





Herramientas digitales para fortalecer la metodología de enseñanza de los docentes

Digital tools to strengthen teachers teaching methodology

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Resumen

Introducción: las herramientas digitales han experimentado una rápida y efectiva integración, desempeñando un papel fundamental en la creación y gestión de entornos educativos. Este artículo abordará herramientas digitales de utilidad para la clase docente dentro de su labor cotidiana y como estas se pueden alinear e implementar de manera coherente dentro de su planificación educativa. **Objetivo:** analizar y promover la integración de herramientas digitales en el ejercicio cotidiano de los docentes de las áreas básicas como una estrategia metodológica que permita enriquecer el proceso educativo. **Metodología:** el tipo de investigación realizado es de naturaleza descriptiva correlacional, ya que este enfoque permite establecer relaciones entre variables mediante la identificación de patrones y tendencias en los datos recopilados. Además, se ha abordado sistemáticamente el problema planteado, teniendo en consideración las características específicas de la comunidad educativa. **Resultados:** muestran la percepción de los docentes respecto al mejoramiento de sus clases tras haberse capacitado en herramientas digitales y haberlas utilizado en sus materias, reconociendo que estas ayudaron a mejorar el proceso de aprendizaje. **Conclusión:** la implementación de herramientas digitales en el proceso de enseñanza puede mejorar significativamente la calidad del proceso de aprendizaje de los estudiantes al proporcionar un entorno más interactivo y práctico; además, la capacitación de los docentes en el uso efectivo de herramientas digitales es crucial para aprovechar al máximo su potencial en el aula y promover un aprendizaje más eficaz. **Área de estudio general:** Educación. **Área de estudio específica:** Capacitación docente.

Abstract

Introduction: digital tools have experienced a rapid and effective integration, playing a fundamental role in the creation and management of educational environments. As a result, the digital tools used by teachers in their daily work can also be aligned and implemented coherently within their educational planning. **Objective:** To analyze and promote the integration of digital tools in the daily work of teachers of basic areas as a methodological strategy to enrich the educational process.

Methodology: The type of research conducted is of a descriptive correlational nature since this approach allows establishing relationships between variables by identifying patterns and trends in the data collected. In addition, the problem posed has been approached systematically, taking into consideration the specific characteristics of the educational community. **Results:** The results reveal the current panorama of the methodology used by teachers in their classes, where most of them recognize the importance of the use of digital tools in accordance with technological advances. However, the research also points out the lack of adequate equipment necessary to implement their proposals and innovations. **Conclusion:** The implementation of digital tools in the teaching process can significantly improve the quality of the learning process of students by providing a more interactive and practical environment; In addition, the training of teachers in the effective use of digital tools is crucial to maximize their potential in the classroom and promote more effective learning. **General area of study:** Education. **Specific area of study:** Teacher training.

Introduction

In the current educational context, digital tools have experienced rapid and effective integration, playing a fundamental role in the creation and management of online educational environments. This phenomenon has generated a notable interest in the incorporation of technology in the teaching-learning process; as a result, there is currently a search to merge the distinctive characteristics of virtual environments with contemporary educational approaches.

Within this integration process, digital tools go hand in hand with the current objectives of education in the country. Thus, within the work vision of the Angamarca Educational Unit, which seeks to promote a work methodology with openness, interactivity, flexibility and innovation, it aims to learn about the use of digital tools that can be linked to the teaching-learning process in an interactive way.

It is on the basis of these assertions that the literature allows us to direct our attention to some concepts that have integrated education and technology, such as the so-called e-learning, which presents a practical and functional methodology that provides teachers

and their students with a flexible and accessible environment, allowing the latter to learn at their own pace, at any time and place; while for the former it allows them to create more flexible and attractive learning environments, since being interactive it contains simulations, tutorials, practical exercises and instructional videos.(Avila-Aguirre, 2023)For the latter, the class is more attractive.

As a result, the digital tools that teachers use in their daily work can also be aligned and implemented in a coherent manner within their educational planning, specifically in some of the activities within the basic areas that educators manage and in accordance with the different topics that are developed within the classroom.

In response to this scenario, the main objective of this research is to analyze and promote the integration of digital tools in the daily practice of teachers in basic areas as a methodological strategy that allows enriching the educational process.

To achieve this objective, a review of scientific literature was carried out in order to identify the key digital tools and their benefits within the classroom; subsequently, the data obtained was analyzed to identify usage patterns and needs through the design and application of a detailed questionnaire to teachers of the basic areas, finally and guided by the information collected, it was determined that the specific intervention proposal to be implemented by the Institution's teachers be carried out through the use of Google Classroom; since it is the most popular tool and with the greatest availability according to the situation of the users, constituting the theoretical basis of our research and which also allow us to integrate other tools such as: Canva, Genially, Prezzi, Kahoot, Educa Play, Google Forms, Gamma, Padle, Google Drive.

The data obtained also allowed us to determine the usefulness and importance of these tools and the need for teachers to train themselves, seek and provide updated precepts within the virtual environment within their teaching; making the latter another of the objectives that is essential for teaching work and one of its most notable characteristics; since by being properly trained in the use of digital educational tools, the teacher will have a better classroom performance and will promote one of the most important work skills of recent times.

Ultimately, it is essential to point out that the incorporation of technology as a tool for daily use in the classroom will strengthen the presentation, work and management of the content presented therein; leaving aside a simple transfer of data from the teacher to the student and giving rise to active participation and personalized guidance that allows the effectiveness of the learning presented to achieve higher levels of reception and allows enriching the teaching-learning process.

Following our thread of ideas, the theoretical basis that underpins this research is detailed in a condensed manner below:

Teaching methodology

For Lores & Matos (2017), teaching methodology is defined as the cohesive set of techniques and activities that a teacher uses in order to achieve one or more educational objectives. This set has internal coherence, has comprehensive meaning and is identified by a name recognized and shared by the scientific community (p. 28).

Teaching methods focused on e-learning are pedagogical strategies specifically designed to facilitate learning through virtual environments using information and communication technologies, since these methods take advantage of digital platforms and tools such as Google Classroom and Google Drive to offer interactive, collaborative and personalized learning experiences.

When these teaching methods are combined with tools like Google Classroom and Google Drive, which allow integration with multimedia presentation tools and interactive work, a highly interactive and dynamic digital educational environment is created. Students can access learning materials from anywhere and at any time, collaborate with classmates on online projects, and receive fast, personalized feedback from educators. (Espinosa-Izquierdo et al., 2015).

It can be said then that these teaching methods, combined with digital tools such as Google Classroom and Google Drive, represent a powerful combination for education in the 21st century, offering innovative and effective learning experiences that adapt to the needs and demands of today's world. Beginning of the form

New teaching methods: E-learning

E-learning, also known as online learning, refers to the teaching and learning process that is carried out through electronic means, especially using information and communication technologies (ICT). (Salvat, 2018). That is, this educational modality allows students to access learning content, participate in interactive activities and receive feedback through digital platforms.

E-learning enables interaction between participants in the educational process, overcoming temporal and geographical limitations. It also facilitates self-regulated teaching and creates spaces for interaction, collaborative work, cooperative work and joint reflection on topics of interest, involving the participation of students and teachers, even when they are physically separated.

In the context of core subjects, e-learning plays an important role, as it provides students with the opportunity to acquire knowledge interactively through digital tools that include

attractive multimedia presentations made in Canva, Prezzi, Geanilly, or through interactive activities provided by Educaplay, Kahhot, among others. In the current environment, using digital tools is necessary to awaken student interest in learning in a more engaging way.

A study conducted by García-Peñalvo & Seoane (2015) addresses the importance of e-learning in the teaching of basic subjects, since it can improve the effectiveness of learning by providing an interactive and practical environment that allows students to develop practical skills effectively, that is, e-learning promotes student autonomy by offering them control over their own learning process.

Digital educational tools

Digital tools represent a technological system used to receive, manipulate and process information. According to Pérez et al. (2019), these tools play a fundamental role in facilitating the acquisition of new knowledge through innovative strategies, becoming relevant resources for society as a whole.

In the educational field, the use of digital tools becomes crucial for teaching, since their implementation generates skills and competencies in students, allowing them to immerse themselves in the vast world of interactive learning. According to Pira et al. (2019), the management and use of technology in education provides fundamental computer knowledge and skills, serving as a basis for adequate technical education.

The integration of digital tools in education is led by the teacher, who analyzes these tools with the aim of achieving a significant impact on the academic implementation of students. The educator, as pointed out by Sánchez (2019), has the ability to transform a traditional class into a technological environment.

We are all familiar with the reference to Google, the leading company in the field of the Internet worldwide. Although its web browser is its most prominent feature, Google provides a wide range of services, including various applications; these applications are commonly recognized as tools that can be included in the educational field; therefore, having a solid command of Google tools is essential, both for content creators and for any individual who carries out various tasks in a computer environment.

Google Classroom

Google Classroom, As an LMS platform, it allows teachers to create and schedule classes or sessions through Google Meet, offering a notable advantage by enabling real-time video conferencing with students. (Larkin et al., 2021) In addition, the platform allows the creation of interactive lessons through the use of YouTube or interactive presentations, which are recorded.

These features allow students to review and revise classes as many times as necessary, thus adapting their learning to their own pace and needs, allowing efficient and fluid collaboration between users and facilitating the joint creation, editing and management of documents; thus promoting productivity and the exchange of information in a synchronous, fast and effective manner.(Dabbagh & Kitsantas, 2021).

Google Drive

Arroyo et al. (2021), mention that Google Drive is a cloud storage platform that facilitates the collaborative creation and editing of documents, spreadsheets and presentations, promoting accessibility and collaborative learning. On the other hand, Gómez (2020), talks about Google Classroom as a learning management platform that simplifies the creation, distribution and evaluation of tasks in educational environments, promoting fluid communication between students and teachers, as well as personalized feedback.

From this we can say that both Google Drive and Google Classroom are powerful tools that have revolutionized education by offering functionalities that encourage collaboration, accessibility and efficiency in the teaching and learning process.

Our approach focuses on these tools; the first one gives the user the ability to create and modify documents in real time, as well as share and access files and folders collaboratively, representing an essential functionality in the contemporary digital environment, while the second one facilitates the collaborative management of a classroom through the Internet, presenting itself as a platform for the administration of learning, or Learning Management System (LMS), which is essential in the current educational context.

Integrated digital tools

The following table provides a detailed comparison of various online educational tools that can be linked to Google Classroom, which is very useful for educators, students and in general for all learning professionals interested in creating interactive online classes or maintaining them as digital portfolios where students can access and learn in a more interactive way. We must also keep in mind that by connecting digital tools such as educational platforms with Google Drive and Google Classroom, the possibilities of integration and collaboration in digital educational environments are expanded. Below is a detailed description of the digital tools that teachers have been trained in in this research:

Table 1
Digital tools that integrate with Google Classroom



Digital tools for theoretical presentation				
Application	Description	Characteristics	Advantages	Disadvantages
Canva 	Canva is an online graphic design tool that allows users to create a variety of designs, from social media posts to presentations and logos. (Noor et al., 2023)	<ul style="list-style-type: none"> - Wide range of templates and graphic elements. - Easy to use drag and drop features. - Real-time collaboration with other users. 	<ul style="list-style-type: none"> - Intuitive and easy to learn interface. - Flexible design options for beginners and advanced users. 	<ul style="list-style-type: none"> - Some advanced features may require a paid subscription. - High quality file export may be limited in the free version.
Genially 	Genially is an online platform for creating interactive presentations, infographics and other visual content.	<ul style="list-style-type: none"> - Wide variety of templates and interactive resources. - Integration of multimedia elements such as videos and sounds. - Possibility of sharing and collaborating in real time. 	<ul style="list-style-type: none"> - Attractive and dynamic designs that capture the public's attention. - Interactivity functionality that improves viewer engagement (Albert, 2018) 	<ul style="list-style-type: none"> - Some advanced features are restricted to paid plans. - The learning curve can be steep for users new to interactive design.

Table 1*Digital tools that integrate with Google Classroom (continued)*




Application	Description	Characteristics	Advantages	Disadvantages
 Prezi	Prezi is an online presentation tool that uses a non-linear approach, allowing users to create dynamic and visual presentations. (Kim, 2017).	<ul style="list-style-type: none"> - Non-linear presentation structure that allows for zooming and fluid navigation. - Integration of multimedia elements such as images and videos. - Real-time collaboration with other users. 	<ul style="list-style-type: none"> - Visually striking presentations that break with the traditional slide format. - Zoom functionality that allows you to focus on specific details. 	<ul style="list-style-type: none"> - Creating presentations can be more complex than with traditional tools. - Some advanced features are only available on paid plans.
Digital tools for playful and evaluative practice				
 Kahoot	Kahoot is an online learning platform that allows users to create and participate in interactive quizzes, surveys, and educational games. (Soong et al., 2019).	<ul style="list-style-type: none"> - Easy creation of educational quizzes and games. - Possibility of playing in real time with multiple players. - Integration of music and sounds to make the games more fun. 	<ul style="list-style-type: none"> - Promotes participation and interaction in the classroom or in virtual environments. - Facilitates formative assessment and monitoring of student progress. 	<ul style="list-style-type: none"> - The free version may have limitations regarding features and number of players. - Some users may find the interface too simplistic for more advanced educational needs.
 Educa Play	Educa Play is an online platform that offers a variety of educational resources, such as quizzes, games and flashcards, for interactive learning. (Zaff et al., 2018).	<ul style="list-style-type: none"> - Extensive library of educational content in multiple languages and topics. - Personalization of activities according to the user's needs. - Student progress tracking and reporting. 	<ul style="list-style-type: none"> - Offers a variety of tools and resources to suit different learning styles. - Facilitates self-assessment and practice of specific skills. 	<ul style="list-style-type: none"> - Some advanced features may require a paid subscription. - Content quality may vary based on user contributions.

Table 1*Digital tools that integrate with Google Classroom (continued)*




Application	Description	Characteristics	Advantages	Disadvantages
 <p>Google Forms</p>	<p><i>Google Forms</i>It is a free tool from Google that allows you to create online surveys and forms quickly and easily. (Bartlett et al., 2001).</p>	<ul style="list-style-type: none"> - Easy creation of surveys and forms with a variety of question types. - Integration with other Google tools, such as Google Sheets for data analysis. - Possibility to customize the design and response options. 	<ul style="list-style-type: none"> - Free access for users with a Google account. - Ease of use and compatibility with mobile devices. 	<ul style="list-style-type: none"> - Some advanced features may be limited compared to specialized survey tools. - Design customization may be limited compared to other design tools.
 <p>Gamma</p>	<p>Gamma is an online collaboration platform that allows users to work together on projects and documents in real time. (Hsu et al., 2014).</p>	<ul style="list-style-type: none"> - Real-time collaborative editing of documents, spreadsheets and presentations. - Integrated comments and chat to facilitate communication between collaborators. - Version control to track changes and revert to previous versions if necessary. 	<ul style="list-style-type: none"> - Improves productivity by enabling efficient collaboration on projects. - Facilitates remote work by providing a centralized platform for sharing and editing documents. 	<ul style="list-style-type: none"> - Some advanced features may require a paid subscription. - The interface can be overwhelming for users new to online collaboration tools.

Table 1

Digital tools that integrate with Google Classroom (continued)

Application	Description	Characteristics	Advantages	Disadvantages
 padlet	Padlet is an online tool that allows users to create virtual boards where they can add and organize multimedia content such as notes, images and videos. (Sarsar et al., 2020)	- Intuitive interface with drag and drop functionality. - Customize dashboards with a variety of layouts and backgrounds. - Real-time collaboration with other users.	- Flexibility to use Padlet in a variety of environments, from classrooms to enterprise settings. - Facilitates the organization and exchange of ideas in a visual format.	- Some advanced features are restricted to paid plans. - The amount of content that can be added may be limited in the free version.

Methodology

This research adopts a quantitative approach, based on a deductive and logical framework, as proposed by Hernández-Sampieri & Mendoza-Torres (2018), where this approach is selected due to its ability to formulate research questions and hypotheses, which are subsequently subjected to rigorous testing for validation. This paradigm provides a solid structure to analyze and understand phenomena through the collection and analysis of numerical data.

The research design is characterized by being non-experimental, which implies that independent variables are not manipulated, but rather phenomena are observed and analyzed as they occur in their natural environment. This approach is suitable for studying complex phenomena within their real context, such as the perception and use of digital tools in the educational field.

Descriptive and bibliographic methods were used to collect data. Descriptive methods will allow the research problem to be characterized and analyzed, while bibliographic methods will provide a solid and up-to-date theoretical framework on the topic of study. In addition, a thorough review of the relevant literature was carried out to contextualize the study and provide a theoretical basis for it.

The type of research carried out is of a descriptive correlational nature, since this approach allows establishing relationships between variables by identifying patterns and trends in the data collected. In addition, the problem raised has been systematically addressed, taking into consideration the specific characteristics of the educational community.

The population will be composed of 22 teachers who belong to the Angamarca UE. The main instrument used for data collection will be a questionnaire structured in two

moments, first to collect the perception regarding the interest in training in digital tools, then to establish the specialty on the tools they want the training to focus on, and in a second moment after the training and after the teachers have had the opportunity to have applied this knowledge, to show the perception of the improvement of the teaching-learning process by having used the digital tools and which tool was used most when teaching their subjects.

This entire methodological process allowed us to establish the importance of digital tools within the teaching-learning process and how Google Drive and Classroom, linked to other educational platforms such as Educa Play, allow us to integrate and improve the teaching-learning process, as well as to dynamize the learning processes in each of the basic subjects such as language and literature, mathematics, social sciences and natural sciences at the UE Angamarca.

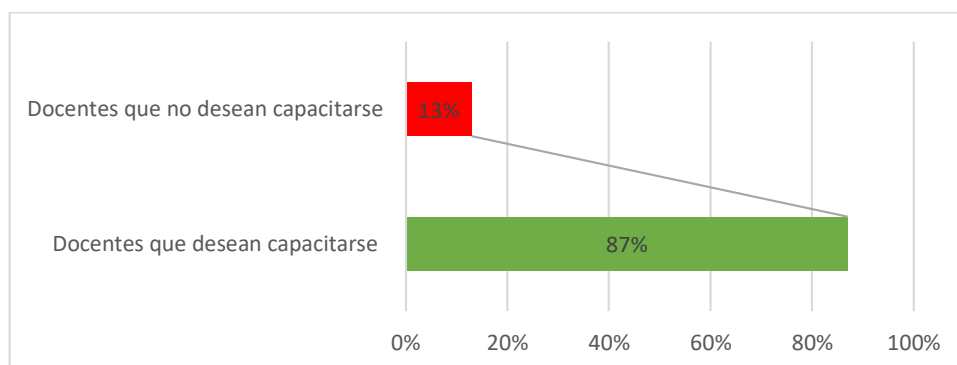
Results

After having carried out the survey on the teaching population of the Angamarca UE, results were obtained regarding the interest in training on digital tools, also establishing which ones they are interested in and which of them have been useful to them in their training process. These results have shown that despite there being interest in training and learning about new tools that help improve the teaching process, we will always encounter reluctance from certain teachers who do not see it as necessary to learn about ICTs.

As a teacher, would you be willing to train on the use of digital tools to improve the teaching-learning process in your subject?

Figure 1

Teachers' perception regarding interest in training on digital tools

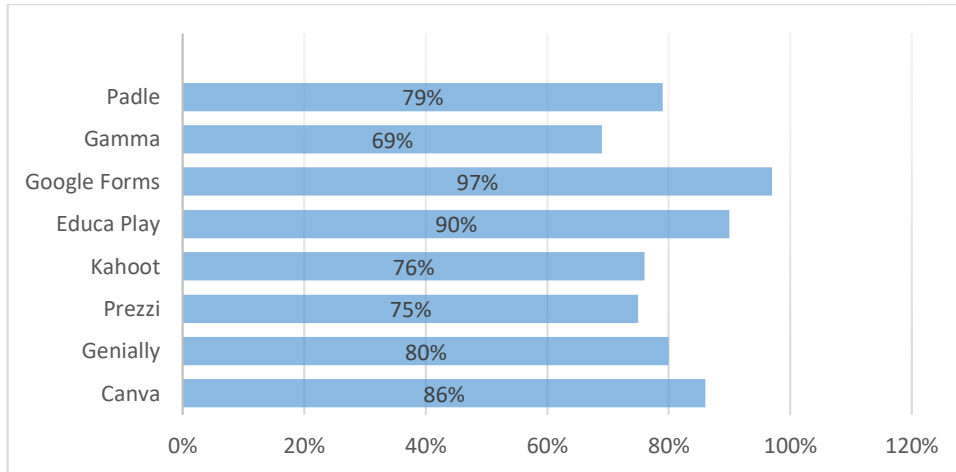


This question revealed that 87% are willing to receive training on tools versus 13% who are still resistant to changing innovative practices that strengthen the teaching process.

What digital tools would you like to receive training on?

Figure 2

Digital tools in which they wish to train

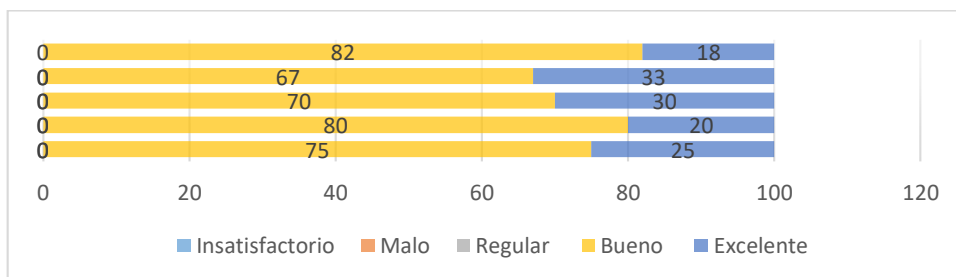


Among the various options proposed, it is analyzed that 97% of teachers are interested in receiving training on how Google Forms works, 90% on the Educa Play tool, 86% on Canva for multimedia presentations, as well as Geanilly in 80%, these data allow us to establish the main tools on which our training will focus.

In addition, it should be considered that other tools with a lower percentage can also be given in future training, seeking to continue improving with the process of integrating digital tools into the learning process and implementing and improving their classes.

Figure 3

Perception of improvement in the teaching-learning process after training

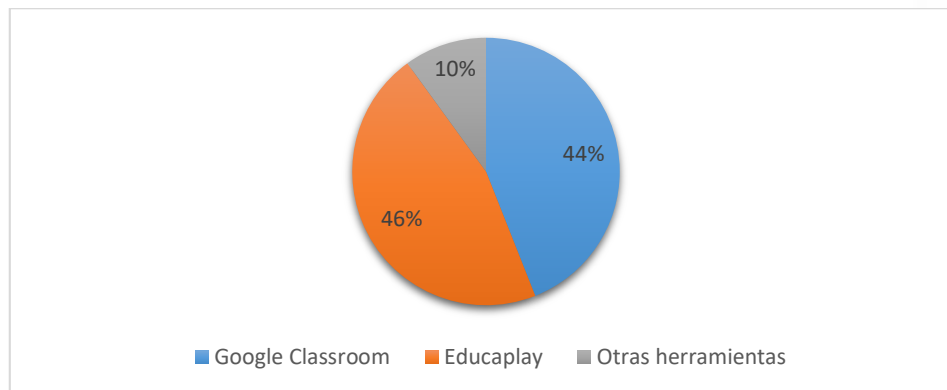


These data reflect a positive perception by both teachers and students about the impact of training in digital tools on the teaching-learning process; since most teachers have recognized improvements in their teaching practice, while most students have experienced benefits in their learning experience; however, it is important to maintain a focus on continuous improvement and ongoing professional development of teachers to ensure that all students can fully benefit from the opportunities offered by technology in the classroom.

Figure 4

Most used digital tool when teaching classes

Google Classroom and Educaplay



The results do not indicate that Google Classroom and Educaplay are the most popular digital tools among teachers due to their ease of use, wide range of functionalities, integration with other services, capacity for collaboration and communication, as well as their adaptability and customization to meet the individual needs of students and facilitate the teaching and learning process.

Conclusions

- There is widespread knowledge about digital tools among teachers, but it is essential to implement them effectively in the development of classes to ensure more dynamic teaching adapted to contemporary educational demands.
- The implementation of digital tools in the teaching process can significantly improve the quality of the students' learning process by providing a more interactive and practical environment.
- Training teachers in the effective use of digital tools such as Google Drive, Google Classroom and interactive platforms such as Educa Play helps develop the potential of teachers and students in a more dynamic and interactive way, promoting meaningful learning.
- The lack of adequate equipment in some educational institutions can represent a barrier to the effective implementation of digital tools in the classroom, highlighting the need to invest in technological infrastructure in the educational field.
- Integrating transferable digital skills into the teaching process is essential to prepare students for today's world of work, where mastery of office technology is increasingly required in a variety of professional fields.

Conflict of interest

The authors declare that there is no conflict of interest in relation to the submitted article.

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