

The Impact of Information Technology in Educational Counseling for High School Students

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Abstract

In the context of digital transformation, Information Technology (IT) is increasingly asserting its important role in innovating educational counseling activities for high school students. The article analyzes the benefits that IT brings, including improving access to information, personalizing counseling and remote support. Tools such as artificial intelligence (AI) and big data allow the construction of automated counseling systems, helping students receive advice that is appropriate to their interests, abilities and personal goals. In addition, IT also supports organizing online counseling sessions via platforms such as Zoom or Google Meet, bringing high efficiency to students in remote areas. The application of IT also helps students explore their interests and abilities through online multiple-choice tests, while increasing interaction with experts through forums and seminars. However, the article also points out challenges such as lack of digital skills, digital divide and risk of losing personal information security. To overcome this, it is necessary to invest in technology infrastructure, enhance digital skills training and develop safe and easy-to-use consulting platforms. IT not only changes the way of consulting but also facilitates high school students to access information and orient their future in an effective and comprehensive way.

Keywords: Information Technology; Educational Counseling; Online Counseling Platforms; E-Learning Tools; Career Decision.

1. Introduction

In the era of digital transformation and the rapid advancement of IT, traditional educational methods are evolving to meet modern demands. Educational counseling, particularly career guidance for students, faces the critical challenge of personalization and timely responsiveness to individual needs. IT offers significant opportunities to enhance the efficiency and quality of counseling, empowering students to make more informed decisions regarding their academic and career pathways.

Educational counseling is essential in guiding students to discover their potential, set clear goals, and establish a well-structured roadmap for their academic and career pursuits. Nevertheless, current practices reveal considerable challenges, particularly for students in remote areas who face difficulties in accessing adequate information. Additionally, the sheer volume of students

requiring counseling makes it challenging for educators to provide personalized guidance effectively.

IT has emerged as a transformative force, offering groundbreaking solutions to address these issues. Online platforms, artificial intelligence (AI) systems, and advanced data analysis tools empower educators to deliver tailored advice and enable students to access a diverse range of resources quickly and accurately. Furthermore, IT facilitates seamless and continuous communication between students and schools, ensuring that guidance can be provided at any time and from any location.

Despite its numerous advantages, the integration of IT into educational counseling is not without challenges. Disparities in technological infrastructure, varying levels of IT proficiency among teachers, and concerns regarding the security of personal data present significant obstacles. To harness the full potential of IT in this domain, targeted research and actionable solutions are required.

This article delves into the pivotal role of IT in educational counseling, evaluates its impact on the quality and efficiency of student support, and proposes solutions to overcome existing challenges, paving the way for more effective and inclusive educational guidance systems.

2. Literature Review

2.1. The role of IT in educational consulting

Improve the accessibility of information: IT has helped improve access to information for students and parents through online platforms. Websites, mobile applications, and educational portals provide detailed information about careers, schools, and scholarship opportunities, making it easy for students to search and choose options that suit their needs and goals. According to [Nguyen and Tran \(2020\)](#), the use of online tools in education helps reduce information disparities between regions, especially in remote areas where students have difficulty accessing traditional information sources.

Personalized consulting powered by AI and Big Data: One of the outstanding advantages of IT in educational counseling is the ability to personalize counseling services. Using artificial intelligence (AI) and big data, counseling systems can provide information and advice based on the interests, abilities and personal goals of each student ([Suresh and Karthikeyan, 2020](#)). [Pham et al., \(2024\)](#), argue that career counseling systems using big data help analyze and provide more accurate career suggestions for students, thereby improving the quality of counseling and more effectively supporting students' decision-making process.

Remote consulting support: The use of online platforms such as Zoom, Microsoft Teams, and Google Meet has created a remote counseling channel that connects students in disadvantaged areas, thereby expanding access to counseling services for all students, especially in the context of social distancing. A study by [Smith and Zhang \(2018\)](#) showed that these platforms not only facilitate communication between students and counselors but also help create a flexible interactive environment where students can engage in live conversations and receive personalized support even when face-to-face meetings are not possible.

Career decision support through artificial intelligence

The application of artificial intelligence (AI) in career counseling is opening up new opportunities for students to make more informed and appropriate career decisions. Modern

counseling systems can analyze personal data such as interests, skills, and career trends to provide accurate and personalized recommendations. AI is an automation tool and an intelligent partner in students' career exploration journeys—especially in predicting potential career outcomes and suggesting suitable educational pathways ([Cobb, 2025](#)).

2.2. The Positive Impact of Information Technology in Educational Counseling

Improving teaching and learning methods: IT significantly improves teaching methods, making it easier for teachers to convey knowledge through online platforms, videos, and learning support software. These technologies help students easily access learning materials and promote creativity and initiative in learning. According to research by [O'Bannon & Thomas \(2014\)](#), the use of technology in the classroom helps increase interaction and improve students' critical thinking skills.

Increased Accessibility and Collaboration: IT helps connect students, teachers, and parents, expanding opportunities for collaboration and communication. Online learning platforms such as Moodle, Google Classroom, and Zoom provide learning tools and help teachers and students maintain communication and exchange information quickly and effectively, even in remote areas or social distancing situations. According to [Christensen, Horn, and Johnson \(2011\)](#), technology has helped reduce the gap between students in different locations and create equal learning opportunities.

Developing technology skills for students and teachers: The use of IT not only improves the quality of teaching but also develops technology skills for students and teachers. In a study by [Angrist and Lavy \(2002\)](#), the use of technology in teaching helped students improve their ability to use technology, which is not only useful in learning but also in future jobs, as technology becomes an important part of most professions.

Supporting personalized learning: One of the biggest advantages of IT in education is the ability to personalize the learning process. Adaptive learning software and learning management systems allow students to learn at their own pace and in a way that suits their individual needs. This allows weaker students to receive special support, while outstanding students can challenge themselves with more difficult tasks. Studies by [Means et al. \(2010\)](#) show that students who learn in technology-assisted environments achieve better results than those who learn in traditional environments.

Time and cost savings: IT also saves costs for printing learning materials, organizing classes, and managing educational resources. Instead of having to go to traditional classrooms, students can learn online from anywhere, reducing travel costs and time. [OECD \(2015\)](#) reports show that countries that invest in IT in education often have lower education costs while still ensuring quality.

In summary, IT brings many positive benefits to education, from improving the quality of teaching and learning, enhancing collaboration and communication, developing technology skills, supporting personalized learning to saving time and costs. The continued application and development of IT in education is necessary to meet the requirements of the digital age and improve the quality of comprehensive education.

3. Research Methods

The study was conducted through three main methods. First, the document research method was used to analyze research works, scientific reports and documents related to the application of IT

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in educational consulting. Next, through expert interviews, the study collected opinions from experts in the field of education and technology to clarify the potential and limitations of IT in this field. Finally, an empirical survey was conducted in schools applying IT in consulting work, to evaluate the actual effectiveness of using IT in educational consulting work.

We surveyed 483 students from five high schools in Da Nang to determine the impact of IT application in educational activities.

4. Findings and Discussion

4.1. Research Sample Characteristics

Based on statistical data, in Vietnam, over 1 million candidates participate in the national high school graduation examination annually. However, the number of candidates applying for university admission accounts for only about 71.9% (in 2024). To assess the impact of information technology on educational counseling, we conducted a survey involving 483 students from 5 high schools in Da Nang. This survey aims to explore the influence of online counseling platforms and electronic learning tools in supporting students during their career selection process and making important educational decisions.

Table 1. Research sample statistics

Name of high school		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hoa Vang	97	20,1	20,1	20,1
	Le Quy Don for Gifted	93	19,3	19,3	39,3
	Nguyen Khuyen	94	19,5	19,5	58,8
	Phan Chau Trinh	105	21,7	21,7	80,5
	Thai Phien	94	19,5	19,5	100,0
	Total	483	100,0	100,0	

4.2. Results of the analysis and evaluation of the measurement scale

Conduct a survey on the impact of information technology on educational counseling activities using a scale from 1 to 5 with 10 criteria. The Cronbach's Alpha coefficient is shown in Table 2.

Table 2. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,919	0,921	43

The Cronbach's Alpha coefficient of the toolkit is 0,919, which shows that it is very good and suitable for statistical analysis.

4.3. The impact of information technology in educational counseling for high school students

Information technology is increasingly asserting its vital role in all fields, including educational counseling. To comprehensively assess the impact of information technology on educational counseling activities for high school students, we have developed the following set of criteria. These criteria aim to clarify the effectiveness, accessibility, quality, and influence of IT platforms and tools in supporting students to access information, orient their career paths, and make important decisions in their learning and personal development. Below are 10 specific criteria:

- *Effectiveness of online counseling platforms (F1)*: Assess the usefulness and effectiveness of online counseling platforms in providing information to students.
- *Accessibility of counseling information (F2)*: Measure the ease with which students can access counseling information through information technology tools.
- *Diversity and richness of electronic learning materials (F3)*: Evaluate the diversity and richness of online learning and counseling materials available to students.
- *Quality of counseling from online experts (F4)*: Assess students' satisfaction with the quality of counseling provided by online experts or counselors.
- *Convenience of using technology (F5)*: Evaluate the convenience of using information technology tools for receiving counseling and learning guidance.
- *Student participation in online counseling sessions (F6)*: Measure the frequency and level of student participation in online counseling sessions.
- *Impact of electronic learning tools on academic performance (F7)*: Assess the extent to which the use of electronic learning tools affects students' academic performance.
- *Reliability of information from online counseling platforms (F8)*: Evaluate the reliability of counseling information students receive through information technology.
- *Interactivity and information exchange through counseling platforms (F9)*: Assess the convenience and effectiveness of student interaction and information exchange with experts or counselors through online platforms.
- *Impact of information technology on students' career decision-making (F10)*: Measure the influence of information technology tools in helping students identify and choose their future careers.

Detailed student survey results are shown in Figure 1.

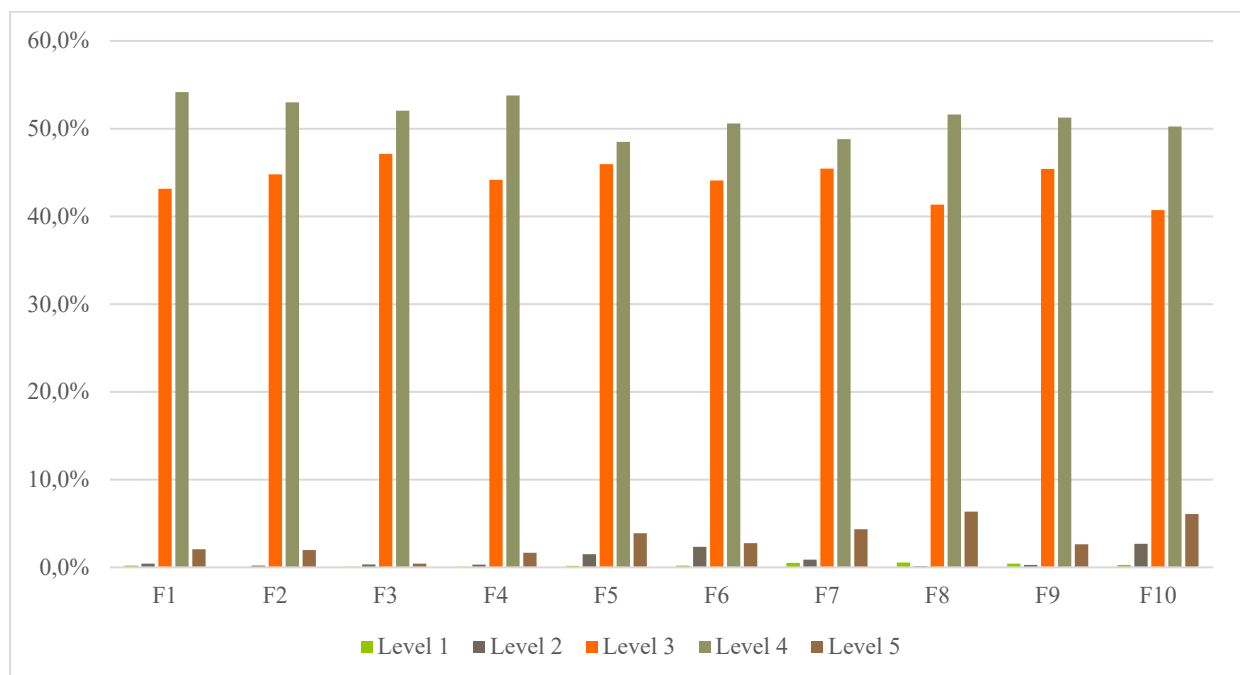


Figure 1. The histogram of normalized residual frequencies

From the data shown in Figure 1, it shows that students rated the impact level of each standard on educational activities at levels 3 and 4 with the largest proportion.

For the standard F1 - Effectiveness of online counseling platforms, 43.1% of students rated the platforms at Level 3, indicating that the majority of respondents perceived their effectiveness as moderate. Level 4 (54.2%) reflected some positive feedback on their effectiveness. The low

percentages at Levels 5 suggested that few respondents found the platforms to be highly effective, while Level 1 ratings were almost nonexistent. Overall, online counseling platforms were deemed moderately effective but required further improvements to enhance user satisfaction.

For the standard F2 - Accessibility of counseling information, 45% of students rated it at Level 2, reflecting a moderate level of ease in accessing information. Level 3 accounted for 38%, indicating the presence of tools that support better information access, though they are not yet fully optimized. The low percentages at Levels 4 and 5 suggested that some tools remain difficult to access or fail to fully meet students' needs. Improving the accessibility of counseling information is necessary to enhance satisfaction levels.

For the standard F2 - Accessibility of counseling information, 44,8% of students rated it at Level 3, reflecting a moderate level of ease in accessing information. Level 4 accounted for 53,0%, indicating the presence of tools that support better information access, though they are not yet fully optimized. The low percentages at Levels 5 suggested that some tools remain difficult to access or fail to fully meet students' needs. Improving the accessibility of counseling information is necessary to enhance satisfaction levels.

For the standard F3 - Diversity and richness of electronic learning materials, 47,1% of students rated it at Level 3, indicating that current electronic learning materials are only moderately diverse. Level 4 accounted for 52,0%, reflecting some positive feedback on the materials, but this level of satisfaction is not significant. The low percentages at Levels 5 suggest that the content does not fully meet students' diverse needs. Therefore, it is necessary to expand the content and improve the quality of learning materials to meet a wider range of demands.

For the standard F4 - Quality of counseling from online experts, 44,2% of students rated it at Level 3, showing an average level of satisfaction with the quality of online counseling. Level 4, at 53,8%, reflects some more positive opinions on quality. However, the low percentages at Levels 5 indicate that students have higher expectations for the skills and methods of online experts. Enhancing the expertise and counseling methods of online counselors is essential to better meet student expectations.

For the standard F5 - Convenience of using technology, 46% of students rated it at Level 3, indicating that technology is perceived as moderately convenient. Level 4, at 58,5%, reflects some positive points regarding convenience, but it is not sufficient to reach higher satisfaction levels. The low percentages at Levels 5 suggest that technical limitations or interface issues might be the cause. Thus, improving user experience and the convenience of technology tools is necessary.

For the standard F6 - Student participation in online counseling sessions, 44,1% of students rated it at Level 3, indicating that the frequency of student participation in online counseling sessions is only moderate. Level 4, at 50,6%, reflects some more active participation by certain students. However, the low percentages at Levels 5 suggest that overall student engagement remains limited. Measures need to be implemented to increase student participation in online counseling sessions.

For the standard F7 - Impact of electronic learning tools on academic performance, 45,4% of students rated it at Level 3, showing that electronic learning tools only have a moderate positive impact on academic performance. Level 4, at 48,8%, indicates some more favorable impacts, but these are not yet prominent. The low percentages at Levels 5 suggest that the tools' ability to help students achieve high academic performance is still limited. Enhancing the application of electronic tools to better support student achievement is essential.

For the standard F8 - Reliability of information from online counseling platforms, 41,3% of students rated it at Level 3, indicating that the reliability of online counseling information is only moderate. Level 4, at 51,6%, reflects some more positive views, but the low percentages at Levels 5 suggest that students still have doubts about the accuracy of the information. Therefore, increasing transparency and verifying information from these platforms is necessary.

For the standard F9 - Interactivity and information exchange through counseling platforms, 45,4% of students rated it at Level 3, reflecting that interaction between students and experts on counseling platforms is only moderate. Level 4, at 51,3%, shows some positive feedback regarding convenience and effectiveness. However, the low percentages at Levels 5 suggest that communication and information exchange features on these platforms still need improvement. Enhancing interactivity and information exchange capabilities is essential to meet students' needs.

For the standard F10 - Impact of information technology on students' career decision-making, 40,7% of students rated it at Level 3, indicating that technology only provides moderate support to students in identifying and choosing their future careers. Level 4, at 50,2%, reflects some tools receiving more positive evaluations, but the low percentages at Levels 5 suggest that the effectiveness of these tools is still limited. Improving career counseling tools is essential to better support students in making career decisions.

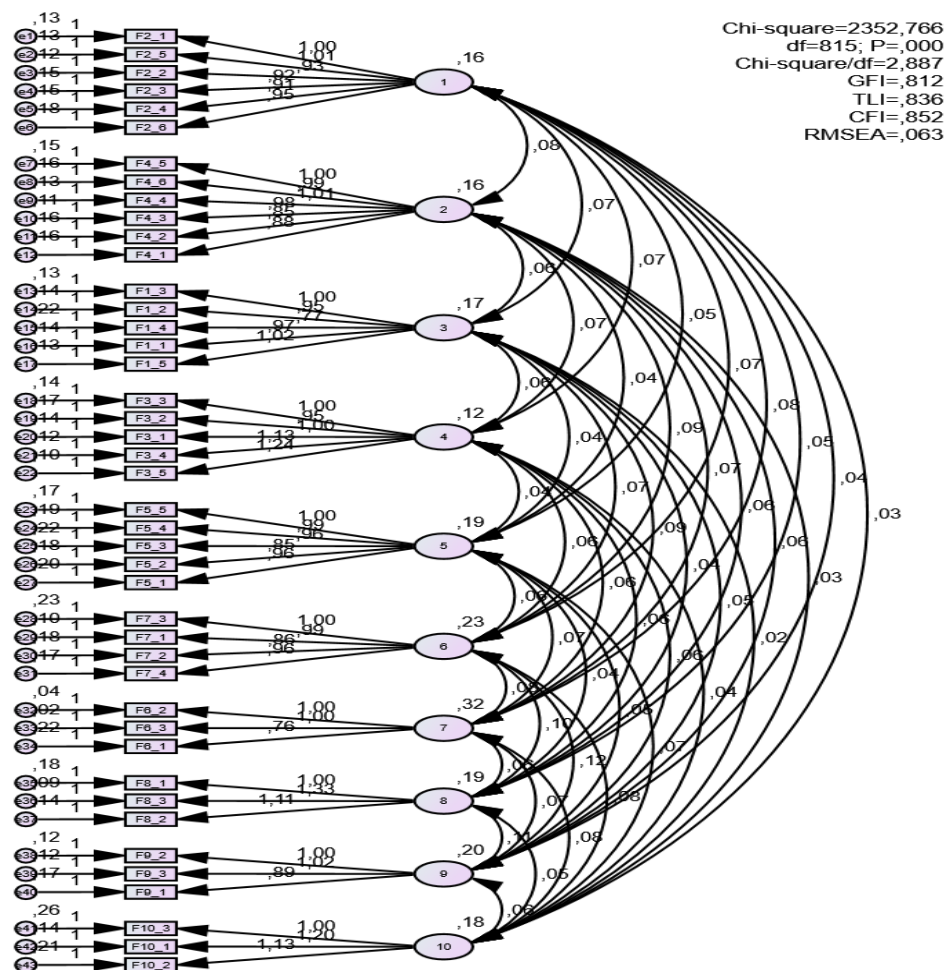


Figure 2. CFA model of factors impacting the role of information technology in educational counseling for high school students

Table 3. Model fit measures evaluation indicators with research data

Measure	Estimate	Threshold	Interpretation
CMIN	2352,766	--	--
DF	815	--	--
CMIN/DF	2,887	Between 1 and 3	Excellent
CFI	0,852	>0.95	Acceptable
SRMR	0,053	<0.08	Excellent
RMSEA	0,063	<0.06	Acceptable
PClose	0,000	>0.05	Terrible

Based on the table 3, it is shown that $CMIN/DF = 2.887 (< 3)$, which is excellent; $CFI = 0.852 (> 0.8)$, which is acceptable; and $RMSEA = 0.053 (< 0.08)$, which is excellent. Therefore, the model fits well or is compatible with the research data. In addition, it is necessary to consider some additional issues, such as scale reliability, convergent validity, unidimensionality, and discriminant validity.

5. Conclusion

The results of the study show that information technology plays an important role in supporting educational counseling for high school students, especially in providing online counseling platforms and e-learning tools. Through a survey of 483 students from 5 high schools in Da Nang, we found that the effectiveness of current online counseling platforms and e-learning tools is still at a moderate level, with the majority of students rating these tools at levels 3 or 4, reflecting average satisfaction.

Information technology brings convenience and ease of access to counseling information; however, there are still many issues that need to be improved, such as the diversity of learning materials, the reliability of information from counseling platforms, and the ability to interact between students and counseling experts. These factors need to be improved to enhance the effectiveness of online educational counseling, especially in supporting students with career orientation and making important learning decisions.

The results of the CFA model analysis show that the model fits the research data, with appropriate indexes such as $CMIN/DF = 2.887$ and $RMSEA = 0.053$, reflecting that the research model has high reliability and is consistent with real data. However, further research is needed to perfect online counseling and learning tools, improve the accessibility and reliability of information, and better support students in the process of choosing a career and making learning decisions.

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