



# Developing Telegram Bots for General Store Application

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*Abstract: Our research is focused on the automatic interpretation of hand gestures found in the computer, with the aim of providing new possibilities for interacting with machines and building better relationships with computers. In this project, we present methods for using static and dynamic gestures to give commands to computers. Our main steps: manual verification is to follow the detected guide (if dynamic) and convert the data into the required command. Gesture recognition is the mathematical interpretation of human movements by computer devices. Modern computer control research has moved from being hardware-centered to computer control with sound, thought, and body movements. This application belongs to the field of visual gesture recognition. This type is easier and more intuitive because it uses images as video and known patterns. Use the start keyword to call the audio interface and use the restart keyword to terminate the audio interface. Make the speaker aware of keywords to allow for personalization of voice commands for a specific user. The comparison model using the rules of the body is used due to its simplicity and robustness to noise. The standard state of the audio interface is intended to allow the interface to function properly. The best way to solve this problem is to use technology that embeds AI into the user interface (mostly gestures and speech recognition).*

## 1. Introduction:

Telegram is the rising messaging app of 2022. The bot feature is one of the features that has become popular. Since there are many different Telegram bots available today, we will explain their purpose and how to use them, and also look at some of the best Telegram bots. It is used by 700 million people worldwide and this number is increasing every year. For companies and organizations, Telegram is a great communication tool with many benefits. There's another good reason to use a messaging service for your business: Telegram bots. Use bots in a channel or group.... They are big! That's why we've compiled a list of the ten best Telegram bots (in no particular order). Join their discussions, channels or groups. They can be installed using Telegram's own bot creator, Botfather, or the Telegram Bot API. Secondly, it provides more opportunities for the manufacturer.

### 1.1 Objectives:

Telegram is a fast-messaging application that has attracted a lot of attention in 2022, especially due to its powerful features that suit the needs of individuals and businesses. Telegram, which has a global user base of 700 million and continues to grow, offers a powerful communication solution for businesses and organizations. More importantly, the Explore feature improves user experience by making account searching easier. It also costs nothing to publish newsletters or reports, further strengthening its adoption in the business

environment. But one of the most important things that makes Telegram useful for business is its integration with Telegram bots. These bots are very popular for personal use and are increasingly seen in businesses and groups. Basically, Telegram bots are programs with a lot of work and automation that connect together in a conversation, channel or group. These can be easily configured via Telegram's bot builder, Botfather, or the broader Telegram bot API, offering developers easy development and customization options. As companies realize the effectiveness and potential of these bots, their integration with pipelines and teams is becoming more common, highlighting their benefits in promoting seamless communication and improving user experience.

### 1.2 Classic use cases:

Automatic newsletters, importing content from social media or blogs to Telegram, instant messaging, pre-qualified customer service/first level support, FAQ, virtual store, data management, translation. In today's fast-paced world, businesses are looking for new ways to improve their operations and improve customer service. With the popularity of messaging apps and the increasing demand for personalized services, integrating chatbots into various business areas has become a trend. In this article, we propose the development and use of a Telegram bot designed for traditional stores to increase efficiency and offer good business opportunities to customers. Telegram is a widely used platform with a user-friendly interface and extensive API capabilities, providing an ideal environment for the use of interactive bots. Using the platform's rich functionality and large user base, regular store Telegram bots can act as virtual assistants, helping customers ask questions, providing product information and supporting the business. Main features and functions of Telegram Bot. We will explore its many benefits, including improving customer experience, simplifying inventory management, and optimizing orders. We will also discuss collaboration processes such as integration with existing products on the market and ensuring data security in the design and use of robots. By integrating Telegram bots into their operations, marketplaces can change the way they interact with customers. Regardless of their address

or time, customers can easily interact with retailers via the Telegram app, without the need for traditional communication methods such as phone calls or in-person visits. This convenience can increase customer satisfaction and loyalty and ultimately mean more sales and business growth.

In addition, Telegram bots help manage inventory instantly, allowing store owners to maintain accurate inventory and provide customers with instant information about available products. By automating order processing and payment integration, bots eliminate human error and streamline the purchasing process, making transactions faster and increasing efficiency. For example, the Telegram bot is showing a positive impact on its business. We will also touch upon the challenges and limitations associated with using Telegram bots and sharing strategies to overcome them. Good luck. Through this article, we aim to provide better understanding and guidance to store owners and stakeholders so they can use the power of chatbot technology to transform their business and better serve their customers.

### 2. Literature survey:

The literature review or literature review on a project shows various analyses and studies done in the field of interest, including parameters and projects, and results published in the past. The main purpose of data mining is to analyse the background of the project to identify existing vulnerabilities. Therefore, the following topics not only give background information about the project, but also show the problems and disadvantages that make suggestions and work. A literature review is a text of academic literature that contains current information, including key findings and theories. The research on Telegram bots covers several dimensions: Formation of hypotheses: This research investigates the importance and general acceptance of Telegram bots in the field. It aims to introduce ideas related to the development and operation of robots, as well as to teach ideas recognized by the academic community. Literary Contribution: This research includes general and professional literature, including many books and research studies. It attempts to summarize the body of knowledge taught in the research study. Historical

research: Looking back, this research traces the development of research projects related to Telegram bots. Ideas and techniques evolve from initial research to the latest innovations. Challenges and ongoing work: An important part of the research is identifying and explaining the challenges that exist in the Telegram bot ecosystem. It also aims to highlight ongoing efforts by providing insight into the current status of unresolved issues awaiting strategic resolution. Community Engagement: Build a community around your bot, manage comments and encourage user participation. Ethical decisions: Ensure the bot follows ethical guidelines, avoids misinformation, and respects users' rights. Before building our application, the following system is taken into consideration:

### **2.1 Title: The Development of Telegram BOT through short story using Chatbot**

Author: Dwi Ismawati , Iis Prasetyo

Year: 2018

Abstract: This research investigated the effectiveness of using Telegram BOT as a learning tool, along with a blended learning approach, for teaching Bahasa Indonesia, specifically within the Equality Program Package C offered at learning centers in Sanggar Kegiatan Belajar (SKB) in Sleman and Bantul districts. The study followed a Research and Development (R&D) methodology, utilizing the ADDIE model. Data was gathered through questionnaires. Results indicated strong validation for the use of Telegram BOT in teaching Short Story content within the mentioned program, with material experts validating it at 88%, media experts at 73%, and students showing positive responses at 83%. These findings suggest that integrating Telegram BOT into blended learning can support learners in accessing materials within their constrained schedules, and provide them with discussion platforms beyond regular class hours.

### **2.2 Title: Telegram Channels and Bots A Ranking of Media Outlets**

Author: Victor Herrero-Solana and Carlos Castro-Castro

Year: 2020

Abstract: Telegram, a modern communication platform aligned with Industry 4.0 standards, stands out as one of the most widely used platforms globally. Its diverse features, including channels and bots, have transformed it into a broadcasting medium for various media organizations. Our study delved into the usage of Telegram channels by media outlets in Spain, aiming to answer key questions: Which Spanish media outlets utilize Telegram channels? Are these channels officially verified? What is the size of their subscriber base? Can this data be utilized to create a ranking of media outlets? Through extensive research, we identified numerous Spanish media channels and collected data from each one. Our findings revealed that out of forty-two Spanish media outlets with Telegram channels, only twenty-six were included in our directory ranking. Alarmingly, less than half of these channels were verified by Telegram, with a mere three channels linking to their respective websites.

### **2.3 Title: A Comprehensive Overview of Telegram Services - A Case study**

Author: Laiby Thomas and Subramanya Bhat

Year: 2022

Abstract: Telegram is a global messaging platform that offers free instant messaging services. It has gained recognition for its innovative features and wide accessibility across different devices, including iOS, Telegram supports a wide range of devices and is available for iOS, Android, macOS, Windows as well as Linux. Telegram's Android, macOS, Windows, and Linux. The fact that Telegram can be used seamlessly across various platforms has contributed to its remarkable success, boasting over a billion downloads and 500 Million monthly active users. The authors of the study also conducted a SWOT analysis of telegram, providing insights into its strengths, weaknesses, opportunities and threats.

### **2.4 Title: Design of Telegram Bots for Campus Information Sharing** Author: Hari Setiaji and Irving V Papatungan

Year: 2018



**Abstract:** This paper introduces a Telegram bot designed to facilitate campus information sharing. The bot utilizes Webhooks as its communication method, allowing for real-time interaction and the ability to process multiple requests simultaneously. Users can access information through specific commands issued to the bot. The telegram bot prototype shows that even through webhooks is able to provide information through specific commands issued through bot.

## 2.5 Title: Smart Telegram Chatbot

**Author:** Ujjwal Kumar, Murari jha and Sonam sirohi

**Year:** 2014

**Abstract:** Instead of offering direct touch with a real human agent, a Chat-bot is a software programmer that conducts an online chat discussion using text or text-to-speech. Designed to closely resemble how a human would interact with a conversational partner. We introduced a chatbot in the suggested system that delivers a dynamic answer to online customer enquiries. This suggested chatbot recognizes the user context that prompts a certain response intent. Because it is a dynamic response, the user will receive the desired response. To train the suggested system uses machine learning methods. Our research found that the strength of Chat-bot is that it can be used in a variety of sectors in our daily lives, based on 17 IEEE publications and 13 Standard papers. The goal of project is to show how chatbots may assist an organization reduce its reliance on people while also reducing the requirement for several systems for different operations.

## 3. Analysis:

### 3.1 Problem Statement:

When it comes to the field of Telegram bot integration, there are obstacles to overcoming user interaction, integration and efficiency. Although Telegram bots are widely used, there is still a need to improve functionality to suit different user needs, improve business processes and ensure good security. Solving these problems is important in meeting changing customer and business needs and ensuring the effectiveness and flexibility of Telegram bots in the digital ecosystem.

Classic use cases for Telegram bots are:

- **Automated Newsletters:** Telegram bots streamline newsletter distribution by automating content delivery based on user preferences, ensuring timely and personalized updates directly to subscribers' chats, enhancing engagement and information dissemination.
- **Real-time Information System:** Bots provide instantaneous updates and real-time data on events, news, or personalized queries, ensuring users receive current and relevant information promptly within their Telegram chats.
- **Pre-Qualification for Customer Service:** Bots serve as the initial interface for customer queries, pre-qualifying issues and providing basic support, guiding users or directing them to specific resources, optimizing customer service workflows.
- **File Management:** Bots facilitate efficient file sharing, storage, and organization within Telegram, simplifying document exchange, archiving, and retrieval processes for users or groups.
- **Translation Services:** Telegram bots offer instant translation of messages or content into multiple languages, bridging communication gaps and enabling seamless multilingual interactions among users.

### 3.2 Objectives:

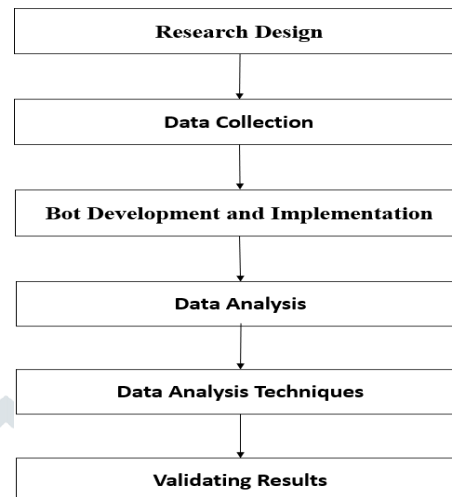
The main purpose of this project is to explain the basic features and functionality of our Telegram bot application to retailers. We will explore its many benefits, including improving customer experience, simplifying inventory management, and optimizing orders. Infrastructure and data security. General retailers can transform the way they interact with customers by integrating Telegram bots into their operations. What is the address and time?

#### 3.2.1 Aims of project:

- Developing Telegram bots for a general store aims to enhance customer experience and operational efficiency.

- **Customer Engagement:** Bots provide a direct channel for customers to interact with the store, enabling inquiries, orders, and assistance, fostering increased engagement.
- **Ordering and Purchasing:** By facilitating browsing, product details, and purchases directly through Telegram, bots streamline the buying process, providing convenience to customers.
- **Customer Support:** Bots offer instant support by addressing FAQs, providing product information, and resolving issues promptly, enhancing satisfaction and loyalty.
- **Personalized Recommendations:** Analyzing customer preferences allows bots to offer tailored product suggestions, boosting upselling and cross-selling opportunities.
- **Notifications and Updates:** Bots keep customers informed about new arrivals, promotions, order status updates, fostering engagement and retention.
- **Feedback and Surveys:** Bots gather feedback on shopping experiences, product satisfaction, and suggestions, aiding in informed decision-making.
- **Integration with Payment Systems:** Seamless payment integration within the chat interface ensures secure transactions, enhancing the purchasing experience.

### 3.3 Methodology:



**Figure 3.3 : Structural Chart of the proposed system**

#### 3.3.2. Research Design:

The design of this study included a combination of qualitative and quantitative methods. Features include interviewing and focusing on everyday business owners, managers, and customers to gather information about the needs, expectations, and experiences associated with store Telegram bots.

#### 3.3.3. Data Collection:

**Interviews and focus groups:** Semi-structured interviews were conducted with store owners and managers to understand their needs, challenges and expectations regarding the use of Telegram bots. **Similarly, organize focus groups for customers to collect their feedback and suggestions regarding their purchases using Telegram bots.** **Monitoring:** Monitoring the store's current operations to identify areas where Telegram bots can be integrated to improve the process and improve customer experience. **Document Analysis:** Examine existing documents, such as store policies, inventory control procedures, and customer service procedures, to understand how operations are performed and identify potential areas for improvement in the Telegram bot.

#### 3.3.4. Bot Development and Implementation:

**Technical Infrastructure:** Establish the technical infrastructure required to host and deploy Telegram bots, including server requirements, API integration, and security measures. seamless

interaction. Integrated functions such as product search, ordering, product updates and personalized recommendations. Exchange of information and provision of correct information.

### 3.3.5. Data Analysis:

Qualitative analysis: Use thematic analysis to analyze interviews and focus group data to identify recurring themes, patterns, and insights about the use and impact of Telegram bots in marketplace selling merchandise. Using analytical methods to measure the effectiveness of Telegram bots in improving key performance indicators, including customer engagement, sales data and performance metrics.

### 3.3.6. Data Analysis Technics:

Using qualitative data analysis techniques such as thematic analysis to identify key themes, patterns and insights from interview transcripts and focus group discussions. For quantitative data, use appropriate statistics (such as descriptive statistics, correlation analysis, or regression analysis) to examine relationships and the significance of difference.

### 3.3.7. Validating results:

Results and findings are validated through member review, where participants have the opportunity to review, interpret, and provide feedback on their data. This method increases the reliability and validity of research results by incorporating participants' own views and opinions.

## 4. System Design:

Design is the process of defining system architecture, modules, interfaces, and data to meet specific requirements. Design can be seen as the application of thought processes to production. It requires a bottom-up or top-down approach, but in both cases the process is systematic and all factors related to the system changes that need to be created are taken into account, from the architecture to the required hardware and software. . The path to information and how information is exchanged and modified in the system. It then overlaps with systems engineering, systems analysis, systems engineering and systems architecture.

## 4.1 Design Overview:

System "design" is defined as the process of applying rules and allowing users to use the system. Various designs are followed when creating a design model that describes the features of the system, its competitors or content, and its appearance to the end user. The design must be user-friendly, and users must be able to understand and use it effectively.

## 4.2 System Requirements:

Record specific needs by extracting the information required to use the system. This is the detailed information the system needs to provide. Specifications provide implementation information to understand how the project will be completed, there are no limits to achieving the goal. These rules and specifications do not provide information to third parties.

## 4.3: System Architecture:

The process begins when you write a message and send it to a bot with the unique username "@telegrambot". From there, the message was sent to a busy Telegram operator, where it was immediately identified as coming from "@telegrambot" and placed in the selected folder. But the bot was careful and did not let the message stay there. Instead, he dives into the file, retrieves the treasure, and uses his clever programming to decipher it

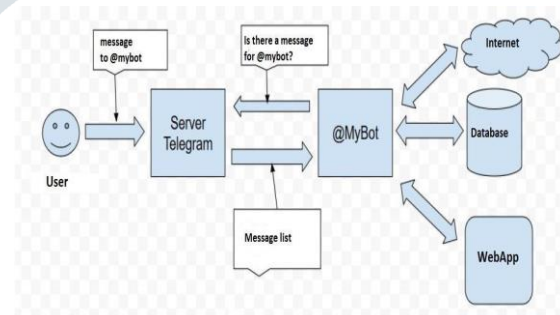
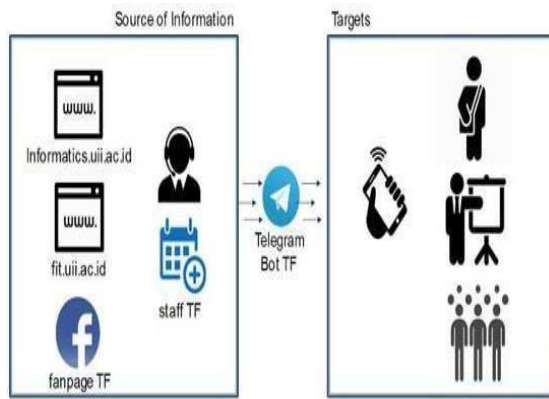


Figure 4.3: System Architecture

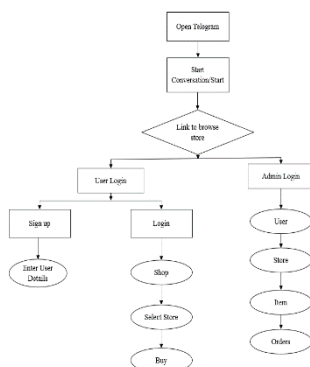


**Figure 4.4: General Framework of Telegram bot**

In our example, "@telegrambot" thoughtfully serves up "message list," displaying all the previous conversations you have shared. This diagram also suggests a hidden access point.

- The user starts by typing a message to the bot. In the example shown, the user sends the message "message" to "@mybot".
- The message is then sent to the Telegram server.
- The server checks if there is a message for "@mybot".
- The bot then retrieves the message from the database and processes it.
- The bot may then send a response to the user. In the example shown, the bot sends the message "message list" to the user.

#### 4.4 System Flow Chart:



**Figure 4.5 System Flowchart**

This shopping system flowchart offers a glimpse into the customer's journey, from the initial spark of interest to the satisfying click of "purchase." Users can dive right in by browsing stores, or they can create an account for a more personalized experience. Once they've found a store that piques

their interest, a world of products awaits. They can delve into detailed descriptions, check out images, and even see what others are saying through reviews. After making their selections, a seamless checkout process with various payment options takes them to the finish line. But the story doesn't end there! Users can revisit their order history, track the delivery status, and ensure everything arrives smoothly. While the admins remain behind the scenes in this flowchart, their role is crucial. They act as the puppeteers, meticulously managing stores, keeping inventory in check, and ensuring orders are processed efficiently. They might even be the masterminds behind enticing promotions that keep users coming back for more. In essence, this flowchart unveils a system designed to deliver a convenient and enjoyable shopping experience for both users and the stores themselves.

## 5. Implementation:

### 5.1 Overview of system implementation:

Chatbots are changing the way people interact with technology. Their convenience and low cost have helped drive adoption across many sectors and industries in recent years. It is often touted as a revolution in how users interact with technology and business. Their interfaces are very simple compared to traditional applications because they only need the user to speak and the chatbot must understand and fulfill every request of the user, at least in thought. Robotic system. This is because the price is lower than real people, but also the stability and availability of the products. Chatbots can provide some level of customer support at no additional cost. While you can create a chatbot that helps your customers when they ask questions about your products, you can also create a personal assistant chatbot that can perform simple tasks and notify you when it's time to go to a meeting or the gym. When it comes to where to use chatbots, there are many options and one of the most used is social media platforms as most people use them regularly. The same goes for messaging apps, but there are some caveats. Telegram is one of the most popular IM platforms today because it allows you to store messages in the cloud instead of on your device and supports Android, iOS, Windows, etc. It supports multiple platforms so you can send messages via it.



Telegram on other platforms that support the website. Setting up a chatbot on Telegram is very easy and only takes a few steps and very little time to complete. This chatbot can be integrated into Telegram groups and channels, as well as working independently.

### Conclusion:

Telegram bots represent a powerful and versatile tool within the messaging platform, offering a myriad of opportunities across various domains. Their significance lies in Enhanced User Experience. Telegram bots streamline interactions, providing instant responses, automating tasks, and delivering personalized content, ultimately enhancing user experience and engagement. Business and Service Applications

They serve as invaluable assets for businesses, facilitating customer service, transaction facilitation, content delivery, and marketing strategies, thereby optimizing operational efficiency. Community Engagement Bots foster community engagement through interactive features, games, polls, and content sharing within channels or groups, nurturing vibrant and interactive communities. Customization and Scalability Their flexibility allows easy customization to suit diverse needs across industries, ensuring scalability and adaptability to evolving requirements. Challenges and advancements while offering immense potential and challenges.

### References:

1. Wijermars, M. Selling internet control: The framing of the Russian ban of messaging app Telegram. *Inf. Commun. Soc.* 2021, 25, 2190–2206. [CrossRef]
2. Santos, M.; Saldaña, M.; Tsyganova, K. Subversive affordances as a form of digital transnational activism: The case of Telegram's native proxy. *New Media Soc.* 2021, Onlinefirst. [CrossRef]
3. Chang, A.; Lim, M.; Kenin, J. The Telegram App Has a Global Doxing Issue. NPR, 29 September 2022. Available online: <https://www.npr.org/2022/09/29/1126022504/the-telegram-app-has-a-global-doxing-issue> (accessed on 9 November 2022).
4. D'Cruze, D. WhatsApp Groups Can Now Support up to 1024 Members and Conduct In-Chat Polls. *Business Today*, 3 November 2022. Available online: <https://www.businesstoday.in/technology/news/story/whatsapp-groups-can-now-support-up-to-1024-members-and-conduct-in-chat-polls-351695-2022-11-03> (accessed on 9 November 2022).
5. Singh, M. Telegram Tops 700 Million Users, Launches Premium Tier. *Techcrunch*, 19 June 2022. Available online: <https://techcrunch.com/2022/06/19/telegram-tops-700-million-users-launches-premium-tier/> (accessed on 9 November 2022).
6. Porter, J. Telegram Gains 70M New Users in Just One Day after Facebook Outage. *The Verge*, 6 October 2021. Available online: <https://www.theverge.com/2021/10/6/22712191/> (accessed on 9 November 2022).
7. Baumgartner, J.; Zannettou, S.; Squire, M.; Blackburn, J. The Pushshift Telegram Dataset. In *Proceedings of the International AAAI Conference on Web and Social Media*, Atlanta, GA, USA, 8–11 June 2020; Volume 14, pp. 840–847. [CrossRef]
8. Wate, Y. How to Create a Telegram Channel: Step-by-Step Guide. *Technology Personalized*, 10 June 2022. Available online: <https://techpp.com/2022/01/08/how-to-create-telegram-channel-guide/> (accessed on 9 November 2022).
9. Fernández, Y. Canales de Telegram, GUÍA a Fondo: Qué Son, Cómo Funcionan, Qué Puedes Hacer Con Ellos y Cómo Crearlos. *Xataka*, 8 May 2022. Available online: <https://www.xataka.com/basics/canales-telegram-guia-a-fondo-que-como-funcionan-que-puedes-hacer-ellos-como-crearlos> (accessed on 9 November 2022).
10. Rubina, V.B. Telegram—Channels as Basic Ingredients of Telegram Messenger Success. *Ideas Innov.* 2020, 8, 73–84.
11. Kovalyova, M. What News Media Need to Know to Get Started on Telegram. *The Fix*, 2



January 2021. Available online: <https://thefix.media/2021/2/1/news-org-need-to-love-telegram> (accessed on 9 November 2022).

12. Adwani, K. Telegram Cloud Storage Review (2022)—FREE Unlimited Cloud Storage? 6 June 2022. Available online: <https://kripeshadwani.com/telegram-cloud-storage> (accessed on 9 November 2022).

13. Hadian, S. How to Get a Verified Badge at Telegram? The Blue Checkmark. Virlan, 13 October 2022. Available online: <https://virlan.com/en/verification/how-to-get-a-verified-badge-at-telegram-the-blue-checkmark/> (accessed on 9 November)

14. Piedra-Salomón, Y.; Olivera-Pérez, D.; Herrero-Solana, V. Evaluación de la investigación Cubana en Comunicación social: ¿Reto o necesidad? *Transinformação* 2016, 28, 209–221. [CrossRef]

15. Liew, H. Fandom in My Pocket: Mobile Social Intimacies in WhatsApp Fan Group. In *Mobile Media and Social Intimacies in Asia*; Cabañes, J.V., Uy-Tioco, C.S., Eds.; Springer: Berlin/Heidelberg, Germany, 2020; p. 50. [CrossRef]

16. Shabani, A.; Keshavarz, H. Media literacy and the credibility evaluation of social media information: Students' use of Instagram, WhatsApp and Telegram. *Glob. Knowl. Mem. Commun.* 2021, 71, 413–431. [CrossRef]

