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Artículos científicos

Las TIC que influyen en un mayor uso del Internet en Oaxaca

The ICT that Influence in More Use of the Internet in Oaxaca

TICs que influenciam o maior uso da Internet em Oaxaca

Martha Jiménez García

Instituto Politécnico Nacional, Unidad Profesional Interdisciplinaria de Ingeniería y
Ciencias Sociales y Administrativas, México

majimenez@ipn.mx

<http://orcid.org/0000-0002-8556-2955>

Francisco Pérez Soto

Universidad Autónoma Chapingo, México

perezsotofco@gmail.com

<http://orcid.org/0000-0002-7982-420x>

Resumen

Los Objetivos de Desarrollo Sostenible (ODS) han indicado la importancia del acceso a las tecnologías de información y comunicación (TIC), así como del acceso al Internet, pues esto propicia innovación, lo cual ayuda a generar empleos y crecimiento económico. Por tanto, el objetivo de este trabajo fue analizar las TIC como factores que inciden en un aumento del uso del Internet en Oaxaca, México. En el método, se tomaron los datos de la Encuesta Nacional sobre Disponibilidad y Uso de las TIC en los Hogares (Endutih) realizada por el Instituto Nacional de Estadística y Geografía (Inegi), en específico aquellos pertenecientes al estado de Oaxaca. La muestra fue de 1859 personas. Se elaboró un modelo de regresión lineal múltiple por mínimos cuadrados ordinarios. En los resultados se encontró que se tiene un mayor uso del Internet a través de: 1) Tutoriales (0.7269) de cualquier tema de interés (a través de YouTube o de otras plataformas), 2) Conversaciones telefónicas (0.11609) a través de Skype o WhatsApp, 3) Mensajes instantáneos (2.9041) por medio de WhatsApp, Messenger o Twitter, 4) Lecturas (0.2647) de periódicos, revistas o libros, 5) Audiovisual (0.14672) como películas, series, conciertos y otros audiovisuales de pago (Netflix, ClaroVideo, Blim, OTT) y 6) Escuchar música gratis (0.36497) que no sea radio AM y FM (Spotify, Google Play Music, entre otros). Se concluye que los mensajes instantáneos, los tutoriales y la música son los que tienen un mayor impacto en el aumento del uso del Internet, por lo que las campañas de publicidad para anuncios de difusión y venta de productos artesanales de Oaxaca deben ser a través de estos medios, pues son los más utilizados en Oaxaca.

Palabras clave: artesanías, Internet, Oaxaca, tecnología de la información, WhatsApp.

Abstract

The Sustainable Development Goals (SDG) have indicated the importance of access to information and communication technologies (ICT), as well as access to the Internet, as this fosters innovation, which helps to generate jobs and economic growth. Therefore, the objective of this work was to analyze ICT as factors that contribute to the increase in Internet use in Oaxaca, Mexico. In the method, the data of the National Survey on Availability and Use of Information Technologies in Households (ENDUTIH, by its acronym in Spanish) carried out by the Instituto Nacional de Estadística y Geografía (INEGI), specifically those belonging to the state of Oaxaca. The sample 1859 people. An ordinary linear least squares multiple linear regression model was developed. In the results, it was found that there is a greater use of the Internet through: 1) Tutorials (0.7269) on any topic of interest (through YouTube or other platforms), 2) Telephone conversations (0.11609) through Skype or WhatsApp, 3) Instant messages (2.9041) through WhatsApp, Messenger or Twitter, 4) Readings (0.2647) from newspapers, magazines or books, 5) Audiovisual (0.14672) such as movies, series, concerts and other paid audiovisuals (Netflix, ClaroVideo, Blim, OTT), and 6) Listen to free music (0.36497) that is not AM and FM radio (Spotify, Google Play Music, among others). It is concluded that instant messages, tutorials and music have the greatest impact on the increase in the use of the Internet, so the advertising campaigns for advertisements for the dissemination and sale of artisan products from Oaxaca should be through these means, since they are the most used in Oaxaca.

Keywords: handicrafts, Internet, Oaxaca, ICT, WhatsApp.

Resumo

Os Objetivos de Desenvolvimento Sustentável (ODS) indicaram a importância do acesso às tecnologias de informação e comunicação (TICs), bem como do acesso à Internet, pois isso promove a inovação, que ajuda a gerar empregos e crescimento econômico. Portanto, o objetivo deste trabalho foi analisar as TIC como fatores que influenciam o aumento do uso da Internet em Oaxaca, México. No método, os dados foram retirados da Pesquisa Nacional sobre Disponibilidade e Uso de TIC nas Casas (Endutih), realizada pelo Instituto Nacional de Estatística e Geografia (Inegi), especificamente aquelas pertencentes ao estado de Oaxaca. A amostra foi de 1859 pessoas. Foi desenvolvido um modelo de regressão linear múltipla linear de mínimos quadrados ordinários. Os resultados constataram que existe um maior uso da Internet através de: 1) Tutoriais (0,7269) sobre qualquer tópico de interesse (através do YouTube ou de outras plataformas); 2) Conversas telefônicas (0,11609) através do Skype ou WhatsApp, 3) Mensagens instantâneas (2.9041) por WhatsApp, Messenger ou Twitter, 4) Leituras (0,2647) de jornais, revistas ou livros, 5) Audiovisual (0,14672), como filmes, séries, shows e outros audiovisuais pagos (Netflix, ClaroVideo, Blim, OTT) e 6) Ouça músicas gratuitas (0,36497) que não são de rádio AM e FM (Spotify, Google Play Music, entre outros). Conclui-se que mensagens instantâneas, tutoriais e músicas têm o maior impacto no aumento do uso da Internet; portanto, as campanhas publicitárias de anúncios para divulgação e venda de produtos artesanais de Oaxaca devem ser realizadas através de estes meios, uma vez que são os mais utilizados em Oaxaca.

Palavras-chave: artesanato, Internet, Oaxaca, tecnologia da informação, WhatsApp.

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Introduction

The Sustainable Development Goals (SDGs) indicate the importance of significantly increasing access to information and communication technologies (ICT), as well as making an effort to provide universal and affordable access to the Internet in less developed countries (World Bank, 2017).

Similarly, it is necessary to promote innovation, and for this it is convenient to invest in research and development (R&D) in all sectors to increase the competitiveness of developing countries. Likewise, trade is also essential to sustain development and advance economic growth, and promote global competitiveness (World Bank, 2017).

The United Nations (UN) has recommended taking advantage of new ICTs to counter poverty, as they can help create and benefit the digital market and, by extension, create jobs and opportunities for entrepreneurs to invest in small and medium-sized companies and these, in turn, benefit economic growth and human development (Molina and Rangel, 2017).

For its part, the National Council for the Evaluation of Social Development Policy [Coneval] (2017) stated in its Evaluation Report of the Social Development Policy in Mexico 2016 that, in 2014, 7 out of 10 indigenous people were in poverty, and of these, 3 out of 10 were in extreme poverty. In addition, 83% of people between 15 and 64 years of age expressed difficulty in obtaining help to get a job, and the figure increases to 86.3% among people over 65 years of age. The situation of poverty worsens in the case of indigenous youth, since 72.8% were poor, while 44.1% of non-indigenous youth were in this condition (Coneval, 2017).

The use of ICT favors social participation, as it fosters effective communication in real time that helps achieve collective well-being. In addition to this, they help to preserve indigenous and cultural traditions, this happens when disseminating with the help of ICT, mainly on web portals. In addition, the use of the connectivity-training and infrastructure triad covers the necessary aspects for the technology to be used correctly (Hernández and García, 2016).

Technological change, together with other factors of education and public policies to reduce inequality, influence counteracting poverty by increasing the labor productivity associated with ICT. Although, it is worth emphasizing, adequate public policies are necessary to reduce poverty and inequality (Rodríguez and Sánchez-Riofrío, 2017). According to Márquez, Acevedo and Castro (2016), ICTs are instruments that multiply the

opportunities for economic growth in the countries that incorporate them into their productive structure. And some international organizations suggest that ICTs are key to having innovation and being competitive.

This research is aimed at contributing to the solution of the poverty problem that exists in the state of Oaxaca, Mexico, with the use of ICT. Therefore, the objective of this work is to analyze these as factors that influence the increase in the use of the Internet for the Oaxacan state and thus improve the opportunities for economic growth through the dissemination of artisan products on web platforms.

The hypothesis that arises is the following: ICTs help the Internet to be used for the dissemination of artisan products in Oaxaca. Likewise, the following question arises: what types of ICT help to use the Internet to be able to disseminate the artisan products of Oaxaca?

This work presents the scientific literature on the benefits of using the Internet and ICT, such as tutorials, telephone conversations, messages, readings, audiovisual media and music. This literature explains the broad relationship between new business models and ICTs that are used to disseminate and sell products, among other aspects. Subsequently, the method used is presented through a multiple linear regression model. The results are then presented and discussed with the scientific literature that was found. Finally, some conclusions are raised.

Benefits of using the Internet

The benefits of using the Internet vary by socioeconomic status, age, and type of community. It should be noted that digital technologies do not displace community activities offline, rather they strengthen them. However, it is a fact that older people, with less education and from rural communities benefit more from frequent use of the Internet, which means that it can compensate at least in part for the missing resources, such as education, and can be seen as a tool to equalize social participation (Filsinger, Ackermann and Freitag, 2019).

Internet technology plays an important role in helping the tourism industry from several elements: good web information, fast web access, and efficient and easy search. Likewise, the Internet should be associated with promotional elements to sell tourist places (Auliandri, Thoyib, Rohman and Rofiq, 2019).

In home-based businesses established in developing countries, which are small and informal, the Internet has already started to be used in order to facilitate their communication activities, buying and selling transactions and disseminating information, in short, to increase their business development. Along these lines, it has been found that the average income of non-digital home-based companies is lower than the average income of digital entrepreneurs of these types of companies. (Sianturi, Tyas, Manullang y Manaf, 2019).

Audiovisual media

Over the years, platforms such as Netflix, Amazon Prime, and Hulu have attracted many customers and caused serious disruptions to the media and advertising industry, and video on demand has been found to have a greater impact. , and the time spent watching different genres is greater, especially live sports and news, this has been confirmed through a study conducted with big data analysis (Fudurić, Malthouse and Lee, 2019).

Social networks have become useful tools for audiovisual promotion, especially to reach specialized audiences. For this, the use of good humor and a positive tone has been considered, since these are aspects that have been linked with the users of social networks; In other words, content with such characteristics is more likely to awaken the empathy of users of social networks (Martín, Fernández and Segado, 2019).

Digital technologies and new players are changing the business side of entertainment. Entertainment companies will undoubtedly continue to seek income from consumers and advertisers, however, although advertising offers enormous financial resources for at least some producers, a balance is required to avoid negative feedback effects, so it is essential to manage the risk of entertainment products and it is necessary to develop strategies to share risks with others (Hennig and Houston, 2019).

The population of Chile uses Netflix because it has the ability to watch multimedia content faster and avoid downtime. In addition, there is a personal perception that Netflix is useful for everyday life (Fernández, McCoy, Yáñez and Hernández, 2019)

Video-on-demand services are consumed by a global audience, and given the ease of access to programming for kids and teens, the UK and other national regulators need to be aware of changes in teens' viewing habits to protect to this group of potentially harmful images through these services (Barker, Smith, Hunter, Britton and Murray, 2019).

Technological advances and the massive use of the Internet have led to the emergence of new business models based on online access. One of the industries that most visibly had to adapt to the new reality was the production and dissemination of cultural content, the consumer of which is either native or informal digital. According to Trindade and Laureano (2019), companies should carry out campaigns to sell services to larger households, with a higher level of education, and to male individuals, since these characteristics are more associated with customers who tend to join digital platforms.

In China there is a challenge for the film and television industries, due to the rise of hybrid content and social media platforms, such as podcasts, blogs and user-generated content, as well as television portals distributed on the Internet such as Hulu, Netflix , Amazon Video and Apple iTunes (Keane, 2019). So Chinese companies must have innovation. Another example is Indonesia's customs, which has commercial and industrial facilities and online services and payment applications, but infrastructure networks, including the Internet, need to be improved (Wahyudi and Firdiansyah, 2019). Even these countries must implement technological improvement plans.

The technological transformation has resulted in a new business model and an overlapping of options, this is due to the advent of video on demand, since nowadays television, movies and the Internet interact; This new modality provides an opportunity for the public to enjoy entertainment content anywhere and at any time without a strict schedule. In the past, the audience had to wait for a time to watch television or also go to a movie theater with a particular time, now everything can be done by a gadget or digital TV through the video-on-demand platform (Pradsmadji and Irwansyah, 2020).

Considering that the penetration of pay TV is relatively recent in Brazil and Mexico, it was to be expected that a notable portion of the population would cancel their pay TV subscriptions during the economic crisis of 2015, particularly in the lower social classes ; however, the cancellation did not occur at the expected rates and they were not really influenced by social media (the lower classes actually subscribed more during the crisis). Indeed, it could be argued that people work harder to maintain the media, the informational and cultural aspects of their state, reflecting their importance to the home (Castro, Duarte, and Straubhaar, 2019). Also, cable or satellite transmission offers lower prices, which is a risk for pay television businesses around the world (Castro et al., 2019). Similarly, the development of new television services and new business models may be a loss for the

European audiovisual industry, as the demand for films from this continent has decreased compared to films from the United States (Richeri, 2020).

In Italy, as in the rest of Europe, the new non-linear television services, such as video on demand, represent the most dynamic part of the television sector. This service is capable of generating new resources that can be used for the production of audiovisual content (Richeri, 2020).

Readings

One of the reasons for the increased use of Facebook as a news source is the introduction of digital subscriptions by local online newspapers, in addition to offering Generation Z good enough news for free, which can be easily shared (Kristensen and Solvoll, 2019). Likewise, electronic books are pioneers and popular, as a reader prefers to read books and magazines on their personal devices, in their own comfort zone and chosen time, instead of visiting a library (Arora, 2019).

In India, Internet users are growing rapidly. Consequently, most newspapers have launched online versions. In this regard, news websites are the most reliable source of information for Indian Internet users. It should also be noted that the news site should be friendly, as online readers avoid those sites that offer pop-up ads (Tewari, 2019).

Messages

People can communicate (almost) instantly and can share information thanks to instant messaging applications available on social networks (Facebook, Twitter, etc.) and applications (WhatsApp, Viber); These applications help to make it easier to create and maintain social relationships with people located in other countries and to exchange information about different places and contexts (for example, the expansion of the Internet and applications such as Skype, WhatsApp and the like) (Andreotti and Solano, 2019).

The most used communication services are Skype and WhatsApp, because they offer the user a secure and private connection with friends and acquaintances through communication with text messages and Internet telephony, as well as to exchange data. Twitter offers a similar but more public service. As is known, this platform allows you to

post short messages that other users can discuss; Typically, the messages revolve around current issues or are updates from everyday life (Wirtz, 2019).

In Nigeria, small and medium-sized businesses use mobile applications to communicate ideas and comment, as well as to make and disseminate sales and prices (marketing). This is done through the use of Facebook, Twitter and Instagram. For example, small and medium-sized businesses connect with interested buyers using WhatsApp to 1) acquire customer size information, 2) negotiate prices, and 3) obtain delivery address. (Owoseni y Twinomurinzi, 2019).

Phone conversations

The Skype application is an effective method for conducting interviews on sensitive topics, because, although there are other free applications with similar characteristics that allow text chat, voice chat and video conferencing, Skype offers greater security. Accounts are linked to the user's phone number or existing email and social media accounts (Sipes, Roberts, and Mullan, 2019). In addition, Skype offers a means of collaboration for small and medium-sized companies, which use this technological tool for short meetings, training or technical support, which helps in their productivity since visits with clients are saved (Owoseni and Twinomurinzi, 2019).

Training with the use of ICT (games) provides strong support for business simulation in administrative training, as well as promotes intrinsic motivation among players, encourages commitment, develops skills and increases learning in the field of administration (Buil, Catalán and Martínez, 2019). In addition to this, ICT (virtual reality) involve technical aspects in training. And information is also shared on multiple topics (Boyd and Koles, 2019).

Training with the use of ICT in students with business activities helps them to be satisfied and not have monotonous tasks, it helps them collect their data and carry out Internet campaigns, since they practice with a retail company of their choice and also train in business mature (Abrahams y Singh, 2019).

Tutorials

Social media plays an important role in marketing by presenting products to your audience. This is why the persuasion signals related to influencers in beauty and fashion present on YouTube and Instagram are important to activate the purchase influence (Sokolova and Kefi, 2019).

Regarding YouTube, higher education has resorted to this medium in order to access management courses to stimulate students to critically reflect on the communication of content on social networks: video (for example, text, images, sound, video), dialogue (for example, comments and responses) and commitment (for example, indicators of emotional participation among the participants) to understand the convergence between public and private communication through social networks; This supports research activities and operational activities, where students individually select and analyze content from YouTube channels of special interest (for example, games, beauty, food, history) (Schulz, van der Woud and Westhof, 2020).

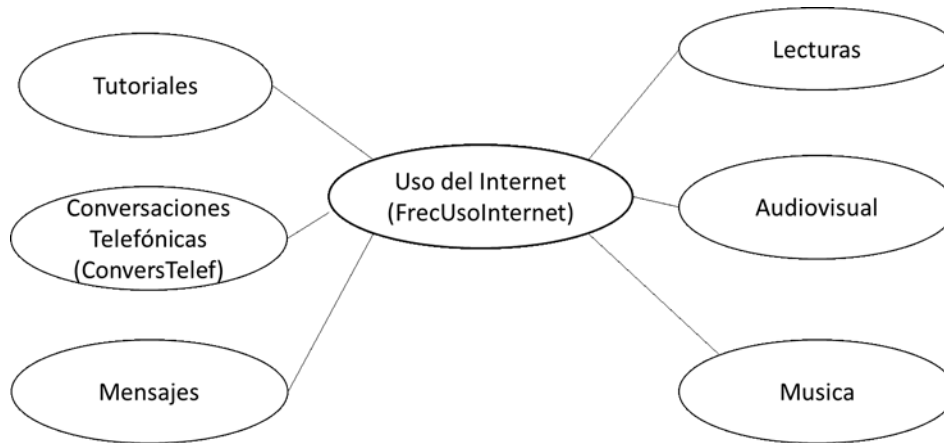
Finally, in marketing, the practice known as electronic word of mouth (eWOM) and the figure of the digital influencer, whose role as a communicator influences the viewers' purchasing decision, this is the case for example in the field of cosmetics (Lies, Damaryanti, Prabowo and Hamsal, 2019). One more example is that 39% of videos posted by private users (which includes YouTube influencers and cigarette enthusiasts) promoted a specific brand of e-liquid devices or electronic cigarettes, which leads to new marketing strategies on social media (Kong, LaVallee, Rams, Ramamurthi and Krishnan, 2019). In addition, eWOM helps revive a tourist place (Auliandri *et al.*, 2019).

Method

The research was exploratory and cross-sectional, and was carried out with data from the National Survey on Availability and Use of Information Technologies in Households [Endutih] (National Institute of Statistics and Geography [Inegi], 2018) to analyze the factors that affect the frequency of Internet use in Oaxaca. The sample size was calculated by Inegi (2018). In this case, only the data belonging to the city of Oaxaca were taken and it was made up of 1859 people. As independent variables, the following ICTs were taken: tutorials, telephone conversations, messages, readings, audiovisuals and music; The frequency of

Internet use has been considered as a dependent variable (Figure 1). Likewise, table 1 provides a description of the variables used in the model. In addition, the instrument used and the model are described.

Figura 1. Variables del modelo



Fuente: Elaboración propia

Instrument

The questions that the Inegi (2018) used for the variables were the following.

Dependent variable

- 1) Generally, how often do you use the Internet?

Independent variables

- 1) In the past three months, have you used the Internet for job training?
- 2) In the last three months, have you used the Internet to take tutorials on any topic of interest (through YouTube or other platforms or applications)?
- 3) In the last three months, have you used the Internet for telephone conversations (via Skype or WhatsApp)?
- 4) In the last three months, have you used the Internet to send instant messages (WhatsApp, Messenger, Twitter, etc.)?
- 5) In the last three months, did you read newspapers, magazines or books on the Internet?

- 6) In the last three months, did you watch movies, series, concerts and other paid audiovisuals on the Internet (Netflix, ClaroVideo, Blim, OTT, etc.)?
- 7) In the last three months, did you listen to free music on the Internet other than AM and FM radio (Spotify, Google Play Music, etc.)?

Model

With the variables that were correlated with the frequency of Internet use, a model was developed, which was estimated using the method of ordinary least squares with the gretl software version 2016c. The model was generated by means of a multiple linear regression by ordinary least squares. The analysis carried out was based on the use of a statistic called p-value, which corresponds to the probability of accepting the null hypothesis, compared with the level of significance α ($\alpha = 0.01$ was used). Next, the work is specified under the function indicated in equation (1).

$$f(\text{Frecuencia del uso del Internet} = \text{Tutoriales, Conversaciones, Telefónicas, Mensajes, Lecturas, Audiovisual, Música})$$

(1)

Tabla 1. Descripción de Variables utilizadas en el Modelo

Variable	Descripción	Tipo y relación
Frecuencia del uso del Internet (Y)	Generalmente, ¿con qué frecuencia hace uso del Internet? (medida en días a la semana)	Dependiente. Esta es la variable de interés para poder usar las TIC en otras áreas.
Tutoriales	En los últimos tres meses, ¿ha utilizado el Internet para tomar tutoriales sobre cualquier tema de interés (a través de Youtube o de otras plataformas o aplicaciones)? Variable binaria	Independientes. Ee relacionan con la variable dependiente por ser una herramienta utilizada en ámbitos laborales, académicos, de entrenamiento, de comunicación, entre otros aspectos.
Conversaciones Telefónicas (ConversTele)	En los últimos tres meses, ¿ha utilizado el Internet para realizar conversaciones telefónicas (a través de Skype o WhatsApp)? Variable dicotómica	
Mensajes	En los últimos tres meses, ¿ha utilizado el Internet para enviar mensajes instantáneos (WhatsApp, Messenger, Twitter, etcétera)? Variable binaria	
Lecturas	En los últimos tres meses, ¿en Internet leyó periódicos, revistas o libros? Variable binaria	
Audiovisual	En los últimos tres meses, ¿en Internet vio películas, series, conciertos y otros audiovisuales de pago (Netflix, Clarovideo, Blim, OTT, etcétera)? Variable binaria	
Música	En los últimos tres meses, ¿en Internet escuchó música gratis que no sea radio AM y FM (Spotify, Google Play Music, etcétera)? Variable binaria	
U ₁	Error estimado	

Fuente: Elaboración propia con base en la Endutih (Inegi, 2018)

Equation (2) presents the theoretical model proposed to analyze the frequency of Internet use and the technology tools already mentioned.

$$Y = \beta_0 + \beta_1 \text{Tutoriales} + \beta_2 \text{ConversTele} + \beta_3 \text{Mensajes} + \beta_4 \text{Lecturas} + \beta_5 \text{Audiovisual} + \beta_6 \text{Música} + u_1 \quad (2)$$

Results

Table 2 shows the results of the multiple linear regression model of the frequency of Internet use-use (dependent variable). The independent variables were: the use of the Internet to watch tutorials on any topic of interest (through YouTube or other platforms or applications); to conduct telephone conversations (via Skype or WhatsApp); to send instant messages (WhatsApp, Messenger, Twitter, etc.); for reading newspapers, magazines or books; to watch movies, series, concerts and other paid audiovisuals (Netflix, Clarovideo, Blim, OTT, etc.), and to listen to free music other than AM and FM radio (Spotify, Google Play Music, etc.).

To check the validity of the model, an F test was carried out and there is a p value of 0.000, which indicates the validity of the model and the reliability of the data.

Tabla 2. Estimación de los parámetros de regresión

Parámetro	Coefficiente de estimación	Desv. típica	Estadístico <i>t</i>	Valor <i>p</i>	
Constante	0.8319	0.0427	19.4651	< 0.0001	** *
Tutoriales	0.72061	0.0671	10.7288	< 0.0001	** *
Conversaciones telefónicas	0.11609	0.0703	1.6506	0.0990	*
Mensajes	2.9041	0.0822	35.2946	< 0.0001	** *
Lecturas	0.2647	0.0615	4.3026	< 0.0001	** *
Audiovisual	0.14672	0.0624	2.3499	0.0189	**
Música	0.36497	0.0631	5.7801	< 0.0001	** *
R ² : 76.40 % Ra ² : 76.32 %; F: 998.34; p < 0.0001					

Fuente: Elaboración propia con base en la Endutih (Inegi, 2018)

The theoretical model that was proposed in equation (2), allows establishing the estimation of the model, as defined in equation (3).

$$Y = 0.8319 + 0.72061Tutoriales + 0.11609ConversTele + 2.9041Mensajes + 0.2647Lecturas + 0.14672Audiovisual + 0.36497Música + u_1 \quad (3)$$

The F test indicates the validity of the model, so the null hypothesis is rejected, with a confidence level of 0.0001, that the model coefficients have a value of zero.

As the p-values are adequate, as well as the t statistic, the null hypothesis is rejected, and it is concluded that there is statistical evidence that the use of the Internet has a tendency to increase when there is some modification in some independent variable, keeping the other constants. For example, Internet use rises by 0.72061 points when participants use the Internet to watch tutorials, by 0.11609 points when making phone conversations over the Internet, and by 2.9041 points when they use the Internet to send messages.

Similarly, the use of the Internet increases by 0.2647 when they use it to read online; it increases by 0.14672 when the Internet is used for audiovisual media, and it increases by 0.36497 when it is used to listen to music.

Discussion

The use of the Internet, in conjunction with all ICT applications, such as Facebook, WhatsApp, YouTube, among others, has many benefits, but the most relevant for economic growth are: 1) it strengthens education through search and reading of information or training through video tutorials, 2) it helps business and organizational management processes through the use of WhatsApp, Messenger, web pages and social networks and 3) strengthens the tourism sector, by disseminating information on events and sites of interest to tourists, as well as the promotion of artisan products on social networks and websites through advertisements, as well as instant messaging communication tools. The Internet also brings benefits in the areas of culture, politics and religion.

The Internet can benefit the state of Oaxaca, therefore, according to Auliandri et al. (2019), can be used to sell products of small and informal companies in tourist places in rural communities, in addition to increasing the income of households when they carry out activities to buy and sell products with the use of ICT (Filsinger et al. , 2019; Sianturi, 2019). This supports this research, and coincides with the data presented for the dissemination of Oaxacan products on the Internet to attract tourists and to know the artisan products of the regions of this state, which can be through web pages on sites officials, with audiovisual

media on platforms such as Netflix, Amazon Prime and Hulu (Fernández et al., 2019; Fudurić et al., 2019; Keane, 2019; Richeri, 2020).

Likewise, products can be disseminated on social networks (Martín et al., 2019), or on entertainment platforms (Arora, 2019; Castro et al., 2019; Hennig and Houston, 2019; Kristensen and Solvoll, 2019; Pradsmadji and Irwansyah, 2020; Tewari, 2019). Thus, we must be prepared for new business models (Trindade and Laureano, 2019), without neglecting the technological infrastructure of a country (Wahyudi and Firdiansyah, 2019). If this is achieved, we could be talking about an increase in the income of families that produce Oaxacan crafts or products such as mezcal and gastronomy (tlayuda, wheat tortilla, mole, chocolate, among others).

Text or voice messages that communicate almost instantly (Andreotti and Solano, 2019; Wirtz, 2019) and help to spread product sales and prices (Owoseni and Twinomurinzi, 2019). These messages become the ideal complement for faster attention. And we must not forget videoconferencing through Skype to handle meetings with distant clients (Sipes, Roberts and Mullan, 2019). Likewise, the part of trivia or games must be included for the business field to promote commitment with the client (Buil, Catalán and Martínez, 2019), or a virtual reality to give technical training (Boyd and Koles, 2019); All this helps to maintain customer loyalty and loyalty with the website or social networks.

On the other hand, audiovisual media, through various platforms, have also captured customer loyalty over the Internet (Fernández et al., 2019; Fudurić et al., 2019; Martín et al., 2019). There are also many people who read news on the Internet through online newspapers or Facebook, among others (Kristensen and Solvoll, 2019), which is not of less importance, since, through these platforms, advertisements can be launched product advertising and increase economic income.

One of the limitations of this research was that the data was taken from the Endutih (Inegi, 2018), and only the data from the state of Oaxaca were taken from there; However, it is necessary to expand research in rural communities in the state of Oaxaca, to know the impact in communities where the Internet is limited.

The strengths of this research or contribution to the social sciences is the positive quantitative impact of ICT in terms of increased use of the Internet, since much has been said about these technologies being useful, but it has not been said in what way. quantity. Furthermore, the findings correspond to a state in a situation of poverty with more than 500

municipalities, where several municipalities suffer from extreme poverty. Consequently, this research aims to digitize communities to lift themselves out of poverty by offering their products over the Internet in the appropriate channels (messages, tutorials and music) used by the local population.

On the other hand, this work presents the weakness of not having primary sources in rural communities to be able to make a broad correlation of the data, so it is expected that the scientific community can work more in these to reduce poverty and be a prosperous country.

Conclusions

The use of the Internet has a positive impact in several areas: 1) education, since there are educational tutorials and job training on platforms such as YouTube; 2) business and organizational sector, as it helps members of these fields in their communication processes and dissemination of products or services with the use of WhatsApp, Messenger, web pages and social networks; 3) dissemination of artisan products from rural communities in the state of Oaxaca, as they can offer them on websites or social networks to local, national and international tourism, and make telephone conversations for more details of their products, or send messages through Skype or WhatsApp. Similarly, the dissemination of artisan products can be done through Google advertising, when users search for certain information and with keywords, since the advertising appears automatically on their social networks or in the search for any information.

In the results of the proposed model, the variables that have the greatest impact so that the use of the Internet increases are messages, tutorials and music, which is why it is convenient to target product advertising through these means, with tools such as Google Ads, to increase a client portfolio and, consequently, a greater number of sales of traditional Oaxaca products.

Likewise, it is suggested to carry out advertising campaigns for events or tourist places in Oaxaca in all communities to attract tourism, since, in addition to the scientific literature saying that this is possible, our results confirm this for the case of the city of Oaxaca. in Mexico, which is why it is convenient to use ICT to spread all the festivals and fairs of the communities, to attract tourism and generate a greater economy.

It is suggested as future research the development of an ICT index that includes the use of software in education, job training and use in production processes, as well as the use of social networks, to be able to measure with an index in a uniform way any type of region and locality, whether urban or rural, and to be able to know the situation in terms of software used and subsequently elaborate some analysis of technological policy.

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Rol de Contribución	Autor (es)
Conceptualización	Martha Jiménez García
Metodología	Martha Jiménez García
Software	Martha Jiménez García
Validación	Martha Jiménez García
Análisis Formal	Martha Jiménez García
Investigación	Martha Jiménez García
Recursos	Francisco Pérez Soto
Curación de datos	Francisco Pérez Soto
Escritura - Preparación del borrador original	Martha Jiménez García
Escritura - Revisión y edición	Martha Jiménez García (igual) Francisco Pérez Soto (igual)
Visualización	Martha Jiménez García
Supervisión	Francisco Pérez Soto
Administración de Proyectos	Francisco Pérez Soto
Adquisición de fondos	Martha Jiménez García (igual) Francisco Pérez Soto (igual)