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E-AccesstoAces: A Web-Based Customer Support System Driving Academy Using Chatbot Technology

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RESEARCH ARTICLE INFORMATION

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ABSTRACT

Customer service is becoming a crucial component of the majority of businesses. In fact, many businesses have customer service divisions with specialized representatives or agents to help and aid clients in resolving problems. Customer satisfaction and retention depend on prompt and accurate responses to requests. Driving schools providing lessons on driving takes a big part in developing a responsible driver. They must not only meet the demands of their customers, but they must also operate professionally and safely at all times. With so many things to keep track of, having a driving school support center where customers can go to get all of their detailed answers in one place is essential. The researchers developed a web-based customer support system using automation to perform a task elimination that supports, speeds up, and examines possible resolutions without engaging humans. It also helps more users, decreases service queues, and increases customer assistance. The subjects of this study were the members of the administrative management team, drivers, and instructors of Team Aces Driving Academy, and enrollees, with a total of 104 respondents. The implementation of the system at the Team Aces Driving Academy – Famy, Laguna Branch was successfully completed. Using a descriptive design, the study determined the average weighted mean and its ranking to interpret the extent of the system's acceptance based on quality criteria, perceived ease of use, perceived usefulness, attitude

toward system adoption, behavioral intention to use, and user experience.

Keywords: *automated scheduling, client records, customer support, driving school, instructor, feedback*

Introduction

Email queries from customers began to increase, especially when the office was closed. It became challenging for the company to quickly respond to all the inquiries. Their clients required assistance with their programs or rescheduling on a daily basis. The school understood that a quicker response to questions from visitors was required due to the hundreds of requests it receives each month (Hanbazazah, 2019). They were not just missing out on sales chances during these off-peak hours; they were also falling short of satisfying the demands of their customer interaction. The school has attempted a number of different approaches to support its students more quickly. Many of the choices they considered typically required a significant personnel investment, which could be rather expensive (Oploh, 2019). None of these prospective solutions—from extending business hours to setting up an internal call center—could provide round-the-clock client service while still being mindful of financial restraints (Roxas. 2018). The business wants to aid in educating individuals so they can drive safely and confidently. Their students learn how to pass road exams and start a new career as professional drivers or riders with a significant emphasis on road safety and the prevention of accidents (Hannam, 2021).

Driving schools providing lessons on driving takes a big part in developing a responsible driver (Grieve, 2019). They are multifaceted establishments. They must not only meet the demands of their customers, but they must also operate professionally and safely at all times. With so many things to keep track of, having a driving school support center where customers can go to get all of their detailed answers in one place is essential (Jones, 2021). For someone to drive in the Philippines, it is necessary to have a driver's license. Vehicle accidents would be greatly reduced if only drivers received enough training and education regarding traffic safety. Well-trained drivers can make the road safe for everyone. Despite this, most driving school owners fail to think about how limiting dependence on live customer support could make the company run more smoothly and effectively. Indeed, by establishing a driving school help center, individuals can eliminate unnecessary back-and-forth while ensuring client satisfaction simply by having a permanent help center in place to respond to repeated questions. In addition, they provide good value for both corporations and organizations. The risks of the road can be avoided with the use of current knowledge of road safety, which can also shield the company from liabilities and harm (Saurabh, 2017).

Furthermore, even if they cannot prevent car accidents, driving lessons can reduce their likelihood. This is one of the key causes for their desire to enroll in a driving school. In pursuant to guidelines for the full implementation of the LTO Automated Certification and Education of Student-Drivers (ACES) and LTO Memorandum Circular No. 2020-2134, the LTO hereby enforces the mandatory submission of driving course certificates for applicants for Student Permits and Driver's Licenses pursuant to Section 3 of Republic Act No. 10930 which prescribed the stricter issuance of driver's licenses to guarantee that only qualified applicants who possess the necessary understanding of vehicle security and road etiquette operate. This is also in compliance to LTO Memo Circular 2019-2176 which requires the submission of driving course completion

certificates for applicants as proof of formal training from the LTO or its accredited driving schools.

This is the role of Team Aces Driving Academy – Famy Laguna Branch – to produce high-ace drivers. They provide comprehensive driving techniques, brand-new automobiles, high-quality services, full-week schedules, LTO assistance, and driving instructors who are highly qualified and accredited. In addition, Team Aces Driving Academy – Famy Laguna Branch is also the first to offer a fully digital competitive platform in terms of online class scheduling and reservations. They are also the first to introduce the online driving lecture, or open distance education for driving, which could serve as virtual classroom aside from the traditional lecture room. However, they are currently executing a manual countdown for their scheduling with regard to the drivers' availability, students' preferred appointments, payment transparency, customer's virtual assistance, and ratings for them to adapt to the most favorable room for improvement as their business is growing. Rapid growth in automation is reshaping important areas, including business and the economy. With the advent of automation, enterprises, organizations, and businesses are placing a greater emphasis on the use of technology to increase the efficacy and efficiency of various processes (Yarlaggada, 2017). Through the creation of software, programs, operating systems, and devices, a broad range of operations and procedures have been automated on a massive scale. (Jarett, 2021).

Thus, this study developed a web-based customer support system using automation to perform a task elimination that supports, speeds up, and examines possible resolutions without engaging humans. It also helps more users, decreases service queues, and increases customer advocacy.

Methods

Conceptual Framework

Figure 1 represents the conceptual framework of the Team Aces Driving Academy – Famy, Laguna Branch web-based customer support system.

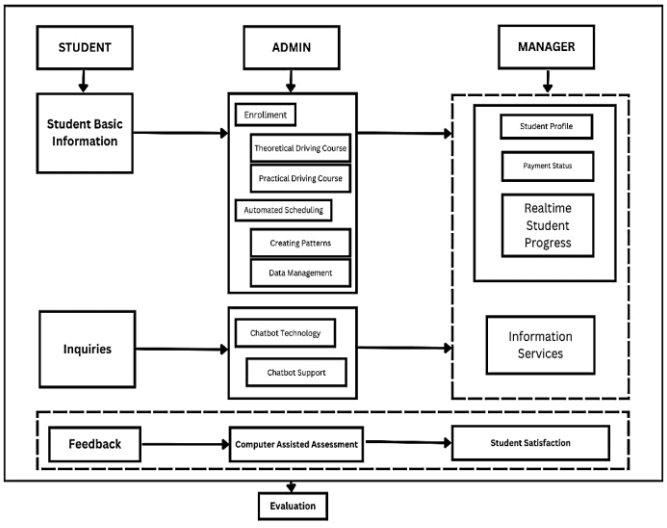

Figure 1. *The Conceptual Framework of the Study*

To use "E-Access to Aces," students must first register and log in. Using their basic information, they can proceed with enrollment and declare their preferred course, whether it is a theoretical or practical driving course. The system will then undergo verification using AI-powered scheduling to create patterns and manage enrollment data in line with the business process parameters. This will provide students with the availability of instructors and slots, as well as an immediate appointment date. Following this, students will input the exact amount stated on their proof of payment, which they will upload.

Using the chatbot technology, the system will provide a chat support system with the necessary information asked by the students. After the process and training have been completed, they can provide feedback on their profile based on their experience. The manager and administrator also have access to the requesting enrollees, verification of payment, schedules, and control of the instructor's availability, and remaining slots for the day. The manager can also generate the basic enrollment needed by the driving academy such as student profile, payment status, and real-time student progress using an Excel file.

Research Design

Descriptive research and developmental research methods were used by the researchers. It is a type of analysis that concentrates on describing the characteristics of the studied population or topic. The purpose of a descriptive study was to analyze an occurrence and its attributes. This approach would transfer knowledge from the development of the research to the capstone or thesis project. In addition, developmental research has been defined as the systematic study of designing, executing, and assessing educational materials, processes, and services that must fulfill criteria for internal consistency and efficacy.

The Population of the Study

This study is client-based. The subjects of this study were all members of the administrative management team, drivers and instructors of Team Aces Driving Academy, and enrollees. The population consisted of three administrative team members, one instructor, and 100 enrollees, totaling 104 subjects. These subjects were pre-determined to participate in the study.

Sampling Design

Purposive sampling was employed in the study. In this kind of sampling, the subjects of the study are selected based on their characteristics and the purpose of the study (Crossman, 2018). Generally, between 50 and 150 respondents can be included in a purposive sample (EFSA, 2017). Every person in the population has an equal probability of being chosen. The researchers chose this sampling method to easily gather 104 respondents from the enrollees, administrators, and instructors of Team Aces Driving Academy - Famy, Laguna Branch. By collecting qualitative responses, the researcher had the capacity to achieve a greater level of comprehension and deliver more precise research results. The relevance of the results to the research environment was guaranteed by the proponents' collection of data from the most suitable individuals.

Data Collection Instrument

The researchers performed a different form of data collection that they used during the development of the system or study. Data were collected to improve the study through interviews, library methods, internet research methods, and surveys.

Initially, the researchers conducted an interview with the Chief Operating Officer of Team Aces Driving Academy in Famy, Laguna. This was done to learn more about their business process. After the gathering of information, the researchers conducted research to find possible solutions to improve the current situation.

Furthermore, the developers used different sets of questionnaires to determine the acceptability of the system, which were provided to the respondents after testing the application. The questions on the acceptability of the system were basically about the feedback of the user to the developed application. It included questions on the interface of the system, and if it was pleasing and comfortable to use. The questions also included the performance of the application, whether it provided the information, was easy to understand, and whether the application had all the functions and capabilities that would be expected. The table below shows the interpretation scale used in this aspect of research.

Table 1. Likert Scale of the User Acceptability

Scale	Range	Descriptive Rating
5	4.21-5.00	Highly Acceptable
4	3.41-4.20	Moderate Acceptable
3	2.61-3.40	Somewhat Acceptable
2	1.81-2.60	Slightly Acceptable
1	1.00-1.80	Not All Acceptable

Project Design

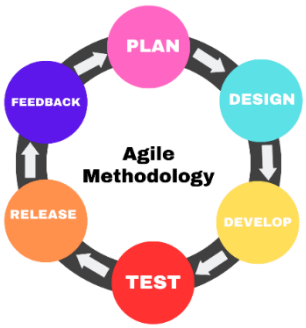

Figure 2. *Agile Methodology Model*

The developers collected different information for better improvement and innovation of the system. They employed a checklist questionnaire to evaluate the system and conducted interviews to gather additional valuable information for system development. Agile methodology was also used as a cornerstone for the planning, requirement analysis and data gathering, design, development, testing, and assessment of this application.

Planning Phase

The researchers conducted brainstorming with all group members to gather information about the status of Team Aces Driving Academy - Famy Laguna. The researchers studied different platforms and tools deemed useful for the development of the system as well as other appropriate tools and software needed for its design. They attended online meetings with the owner of Team Aces, including webinars and inquired about the recommended tools and information that would be used for the project.

Design Phase

In this stage, the researchers used the ideas and data gathered to plan the project which is the web system application's design. The researchers presented a high-level business process model and notation (BPMN), as well as the storyboard of the process. During this phase, the researchers gathered data and information and improved the system's technological aspects.

Development Phase

In this stage, the researchers used various codes such as, PHP, HTML, CSS, JavaScript for the development of the web-based application. They executed it using Visual Studio Code to input the system functionalities. In the developed system, the researchers used PHP for backend processing and HTML, CSS for design implementation, JavaScript for frontend and UI transition, and XAMPP Control Panel using My SQL for database management. The development of the system was necessary in observing the transaction process and is highly valued for added information. The researchers explored the optimal techniques and materials for system design and development. The following software would be used by the developers to design the suggested system.

Testing Phase

After the development of the program, the researcher tested the app to see if any errors need to be fixed in testing the website so that the system may be improved as quickly as possible. Testing included functionality, reliability, and performance efficiency tests to determine if the application meets the purpose of its user. The web-based was tested on different devices to check its compatibility.

Release Phase

In this stage, the system was implemented completely, the researchers used Hostinger to eliminate the need to invest in hardware upfront and they deployed the system faster. After the system had been checked and validated as an effective system that could help the customer and business to perform most conveniently, the researchers deployed the system to the Team Aces Driving Academy – Famy Laguna Branch. Upon using the web-based application, the researcher conducted a survey of the users about their experience and get feedback that could help the developers for future improvements.

Feedback Phase

Following the completion of all earlier development stages, the researchers reviewed each module and performed a sanity check on the final result. After the system was deployed, the researchers checked each module to make sure it is operational. The

researchers also examined the scripts and routing that had been put in place in the system, made sure they are functional, and listed all of the feedback.

Ethical Considerations

Researchers ensured that participants understood the purpose and nature of the research, the potential risks and benefits, and their right to withdraw from the study at any time without any consequences. Additionally, any personally identifiable data collected from participants had been kept safe and confidential to protect their privacy.

Results and Discussion

The overall outcome of the evaluation is presented in this section, along with a summary of its goals, overall ends, and recommendations. Future research on technology-inclined customer support in driving schools and other related businesses as well as improvements to the system created can use the study as a reference.

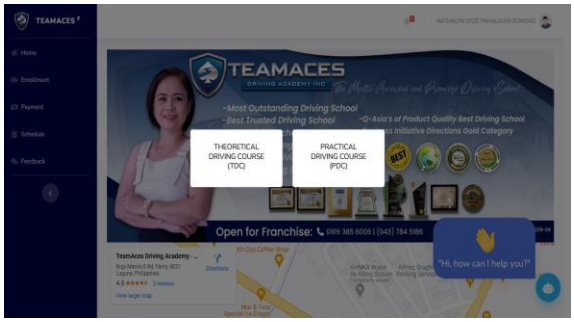

Figure 3. *Enrolment Page*

The researchers developed a web-based customer support system using automation to perform a task elimination that supports, speeds up, and examines possible resolutions without engaging humans. As shown in Figure 3, students will choose between (Theoretical Driving Course or the Practical Driving Course) the type of enrolment they want to acquire in Team Aces Driving Academy – Famy, Laguna Branch. However, no matter what they choose, the waiver will appear before proceeding to the registration process. They can also provide the information needed upon enrollment and upload the requirements needed for them to be enrolled.

Furthermore, the students find it easier and convenient to enroll in the driving school as well as beneficial and practical in terms of improving information processing and the operation of customer service (Gidzon, 2021).

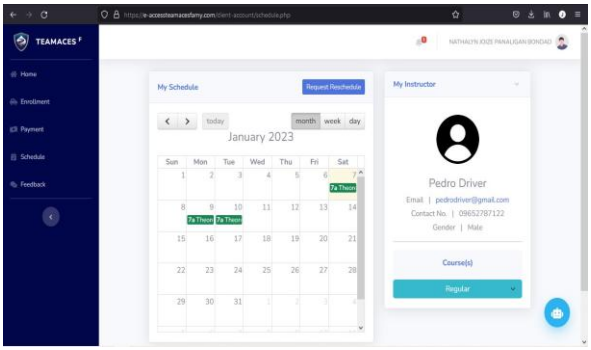

Figure 4. *Automated Scheduling System*

In this section of the Automated Scheduling and Appointment System, the student must proceed first to payment and wait for the approval of the administrator, depending on the legitimacy of the proof of payment and the requirement as part of the appointment system. Then, Automated Scheduling will appear after the approval, the student will be automatically scheduled.

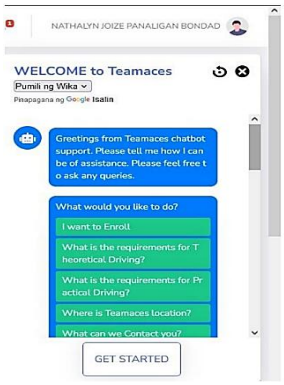

Figure 5. *Chatbot Support*

In support for scheduling and other inquiries, chatbot features had been integrated as shown in Figure 5. The student can inquire using the provided list of information and can easily find answers to the Frequently Asked Questions (FAQs) that the driving school offers. Students access a dedicated dashboard that serves as their portal to interact with the system and find relevant information. Within the dashboard, students can find an inquiry form where they can enter their questions or requests for additional information. Students would not be required to wait for responses, and as a result, staff members would have more time to concentrate on work that is of higher priority. This contributes to a more effective involvement of clients (Forzac, 2019). By using this feature, it provides the students with a personalized experience that cares about their needs and preferences across the entire scheduling system (Lori, 2019).

Table 2. The Staff's Acceptability Towards E-AccesstoAcces as a Web-Based Customer Support System of Team Aces Driving Academy – Famy, Laguna Branch

System's Acceptance	Weighted Mean	Interpretation	Rank
1. It is easy to interact with the system	4.5	Highly Acceptable	3
2. The procedure through the system is clear	4.5	Highly Acceptable	3
3. I found it is easy to decide which case need to be.	4.5	Highly Acceptable	3
4. I found the various functions in this system well-integrated.	4.5	Highly Acceptable	3
5. I think that I would like to use this system.	4.5	Highly Acceptable	3
General Weighted Mean	**4.5**	**Highly Acceptable**	

Table 2 shows that the staff say that the attribute of usability of the system was highly acceptable on items (1) It is easy to interact with the system with a weighted mean of 4.5; (2) The procedure through the system is clear with a weighted mean of 4.5; (3) I found it easy to decide which case need to be with a weighted mean of 4.5; (4) I found the various functions in this system well-integrated with a weighted mean of 4.5; and (5) I think that I would like to use this system with a weighted mean of 4.50. It shows that the system possesses great attributes with an overall weighted mean of 4.5 and is interpreted as highly acceptable. This means that the staff finds the system well-integrated in doing the necessary functions and processing the information clearly. These attributes of usability enable the researchers to understand what users are doing and how they interact with the system.

Table 3. The Students' Acceptability Towards E-AccesstoAces as a Web-Based Customer Support System of Team Aces Driving Academy – Famy, Laguna Branch

Attribute of Usability	Weighted Mean	Interpretation	Rank
1. It is easy to interact with the system	4.65	Highly Acceptable	2
2. The procedure through the system is clear	4.65	Highly Acceptable	2
3. I found it easy to decide which case need to be.	4.60	Highly Acceptable	4
4. I found the various functions in this system well-integrated.	4.50	Highly Acceptable	5
5. I think that I would like to use this system.	4.68	Highly Acceptable	1
General Weighted Mean	**4.62**	**Highly Acceptable**	

Table 3 shows that the respondents say that the attribute of usability of the system was highly acceptable on items: (1) I think that I would like to use this system

with a weighted mean of 4.68; (2) The procedure through the system is clear with a weighted mean of 4.65; (3) The procedure through the system is clear with a weighted mean of 4.65; (4) I found it easy to decide which case need to be with a weighted mean of 4.60; and (5) I found the various functions in this system well integrate with a weighted mean of 4.50. It shows that the system possesses great attributes with an overall weighted mean of 4.62 and is interpreted as highly acceptable.

This further implies that the system was well-integrated in doing the necessary functions and processing the information clearly. The students do not have trouble using the website system.

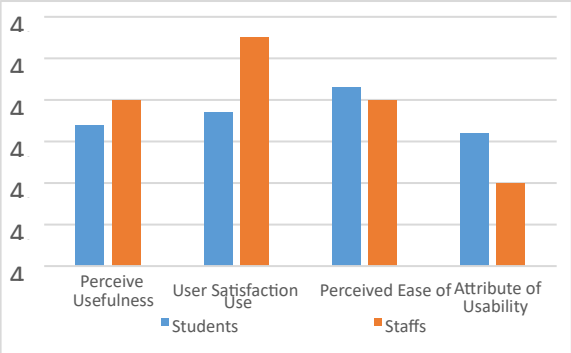

Figure 7. *Level of Acceptability of Students and Staff Towards E-AccesstoAces as a Web-Based Customer Support System of Team Aces Driving Academy*

Presented in Figure 7 is the graphical representation of the acceptability levels of students and staff towards the website. In terms of perceived usefulness, the staff perceive it more favorably compared to the students. This implies that the staff really finds the website useful to cater the customer service and technical support to the students or users. In terms of perceived ease of use, staff also responded more positively compared to the students. It indicates that the website is successfully delivering technical services that are appreciated by users, especially staff members. For user satisfaction, students scored higher compared to staff. This means that the students were very pleased with the website system. Lastly, in terms of the attribute of usability, students perceive it more favorably compared to the staff. It indicates that all the necessary functions and processes are easy to understand and utilize. Overall, the scores between the students and staff were closely aligned. Both groups found the website highly acceptable in terms of usability.

Conclusion and Future Works

Based on the study objectives, test outcomes, and previous findings, it was concluded that the web-based customer support of Team Aces – Driving Academy was successfully designed and implemented. The system demonstrated effective capabilities in providing fast and reliable responses to both students and business needs. The automated scheduling helped the user and admin to lighten the process of transaction and enrolment. With the help of existing chatbot technology in the system, the information was disseminated easily and provided more convenient communication between the students and the business. The generation of reports was trouble-free

because it would automatically input the data of the students as well as their enrolment information.

Furthermore, researchers also recommend that future researchers could focus on management systems such as making the generation of reports more specific, from daily reports to monthly reports including the expenses and other employee-related activities. Moreover, they should provide their own chat functionality without depending on a third party. They may also provide different lectures on theoretical and practical driving courses in order for the system to be more useful for the student and administrator part. Additionally, the researchers would like to recommend the use of Artificial Intelligence (AI) in terms of scheduling and chatbots as a technology, for it will benefit the business process and most importantly, the customer service.

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