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ORIGINAL ARTICLE

Impact of WhatsApp messages in the promotion campaign of the ITSTa Computer Systems Engineering Educational Program

Impacto de los mensajes de WhatsApp, en la campaña de promoción del Programa Educativo de Ingeniería en Sistemas Computacionales del ITSTa

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Abstract

One of the biggest problems faced by the Computer Systems Engineering educational program of the Instituto Tecnológico Superior de Tantoyuca is related to the recruitment of new students, due to the limitations in delivering the academic offer to students due to various factors, such as: distances, transportation costs, time spent on promotion, among others. The global confinement in which we were forced to stay at home in 2020 due to COVID-19 required us to look for new strategies to deliver the promotion to students who were about to complete their high school diploma. A solution to the problem raised was the use of electronic means with which information could be sent to future prospects, making them aware of the services offered by the Computer Systems Engineering educational program. WhatsApp was used as the means of excellence for sending mass messages. Compared to 2020 where this strategy was not used, an increase in students of 200% was achieved by 2022.

Keywords: Educational program; Academic Offer; students; promotion; messages; WhatsApp

Resumen

Una de las mayores problemáticas que enfrenta el programa educativo de Ingeniería en Sistemas Computacionales del Instituto Tecnológico Superior de Tantoyuca es referente a la captación de alumnos de nuevo ingreso, debido a las limitaciones para hacer llegar la oferta académica a los estudiantes a causa de diversos factores, tales como: las distancias, costos por traslados, tiempo empleado en promoción, entre otros. El confinamiento global en el que nos vimos obligados a permanecer en casa en el 2020 a causa del COVID-19 precisó en buscar nuevas estrategias para hacer llegar la promoción a los alumnos que estaban por culminar su bachillerato. Una solución a la problemática planteada fue el uso de medios electrónicos con el que se pudo hacer llegar la información a los futuros prospectos dándoles a conocer los servicios que ofrece el Programa educativo de Ingeniería en Sistemas Computacionales. Se utilizó WhatsApp como el medio de excelencia para el envío de mensajes instantáneos masivos. En comparación con el 2020 donde no se usó esta estrategia se logró un incremento en los alumnos de un 200% para el 2023.

Palabras clave: Programa educativo; oferta académica; alumnos; promoción; mensajes; WhatsApp

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INTRODUCTION

Upon completing high school, students aspiring to pursue higher education face the challenge of selecting an institution that offers a program aligning with their interests and expectations. "The main challenges identified include the need for flexibility and updates in educational programs" (Morales & Rodríguez Pavón, 2022). However, many students lack sufficient information regarding academic offerings and institutional services, making it difficult to compare available options and make informed decisions. Furthermore, institutions often encounter challenges in effectively communicating their academic offerings due to geographical distances, high transportation costs, inaccessibility of certain areas, and the extensive resources required for promotional visits. "Social media platforms have become essential tools for promoting university academic offerings and improving communication in higher education" (Aguilar-Zambrano et al., 2023).

To address these challenges, this study focuses on the Computer Systems Engineering program at ITSTa, which has faced difficulties in recruiting new students. While ITSTa offers eight engineering programs and one bachelor's degree, several other institutions in the region also provide undergraduate programs, intensifying competition for prospective students. "The expansion of higher education offerings has led to the development of new regional concentrations, with public state universities extending their reach through satellite campuses" (Mejía-Pérez et al., 2023).

Since its establishment in 2000, the Computer Systems Engineering program did not initially experience enrollment difficulties. However, starting in 2018, enrollment figures began to decline. In 2018, 37 students enrolled, decreasing to 35 in 2019. The COVID-19 pandemic exacerbated this trend, with only 31 students enrolling in 2020—the lowest recorded intake in the program's history.

Table 1. *Historical Enrollment of New Students*

Año	Total de Ingreso	Hombres	Mujeres
2000	118	51	67
2001	89	46	43
2002	91	52	39
2003	112	62	50
2004	96	66	27
2005	96	57	36
2006	79	43	36
2007	89	52	37
2008	75	49	26
2009	94	64	30
2010	72	46	26
2011	82	56	26
2012	52	38	14
2013	55	42	13
2014	47	36	11
2015	53	37	16
2016	38	25	13
2017	44	31	13
2018	37	23	14
2019	35	23	12
2020	31	16	15
2021	61	39	21
2022	69	40	29
2023	54	37	17

Due to these challenges and the restrictions imposed by the pandemic, this study explores the use of WhatsApp as a promotional tool. Given its widespread use and accessibility, WhatsApp allows for the efficient dissemination of promotional messages, videos, links, and other informative materials to prospective students. "WhatsApp has

emerged as a versatile tool for communication and information dissemination in various contexts" (Lantarón, 2018).

Taking advantage of the fact that the vast majority of mobile service users own a smartphone and have access to this platform, 98% of Internet users report having connected to a social network or used an instant messaging service in the past month, and 83% have actively participated in these spaces—not only by consuming content but also by creating it (Sixto García, et al., 2021).

Human behavior has evolved rapidly due to technological changes, and social platforms have become a privileged communication tool between companies and their customers (Matute Quito, et al., 2021). Through the use of WhatsApp, it is possible to reach students, thereby promoting awareness of the educational program's services while focusing on students' specific interests and facilitating interpersonal communication between the program and prospective students.

At the conclusion of the study, the results obtained from implementing the strategy of Sending Messages via WhatsApp with Information about the Educational Program during the years 2021, 2022, and 2023 were evaluated and compared with those from 2018, 2019, and 2020, when this strategy was not employed.

METHODS, TECHNIQUES, AND INSTRUMENTS

This research adopts a cross-sectional approach, which involves data collection at a single point in time, allowing for the analysis of WhatsApp as an educational promotion tool during the years 2021, 2022, and 2023.

The nature of the study was exploratory and descriptive. It aimed to understand how the WhatsApp platform impacted the promotion and communication between the Computer Systems Engineering program and high school students within the area of influence. Additionally, it described the specific characteristics of the use of this application and its effectiveness in attracting potential students to the program.

The study follows a quantitative approach, as it focused on collecting numerical data regarding the number of students who responded to the promotional messages sent via WhatsApp, as well as their conversion rate into enrollments.

USE OF WHATSAPP AS A MEANS TO REACH POTENTIAL PROSPECTS.

This research aims to provide a clear understanding of how WhatsApp can be effectively utilized by educational institutions to attract students, as well as to contribute to the development of more effective communication strategies. "The widespread use of the application among higher education students makes it a viable platform." (Pérez-Cruz et al., 2020).

This research was conducted as a response to the need to increase the enrollment of new students in the Computer Systems Engineering program at ITSTa. The initiative was led by the program's division head, particularly in the context of restrictions on in-person activities imposed by COVID-19. WhatsApp was utilized as the primary tool for this purpose. "WhatsApp has emerged as a valuable marketing tool for businesses across various sectors. It allows companies to attract customers, gain competitive advantages, and efficiently disseminate promotional content." (Goulart et al., 2019). "Socially, WhatsApp served as a virtual ally in maintaining social interactions during the quarantine through informational, conversational, and recreational messages." (Fernandes Pereira et al., 2021).

WhatsApp is a cost-effective and efficient instant messaging platform that facilitates communication between individuals or groups. Currently, a high percentage of users have access to this service on their smartphones, making it one of the most popular applications available.

WhatsApp Messenger (WA) is a messaging application for smartphones that is increasingly gaining recognition in the educational context." (Martínez et al., 2021). "As we know, WhatsApp is an instant messaging service designed to connect two or more users via the Internet in real time, at minimal cost, using text messages or files (audio, videos, images, geographic location...)." (Gómez del Castillo, 2017). Another advantage of this platform is its compatibility with PCs and laptops through its desktop version, which further facilitates message delivery. This version supports Windows commands such as copy-paste and allows for the drag-and-drop function for sending images and files directly from the platform.

THE PROMOTIONAL CAMPAIGN PROCESS FOR THE COMPUTER SYSTEMS ENGINEERING PROGRAM AT ITSTA THROUGH WHATSAPP MESSAGING

To increase the enrollment of new students in the Computer Systems Engineering program, a promotional campaign was launched using instant messaging services. "These platforms have become essential tools for direct communication with citizens and for amplifying messages." (Cano-Orón et al., 2024).

To implement this strategy, a request was made to the ITSTa Liaison Department for a list of students enrolled in the 5th or 6th semester at high schools within ITSTa's area of influence. This region includes approximately 40 schools, comprising different educational subsystems such as CBTis, CBTa, CECyTs, COBAEV, TEVAEV, and private high schools in Tantoyuca, Plantón Sánchez, Tempoal, Chicontepec, Ixcatepec, Chontla, San Sebastián, Ixhuatlán de Madero, among others.

Once this information was obtained, the verification and analysis phase was carried out, correcting errors in names and phone numbers. The list provided

contained some inaccuracies, such as spelling mistakes and inconsistencies in capitalization. More importantly, many phone numbers did not conform to the standard format—some included blank spaces, numerical errors, or lacked the country code (+52), which is the international dialing prefix for all phone numbers in Mexico.

The processed information was recorded in an Excel spreadsheet to facilitate its management and consultation. Tables were created to organize key data, including the student's name, email address, school of origin, and WhatsApp number, to which the promotional information was sent.

To protect students' privacy and comply with ethical and legal regulations, personal data such as names, email addresses, and contact numbers have been anonymized in the tables and figures presented in this research.

Table 2. *Fragment of Students from COBAEV 55*

Nombre Completo	Nombre Corto	Correo	Teléfono	Escuela
Alumno 01	Alumno 01	alumno_01@hotmail.com	Contacto 01	COBAEV 55
Alumno 02	Alumno 02	alumno_02@gmail.com	Contacto 02	
Alumno 03	Alumno 03	alumno_03@gmail.com	Contacto 03	
Alumno 04	Alumno 04	alumno_04@gmail.com	Contacto 04	
Alumno 05	Alumno 05	alumno_05@gmail.com	Contacto 05	
Alumno 06	Alumno 06	alumno_06@hotmail.com	Contacto 06	
Alumno 07	Alumno 07	alumno_07@gmail.com	Contacto 07	

Once the tables were prepared with the required and corrected columns, the next step was to send the information using WhatsApp Web from a PC. This method was chosen because it allows messages to be sent without the need to save students as contacts.

From a web browser on a PC or laptop, the following URL was used: https://api.whatsapp.com/send?phone=XXXXXXXXXXXX

In this URL, the "X" characters represent the recipient's phone number. After entering the URL, a screen appeared displaying the information to be sent.

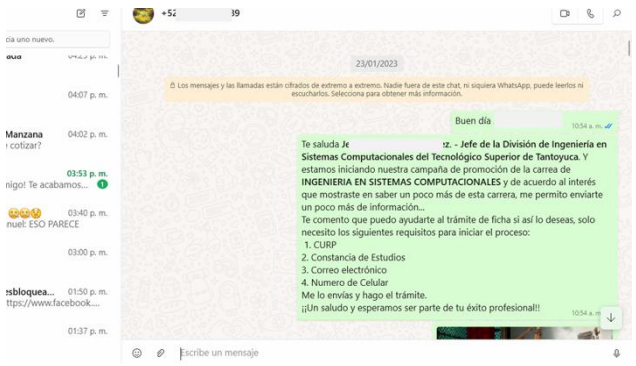

Figure 1. *Information sent to WhatsApp number +52XXXXXXXX9 on January 23, 2023*

After this step, responses from prospective students were awaited. Those who showed no interest—either by not replying or by responding with messages such as "Thank you, I already have a registration" or "I'm not interested"—were not sent any further messages.

However, students who responded with inquiries such as "How long does the program last?", "How can I register?", or "I need more information" were provided with personalized follow-ups. These students received additional details via email, were invited to a phone call for closer interaction, and were given comprehensive information about the academic program.

Figure 2. *Response from WhatsApp number +52XXXXXXXX9 on January 24, 2023.*

Once the student's attention has been captured, a follow-up process is initiated. They are encouraged to complete their registration by providing additional program information, videos, links, and images. Additionally, support is offered for the registration process, requiring only the submission of a proof of studies and a CURP (Unique Population Registry Code). These documents are forwarded to the student services department for processing.

Continuing with the same phone number, the following image shows how the student submits the required documents for the registration process through this platform.

Subsequently, once the registration process is completed, all students who have fulfilled this requirement are added to a group. The purpose of this group is to keep them informed about important events and dates, such as leveling courses, entrance exam dates, scholarship announcements, enrollment deadlines, and the start of classes. The following section presents the follow-up for this same student after being selected for an enrollment scholarship for the first semester.

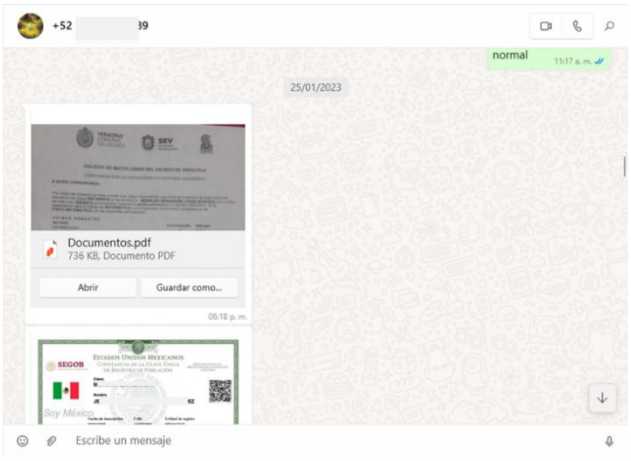

Figure 3. *Submission of registration requirements from WhatsApp number +52XXXXXXXXX9 on January 25, 2023.*

Subsequently, once the registration process has been completed, all students who meet this requirement are added to a group. The purpose of this group is to inform them about important events and dates, such as leveling courses, entrance exam dates, scholarship announcements, enrollment deadlines, and the start of classes.

The following section presents the follow-up for this same student after being selected for an enrollment scholarship for the first semester.

RESULTS AND DISCUSSION

In this research, the impact of promotional campaigns for the Computer Systems Engineering program at ITSTa has been evaluated through the use of WhatsApp messages directed at students nearing the completion of high school and who are potential new enrollees in this academic program. The implementation of this communication strategy has shown a significant effect on the response rate and the enrollment of new students.

Before the implementation of this strategy, the response rate in traditional promotional campaigns was approximately 3%. After introducing this new promotional campaign using WhatsApp as the primary medium, the rate increased significantly. This promotional method was implemented in the years 2021, 2022, and 2023, yielding positive results. Of the 61 students who enrolled in 2021, approximately 44 were recruited through this strategy. In 2022, the number rose to 52, and in 2023, 39 students were enrolled through this approach. The remaining students joined through the conventional promotional campaign, which involved visiting institutions individually or were students who had already decided where and what to study.

Figure 4 presents a fragment of the list of students who obtained their registration and enrolled in the academic program for the August 2023 – January 2024 period. This list includes the example student with the assigned control number 233S0023.

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FICHAS POR CLAVE — PAG: 1
AGO23ENE24 — SIE33200_01
CARRERA: INGENIERIA EN SISTEMAS COMPUTACIONALES — FECHA: 2024-05-29

NO.	FICHA	CONTROL	NOMBRE	ESCUELA	GP	PR.B	SEX
001	040001	233S0032	H IAN	COBAEV 55 TANTOYUCA	B	9	H
002	040003	233S0027	DI NA	CBTIS No.71 TANTOYUCA,VER.	A	9	M
003	040004	233S0168	O RA	COBAEV NO. 02, TEMPOAL,VER.	B	7	M
004	040005	233S0006	M IAN	TELEBACHILLERATO EL HULE	A	10	H
005	040006	233S0029	D IER	COBAEV 55 TANTOYUCA	A	90	H
006	040007	233S0005	MI DO	COBAEV 55 TANTOYUCA	A	95	H
007	040009	233S0251	MI IR	CBTIS No.71 TANTOYUCA,VER.	B	9	H
008	040010	233S0010	M NIO	TEBA AHUATENO	A	10	H
009	040011	233S0037	DI EL	COBAEV 55 TANTOYUCA	B	88	H
010	040012	233S0023	M IDO	COBAEV 55 TANTOYUCA	A	95	H
011	040013	233S0026	M TIN	COBAEV 55 TANTOYUCA	A	9	H
012	040014	233S0036	B/ VID	COBAEV 55 TANTOYUCA	B	0	H
013	040015	233S0009	O NA	CBTIS No.71 TANTOYUCA,VER.	A	10	M
014	040016		RI EN	COBAEV 55 TANTOYUCA		9	H
015	040017	233S0239	S/ RITO	INSTITUTO TECNOLOGICO SUPERIOR DE	B	7	H
016	040018	233S0033	S/ S	COBAEV 55 TANTOYUCA	B	72	H
017	040019	233S0370	DI EL	PREP.LIC. BENITO JUAREZ,TANTOY	B	8	H
018	040020		HE JO	CECYTEV PLATON SANCHEZ,VER		97	H
019	040021	233S0008	CI ORO	CBTIS No.71 TANTOYUCA,VER.	A	8	H
020	040022	233S0015	AI IEL	TELEBACHILLERATO "EL CHOTE"	A	8	H
021	040023	233S0288	O IB	COBAEV NO. 02, TEMPOAL,VER.	B	10	H
022	040024	233S0014	CI RO	COBAEV 38,IXCATEPEC,VER.	A	8	H
023	040025		TC EYMA	CBTIS No.71 TANTOYUCA,VER.		9	M
024	040026	233S0034	DI RIA	CBTIS No.71 TANTOYUCA,VER.	B	9	M
025	040027	233S0011	DI ETH	CBTA No.136, SAN SEBASTIAN,VER	A	9	M

Figure 4. *Fragment of a List of Enrolled Students for the August 2023 - January 2024 Period*

his substantial increase demonstrates the effectiveness of WhatsApp messages in capturing the attention of prospective students and encouraging them to choose this academic program. By using this method to follow up with potential candidates, there was a significant rise in new student enrollment over the past three years (2021, 2022, and 2023) compared to 2018, 2019, and 2020, when this strategy was not implemented. Figure 5 illustrates the increase in first-semester student enrollment.

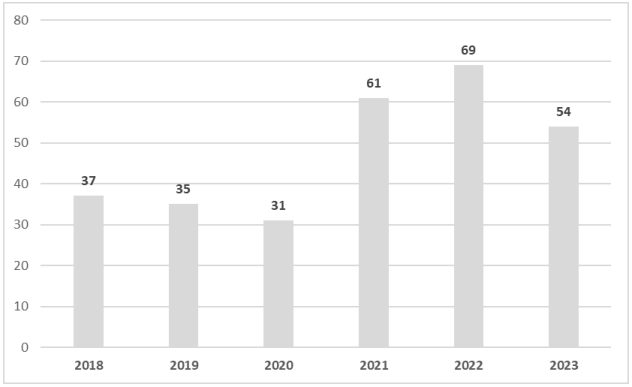

Figure 5. *New Incoming Students from 2018 to 2023.*

The promotional campaign implemented through WhatsApp messages not only increased the response rate but also had a direct impact on new student enrollment. The data shows that, compared to the year 2020, when 31 students enrolled, there was a 200% increase in 2021, a 222.5% increase in 2022, and a 174.1% increase in 2023.

CONCLUSIONS

nce the research was concluded, the results obtained demonstrated that: "The use of WhatsApp messages has a high degree of effectiveness and is revolutionizing the way of reaching target audiences…" Similarly, as observed in other international studies, WhatsApp is driving a significant change in the academic field of Higher Education (Martínez & Díaz, 2021).

he significant increase in new student enrollment highlights the potential of this strategy to attract more students who choose the Computer Systems Engineering program as their first option. This approach has proven to be effective, practical, and cost-efficient.

Effective: As shown in the previous figure, the approximate increase in enrollment is double compared to the years when the mass messaging strategy was not implemented.

Practical: Since the time required for sending and receiving messages is significantly less than the time spent using conventional promotional methods.

Cost-Efficient: The cost is relatively minimal, requiring only a computer and internet access for message distribution.

Figure 5 illustrates how the impact of WhatsApp messaging has significantly increased the response rate among prospective students, resulting in an average enrollment increase of 198% in new student admissions.

We can conclude by stating that adopting technologies such as mass messaging via WhatsApp as a tool for promotion and communication with prospective students represents a successful strategy. It should be considered a standard practice for all academic programs at the Instituto Tecnológico Superior de Tantoyuca.

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