers' Preparation to Adopt and Use Artificial Intelligence Tools in Teaching

S/N	Item	SA	A	D	SD	Mean	St.D
1	I do not have a basic understanding of how artificial intelligence works.	4 3.4%	12 10.1%	29 24.4%	74 62.2%	3.45	0.81
2	I am familiar with AI tools that can be used in teaching science lessons.	23 19.3%	21 17.6%	35 29.4%	40 33.6%	2.23	1.12
3	I understand some of the strengths and limitations of generative AI tools.	33 27.7%	53 44.5%	18 15.1%	15 12.6%	2.87	0.96
4	I can identify situations in which AI can appropriately support	37 31.1%	41 34.5%	29 24.4%	12 10.1%	2.87	0.97

	science teaching.						
5	I understand that AI-generated information may contain inaccurate information.	37 31.1%	55 46.2%	23 19.3%	4 3.4%	3.05	0.80
6	I am confident in my ability to learn how to use new AI tools.	51 42.9%	34 28.6%	17 14.3%	17 14.3%	3.00	1.07
7	I can use an AI tool to support the preparation of a science lesson.	54 45.4%	41 34.5%	13 10.9%	11 9.2%	3.15	0.96
8	I can write appropriate prompts for an AI tool to generate educational materials.	16 13.4%	23 19.3%	44 37.0%	36 30.3%	2.16	1.00
9	I can evaluate AI-generated responses before using them in my teaching.	46 38.7%	42 35.3%	19 16.0%	12 10.1%	3.03	0.98
10	I can troubleshoot basic problems encountered when using AI tools.	43 36.1%	43 36.1%	22 18.5%	11 9.2%	2.99	0.96
11	I understand the importance of protecting students' personal information when using AI.	32 26.9%	39 32.8%	37 31.1%	11 9.2%	2.77	0.95
12	I cannot identify ethical concerns associated with using AI in science teaching.	25 21.0%	38 31.9%	26 21.8%	30 25.2%	2.51	1.09
13	I would verify AI-generated information before presenting it to students.	35 29.4%	45 37.8%	28 23.5%	11 9.2%	2.87	0.94
14	I am prepared to guide students in using AI responsibly without becoming overly dependent on it.	56 47.1%	39 32.8%	15 12.6%	9 7.6%	3.19	0.93
15	I am ready to use AI to	42	35	35	7	2.94	0.94

	develop science teaching materials.	35.5%	29.4%	29.4%	5.9%		
16	I am ready to use AI to develop formative assessment activities.	41 34.5%	46 38.7%	21 17.6%	11 9.2%	2.98	0.95
17	I am ready to use AI to provide differentiated learning support.	48 40.3%	29 24.4%	21 17.6%	21 17.6%	2.87	1.13
18	I am ready to use AI to support students' inquiry and problem-solving activities.	36 30.3%	45 37.8%	21 17.6%	17 14.3%	2.84	1.02
19	I am willing to participate in professional development on AI in education.	31 26.1%	53 44.5%	24 20.2%	11 9.2%	2.87	0.91
20	I am willing to continuously update my knowledge of AI applications in education.	41 34.5%	42 35.3%	21 17.6%	15 12.6%	2.92	1.01
Weighted Mean = 2.88 Criterion Mean = 2.50							

Table 2 showed that teachers demonstrated a relatively high level of AI readiness, with a mean score of 2.88. Many respondents reported confidence in using AI-supported tools for lesson preparation and assessment, while others expressed willingness to explore AI applications for differentiated instruction. However, some areas showed gaps, particularly in ethical awareness and critically evaluating AI outputs. This suggests that while teachers are open to adopting AI, they need structured training to strengthen their understanding of responsible and effective use.

H₀₁: Digital competence has no significant effect on technology integration among science teachers.

Table 3: Linear Regression Analysis of the Influence of Digital Competence on Technology Integration among Science Teachers

Model	Unstandardized Coefficients		Significant coefficients		
	B	Std. Error	beta (β)	T	Significant
(Constant)	30.413	4.422		6.878	0.001
Digital Competence	0.479	0.077	0.496	6.186	0.001

Table 3 shows that digital competence significantly predicted technology integration ($\beta = 0.496$; $p < 0.05$). This indicates that digital competence has a significant positive effect on technology integration among science teachers.

H₀₂: Artificial intelligence readiness does not significantly affect technology integration among science teachers.

Table 4: Linear Regression Analysis Showing the Effect of AI Readiness on Technology Integration among Science Teachers

Model	Unstandardized Coefficients		Significant coefficients		
	B	Std. Error	beta (β)	T	Significant
(Constant)	34.847	5.442		6.403	0.001
AI Readiness	0.394	0.094	0.362	4.195	0.001

Table 4 shows that AI readiness significantly predicts technology integration ($\beta = 0.362$; $p < 0.05$). This indicates that AI readiness has a significant positive effect on technology integration among science teachers in the three selected LGAs in Anambra State.

H₀₃: Digital competence and AI readiness do not significantly predict technology integration among science teachers.

Table 5: Multiple Regression Analysis of the Influence of Digital Competency and AI Readiness on Technology Integration among Science Teachers

Sources of variance	Sum of squares	Df	Mean squares	F	Significant
Regression	1808.723	2	904.362	23.719*	0.000
Residual	4422.924	116	38.129		
Total	6231.647	118			

R = 0.539
R square = 0.290
Adjusted R square = 0.278
Std. Error of the estimate = 6.17484

Table 5 showed that digital competence and AI readiness significantly predicted technology integration, $F(2, 116) = 23.72$, $p < 0.05$. A multiple regression with $R = 0.54$ indicated a positive, moderately significant relationship between digital competence, AI readiness, and technology integration. The adjusted $R^2 = 0.278$ indicated that the two predictor variables jointly explained approximately 27.8% of the variation in technology integration. The results suggest that digital competence and AI readiness are important predictors of technology integration among the science teachers studied.

Discussion

Level of Digital Competence

The finding that science teachers demonstrated strong digital competence indicates they can use digital technologies to support both teaching and professional tasks. Digital competence goes beyond simply operating devices; it reflects teachers' ability to select, evaluate, design, and apply digital resources to enhance learning. This perspective aligns with the DigCompEdu framework, which highlights digital resource use, teaching and learning, assessment, and professional engagement as central to educators' digital skills (Redecker, 2017). Research also supported this link: Çebi et al. (2022) observed that teachers with higher digital competence

tend to demonstrate stronger technological pedagogical knowledge and greater success in integrating technology. Likewise, Claro et al. (2024) emphasised that digital competence is critical to ensuring digital tools are used effectively in educational settings.

Level of Artificial Intelligence Readiness

The results show that science teachers demonstrated a strong level of artificial intelligence readiness, suggesting they are generally well-positioned to understand and apply AI in their teaching practice. AI readiness encompasses several dimensions: teachers' knowledge of AI concepts, confidence in using AI-based tools, ability to critically evaluate AI-generated information, ethical awareness, and willingness to integrate AI into both instruction and professional development. This perspective aligns with UNESCO (2024) AI Competency Framework for Teachers, which highlights AI foundations, pedagogy, ethics, human-centred thinking, and professional learning as essential areas of competence. Supporting evidence from Wang et al. (2023) shows that teachers with higher AI readiness were more likely to engage in AI-enhanced educational innovation. Similarly, Ayanwale et al. (2022) found that Nigerian teachers' confidence in AI and their perception of its relevance were key factors influencing their readiness to incorporate AI into classroom practice.

Digital Competence and Technology Integration

The finding that digital competence significantly predicts technology integration among science teachers shows that those with stronger digital skills are more likely to embed technology into their teaching practice. Digital competence equips teachers to identify suitable resources, assess their relevance, adapt them to instructional goals, and apply them effectively in the classroom. This result is consistent with earlier studies: Çebi et al. (2022) reported a positive link between teachers' digital competence and their ability to integrate technology, while Ifinedo, Rikala, and Hämäläinen (2019) highlighted how technological knowledge and related competencies supported integration among Nigerian teacher educators. The outcome also aligns with Mishra and Koehler (2006) TPACK framework, which emphasises that meaningful integration occurs when technological knowledge interacts with pedagogical and content knowledge. In essence, teachers with stronger digital competence are better

positioned to select and apply appropriate technologies to enrich science instruction.

AI Readiness and Technology Integration

The finding that AI readiness significantly predicts technology integration among science teachers shows that teachers better prepared to use artificial intelligence are more likely to embed technology into science teaching. AI readiness reflects teachers' knowledge, skills, confidence, ethical awareness, and ability to apply AI responsibly for educational purposes. This aligns with UNESCO's (2024) AI Competency Framework, which highlights AI foundations, pedagogy, ethics, human-centred thinking, and professional learning as essential dimensions of teacher competence. Supporting evidence comes from Wang et al. (2023), who found that teachers with higher AI readiness were more likely to engage in AI-driven educational innovation. Likewise, Ayanwale et al. (2022) reported that Nigerian teachers' confidence in AI and their perception of its relevance were key factors shaping their readiness and intention to teach with AI. The results can also be interpreted through Mishra and Koehler's (2006) TPACK framework, which emphasises that effective technology use requires integrating technological, pedagogical, and content knowledge. In essence, teachers who are adequately prepared to understand and apply AI are more capable and willing to integrate emerging technologies into science instruction. This finding underscores the importance of professional development programs that build teachers' AI literacy, strengthen pedagogical applications, and promote ethical use of AI in education.

Joint Prediction of Digital Competence and AI Readiness

The finding that digital competence and AI readiness together significantly predict technology integration among science teachers shows that both variables collectively shape how teachers use technology in their classrooms. Effective integration today requires not only general digital skills but also specialised competencies for emerging technologies such as artificial intelligence. Previous studies support this dual influence: Çebi et al. (2022) highlighted the positive link between digital competence and teachers' technology-related knowledge, while Wang et al. (2023) demonstrated that AI readiness strongly predicted innovation in AI-enhanced education. Similarly, Ifinedo et al. (2019) found that technological knowledge was a key factor in explaining integration among

Nigerian teacher educators. Taken together, these findings suggest that building teachers' digital competence alongside their AI readiness provides a stronger foundation for meaningful and sustainable technology integration in science teaching.

Conclusion

This study concludes that science teachers in Anambra State have fairly strong digital competence and growing AI readiness. Both digital competence and AI readiness significantly influence their ability to integrate technology into science teaching. Strengthening these competencies is therefore essential for advancing science education in an era increasingly shaped by digital and AI tools. The results underline the need for continuous professional development that addresses both technical skills and ethical awareness of AI.

Recommendations

Based on the findings, the researchers recommended that :

1. Education authorities and school administrators organise targeted training programmes to enhance teachers' digital competence and AI readiness, with a focus on both technical and ethical dimensions.
2. Public secondary schools should be provided with adequate infrastructure and access to digital and AI tools to enable meaningful integration.
3. Education authorities should integrate AI readiness into teacher development frameworks, ensuring teachers are prepared for emerging technologies.
4. Science teachers should be encouraged to join online professional communities where they can share experiences and strategies for integrating technology.

References

- Akram, H., Abdelrady, A. H., Al-Adwan, A. S., & Ramzan, M. (2022). Teachers' perceptions of technology integration in teaching-learning practices: A systematic review. *Frontiers in Psychology, 13*, 920317
- Ayanwale, M. A., Sanusi, I. T., Adelana, O. P., Aruleba, K. D., & Oyelere, S. S. (2022). Teachers' readiness and intention to teach artificial

- intelligence in schools. *Computers and Education: Artificial Intelligence*, 3, 100099.
- Aydin, M. K., Yildirim, T., & Kus, M. (2024). Teachers' digital competences: A scale construction and validation study. *Frontiers in Psychology*, 15, 1356573.
- Backfisch, I., Lachner, A., Stürmer, K., & Scheiter, K. (2021). Variability of teachers' technology integration in the classroom: A matter of utility! *Computers & Education*, 166, 104159.
- Çebi, A., Bahçekapılı Özdemir, T., Reisoğlu, İ., & Çolak, C. (2022). From digital competences to technology integration: Re-formation of pre-service teachers' knowledge and understanding. *International Journal of Educational Research*, 113, 101965.
- Claro, M., Castro-Grau, C., Ochoa, J. M., Hinostroza, J. E., & Cabello, P. (2024). Systematic review of quantitative research on digital competences of in-service school teachers. *Computers & Education*, 215, 105030.
- European Commission. (2017). *European framework for the digital competence of educators: DigCompEdu*. Publications Office of the European Union.
- Ifinedo, E., Rikala, J., & Hämäläinen, T. (2019). Factors affecting Nigerian teacher educators' technology integration: Considering characteristics, knowledge constructs, ICT practices and beliefs. *Computers & Education*, 134, 1–13.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.
- Muhammad, A. A., Aliyu, S. A., Ardo, A. M., Shariff, I. A., & Muhammad, Y. Z. (2025). The role of AI in transforming teacher education in Nigeria: Opportunities and challenges. *Innovative Minds*, 1, 1–10.
- Ogegbo, A. A. (2023). Assessing the proficiency level in digital competences of secondary school science teachers. *International Journal of Education and Development using Information and Communication Technology*, 19(2), 40–57.

- Ramazanoglu, M., & Akin, T. (2025). AI readiness scale for teachers: Development and validation. *Education and Information Technologies*, 30, 6869–6897.
- Redecker, C. (2017). *European framework for the digital competence of educators: DigCompEdu*. Publications Office of the European Union.
- Uçar, M. B., & Sahin, E. (2026). Science teachers' technology integration through TPACK-P: Proficiency and component interactions. *Journal of Science Education and Technology*.
- UNESCO. (2024). *AI competency framework for teachers*. UNESCO.
- Wang, X., Li, L., Tan, S. C., Yang, L., & Lei, J. (2023). Preparing for AI-enhanced education: Conceptualising and empirically examining teachers' AI readiness. *Computers in Human Behaviour*, 146, 107798.