

Using Open Broadcaster Software to Improve the Quality of Live Streaming Content on YouTube

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Abstract

This study examines the use of Open Broadcaster Software (OBS) in enhancing the quality of live streaming content on YouTube from a communication science perspective. The rapid development of digital technology has shifted conventional broadcasting into interactive and real-time live streaming. The key challenge is not only ensuring smooth technical performance but also strengthening audience engagement, communication effectiveness, and two-way interaction. The research employs a descriptive qualitative method with an interpretative approach. Data were collected through in-depth interviews with three gaming content creators on YouTube, direct observation, and literature review. The analysis process followed open coding, axial coding, and selective coding stages. Findings reveal that OBS functions not merely as a technical tool but also as an interactive communication medium. Features such as integrated chat boxes, custom overlays, and donation notifications significantly enhance audience engagement. Communication effectiveness is improved through scene transitions, overlay texts, and visual layouts that make messages clearer and more appealing. Moreover, real-time interaction is facilitated by low latency and seamless integration with YouTube, creating a sense of closeness between streamer and viewers. The high-quality audio-visual output provided by OBS further ensures viewer comfort and fosters the development of an active digital community. In conclusion, OBS improves both the technical and communicative aspects of live streaming by enhancing engagement, communication effectiveness, and real-time interaction. These findings align with the Uses and Gratification theory, which positions audiences as active participants in evaluating content satisfaction.

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1. INTRODUCTION

Humans are social creatures who live in groups and need each other. In everyday life, because we are social creatures and live in groups, we inevitably interact and communicate. Communication itself is the process of conveying a message from the communicator to the communicant or audience in the form of symbols or signs, with the hope that it can be conveyed or understood by the audience, with the aim of changing their attitudes and behavior. (Inah, 2015)

Information processed from previous data from various backgrounds is distributed through various means thanks to current advances in information and communication technology. Some people send or convey information directly to the recipient. Many of them, however, choose to disseminate information through the media. The presence of new

media increases the need for information distribution, which is then known as information digitalization. (Asari, et al., 2023) Digital communication differs from traditional communication because of the way information is combined, packaged, and presented. Digital communication is faster and more convenient, and there are many technological features that make messages more attractive. One form of digital communication is broadcasting.

For many years, conventional broadcasting, such as radio and television, has been the primary medium for delivering information and entertainment to a wide audience via radio or television frequency waves. This broadcasting is considered a type of one-to-many mass communication (*one-to-many*), where messages are delivered to a large audience simultaneously without direct interaction. Strict broadcasting regulations and standards allow for greater control over broadcast content and quality because this communication process is typically linear with little indirect feedback. (Setiawan & Haryatmi, 2021).

But advances in digital technology and the internet have changed the broadcasting paradigm of *Live streaming* is a new innovation that allows broadcasting of content online *real-time* and high interactivity between the broadcaster and the audience. In communication science, *live streaming is defined* as computer-mediated communication (*Computer-Mediated Communication*), which allows direct two-way interaction, so that the audience is not only a passive recipient, but can also provide feedback directly in *real-time* via comments, *emoji*, and so on. Because anyone can use digital devices to broadcast live anytime and anywhere, the threshold for becoming a broadcaster has been lifted. As a result, content production from official media outlets is distributed to individual users. (Rinaldo, 2022)

Live streaming brings new challenges in terms of broadcasting ethics and content quality control, while offering more freedom and interaction. *Live streaming often* lacks strict controls compared to conventional broadcasting, which allows for the spread of misinformation, inappropriate content, and values that are inconsistent with social norms. (Woodcock & Johnson, 2019) This particularly impacts young audiences who are vulnerable to the negative influence of such content. Therefore, to ensure that broadcasting in *live streaming*. While adhering to the principles of ethical and responsible communication in the digital age, modern communication science requires flexible regulations, environmentally friendly social media algorithms, and user instructions. (Chen, et al., 2023)

There are several types of applications that can be used to do *Live streaming*, such as Open Broadcaster Software Studio, Streamlabs OBS, TikTok Live Studio, vMix, and Wirecast.

1. Open Broadcaster Software Studio

OBS Studio is a free software and *open-source* which is used for video recording and live broadcasts on various digital platforms (Bailey, 2012). OBS has the main advantage as software *open-source*. It's free and has a simple, easy-to-learn interface, making it suitable for beginners. With its low CPU usage, OBS can still be used on low-end devices. Furthermore, OBS provides a wide range of features of *plugin* to expand the features. Because it is *open-source* OBS lacks official support and built-in features for creating titles and animations, making it less than ideal for professional production needs. (Erditty, 2024)

2. Streamlabs OBS

Streamlabs is a derivative of OBS designed to be easier to use, especially for beginner streamers and content creators. Its advantages include a user-friendly interface, integration of interactive features like donations and chat, as well as facilities for *live streaming across* various platforms. However, its advanced features are usually

only available in the paid version, and its system resource usage is higher than standard OBS, making it less suitable for low-spec devices. (Kurniawan, 2023)

3. TikTok Live Studio

TikTok Live Studio is a software-streaming app designed specifically for the TikTok platform with direct integration into TikTok, making it easier for users to do *live streaming* with interactive features and management chat. *Software* designed to be simple and beginner-friendly, but its features are limited and it lacks flexibility for streaming to other platforms. Furthermore, the user community and technical support aren't as extensive as TikTok Live Studio *software streaming* others such as OBS or vMix. (Gopay, 2025)

4. vMix

vMix is *software* paid version designed for professionals with full features such as multi-camera support for up to 8 cameras, *4K streaming*, professional visual effects and transitions, and integration with a wide range of third-party hardware and software. vMix also has advanced features for creating titles and animations, as well as an official support service. However, vMix is only available for Windows and has a relatively high licensing fee, making it less suitable for beginners or users on a budget. (Multipos, 2025)

5. Wirecast

Wirecast is *streaming* software professional software with comprehensive features like multi-camera support, high-quality graphics, and streaming capabilities to multiple platforms. Its advantages include reliable production stability, a comprehensive media library, and full developer support. However, Wirecast has a premium price and is quite complex, making it less suitable for beginners *streaming*. (Name, 2023)

This research focuses on software which is *budget free*, new user friendly, lightweight, and can-do *live streaming* on YouTube. Because vMix and Wirecast are *software premium* and paid, TikTok Live Studio only focuses on one platform, namely TikTok, and Streamlabs takes a resource large system, then OBS is chosen as *software which* will be studied. In addition, OBS supports integration with various plugins and *scripts*, which allows for creativity in delivering visual and audio messages. (Wakidah & Gunawan, 2023)

Many online platforms can use the service *live streaming* such as Facebook, Instagram, YouTube, TikTok, Twitch, and others. This research focuses on the online platform YouTube because, according to a report published by *We Are Social* as of January 2025, the number of YouTube users in Indonesia reached 143 million. According to their statistics, Indonesia is the fourth country with the most YouTube users in the world. (Yonatan, 2025)

The problem formulation that needs to be addressed is how to use OBS to improve content quality of *live streaming* on YouTube? Thus, this study aims to determine how OBS can be used to improve content quality of *live streaming* on YouTube.

This research is limited to the following topics:

1. Discusses the use of Open Broadcaster Software in activities *live streaming* on YouTube.
2. Discusses how Open Broadcaster Software can improve the quality of current communications of *live streaming*.

It is hoped that this research can become a medium for exchanging information and ideas regarding the use of Open Broadcaster Software in improving the quality of broadcasting in *live streaming* on YouTube. It also serves as a source of information for those interested in conducting similar research and provides knowledge about the use of Open Broadcaster Software to improve broadcast quality of *live streaming* on YouTube.

Don't forget to also use it as reference material for developing research ideas similar to this research title.

As a literature review, there are many studies that discuss Open Broadcaster Software and live *streaming*. Here are some studies with similar titles.

The first study, entitled “Implementation of *Open Broadcaster Software* Studio in Music Performance Management through *Live Streaming*”, written by Danny Ivanno Ritonga. This research focuses on how to manage live music performances using OBS Studio. The conclusion of this research shows that the application of Open Broadcaster Software (OBS) in music performance management through live *streaming* is crucial to improve the quality and effectiveness of performances. With a good management system, musical performances can achieve greater and more effective goals. The management process includes planning, organizing, executing, and controlling, all of which contribute to the success of a performance. Using OBS Studio allows students to understand the world of broadcasting and adapt to technological developments, thus supporting their creativity in the performing arts in today's digital age.

The second study, “Use of *Open Broadcaster Software* Studio in Designing Learning Videos in the Pandemic Era”, written by Ahmad Qorib. This study provides teachers with knowledge on how to create innovative learning approaches that rely on *Open Broadcaster Software* during the pandemic. Participating in learning *real-time* and recording has become easier with this application. This study aims to compile previous research findings from relevant journals through a qualitative descriptive literature review. The results show that interactive learning with an OBS-based video model can make learning more engaging and effective, especially for Generation Z students who prefer learning with audio. Furthermore, the use of OBS makes distance learning designs more effective. This study shows that OBS can be used for various purposes, and its flexibility as a recording and learning application of *live streaming support* the evidence.

Third, a study written by Maylana Nurfariha and Aninditiya Sri Nugraheni entitled "The Effect of Open Broadcaster Software Learning Video Media on Improving Student Learning Outcomes at MIN Kudus" discusses the limited use of learning media and students' difficulties in writing reports. The purpose of this study was to assess whether the instructional video media developed with *Open Broadcaster Software* (OBS) is suitable for use and how it impacts student learning outcomes.

2. RESEARCH METHODS

This research is descriptive qualitative research with an interpretive paradigm used in this research which assumes that social reality is partly influenced by the interpretation of meaning given by individuals or groups.

Data was collected through observation, in-depth interviews, and literature studies. In-depth Interview, In this method, researchers conducted interviews with three content creators of *gaming* on YouTube: See you tomorrow (Alief), Suli, and Lumiere Aetius (Lumi). Observation, at this stage, researchers observe certain objects carefully to obtain relevant data. Literature Study, this activity involves collecting data from library sources, including reading, recording, and managing the necessary research materials.

According to Patton, data analysis is a process that involves arranging data sequences and organizing information into patterns, categories, and basic descriptive units. In this study, analysis techniques such as *Open Coding*, *Axial Coding*, dan *Selective Coding* were used. (Sarosa, 2012)

1. *Open Coding*

Open Coding is the stage where researchers process interview transcripts and extract the information into codes that represent concepts. (Sarosa, 2012)

2. *Axial Coding*

Axial Coding is a process in which coded data is re-arranged in a new way, with the aim of connecting it to existing concepts. (Sarosa, 2012)

3. *Selective Coding*

Selective Coding is a process that aims to formulate an accurate explanation of the relationship between various elements of existing categories (codes). (Sarosa, 2012)

3. RESEARCH RESULTS AND DISCUSSION (12 Pt)

3.1. Research result

Based on findings in the field, OBS has been proven to have a significant role in increasing audience engagement, communication effectiveness, and interaction of *real-time*. *Engagement created* through interactive features (*chat*, donation, *overlay*), communication effectiveness is strengthened by message visualization (*scene*, text, *layout*), while the interaction of *real-time* awake thanks *latency* low and integration with YouTube.

Furthermore, OBS supports the formation of active digital communities and maintains communication quality through audio and video stability. Therefore, from a communications perspective, OBS functions not only as a technical tool but also as a strategic communication medium that strengthens the relationship between streamers and their audiences on YouTube.

3.2. Discussion

To explain the research results above, the discussion will be outlined as follows:

Theory of Uses and Gratification

In the context of this research, the theory of *Uses and Gratification* relevant to understanding how audiences select and evaluate content live *streaming* on YouTube. Viewers are considered active individuals who have specific preferences in determining the content they consume. This means the success of live *streaming* is not only determined by the presence of media, but also by the creator's ability to present content that suits the audience's needs. Thus, audience satisfaction is a key factor in increasing engagement of the audience. (Ariani & Nurmariati, 2022)

Communication Studies

Communication, whether in person or through mass media, is crucial. A situation where two or more people who share a common language interact with each other is called "communication." To ensure mutual understanding between the communicator and the recipient, the primary goal of communication is for the message to be received and understood. Communication is considered ineffective if this understanding does not occur. Communication is not merely intended to convey information; through the use of certain symbols or emblems, it also seeks to change the attitudes and behaviors of the audience. (West & Turner, 2021)

Communication is usually direct verbally, using a specific language and a two-way process, with feedback in the form of a message received. Information exchange can also be through the use of symbols or signs. When a message or information is sent from a sender to a receiver through an instrument or channel, and the receiver then

provides feedback, communication also involves the exchange of ideas, opinions, and information in a specific context. (Mumtahanah, 2022)

Broadcasting

Broadcasting is the activity of simultaneously disseminating information and entertainment to a wide audience via radio or television frequencies. Broadcasting is considered a type of one-to-many mass communication, where messages are delivered to a large audience simultaneously without direct interaction. Strict broadcasting regulations and standards allow for greater control over broadcast content and quality because the communication process is typically linear with little indirect feedback. (Setiawan & Haryatmi, 2021)

Open Broadcaster Software

Open Broadcaster Software, also known as OBS Studio, allows you to record and transmit live broadcasts to websites. (Kusuma et al., 2018) OBS Studio *share* is a free video recording and live broadcasting application of *open source*. Free means that the public can download and use the application without charge, and *open source*. This the source code is available for further development. Live broadcasting requirements are very high in OBS Studio. (Ritonga et al., 2021)

Live Streaming

Streaming is a technology that can compress the size of audio and video files to facilitate transfer over the internet network, where the transfer process is carried out continuously (continuously), or can be interpreted as a technology for sending files from a server to a client via a packet-based network. Meanwhile, *live streaming* is a live broadcast that is broadcast to many viewers simultaneously (at the same time) as the original event, via data communication or network, either connected by cable or wireless. (Setyawan & Marzuki, 2018)

According to (Studio Pelangi, 2024) so that *live streaming* can run smoothly and produce sharp and clear videos. Here are some important factors that affect video quality when *live streaming*.

First, Internet Connection. Quality of *live streaming* is highly dependent on internet speed and stability. If your internet connection isn't fast or stable, videos will be blurry or even stop playing. To address connection instability, users can use a cable *AND* compared to *Wi-Fi*, because of the cable *AND* directly connected to laptop/computer via cable.

Second, Resolution & *Bitrate*. Resolution and *bitrate* also greatly affect video quality. Resolution determines how clear the image you want to display is, while *bitrate* affects how much data is sent during live streaming. The resolution type and speed *bitrate* depends on the user's internet speed.

Third, *Encoder*. *Encoder* is a device used to convert raw video into a digital format that can be streamed over the internet *encoder* used depends on the specifications of the laptop/computer used for *live streaming*.

YouTube

YouTube is a video sharing platform that allows users to upload content to customized YouTube channels that feature videos—both user-created and those created by others. YouTube also has manageable features for comments and channels, as well as a countdown that allows users to track who watches their videos. (YouTube, 2011)

YouTube allows live streaming directly through built-in features or the YouTube app on mobile devices, allowing users to easily broadcast live. In the field of communication science, this method focuses more on accessible, one-way communication, as demonstrated by *live streaming*. The Surabaya City Government, which operates through the Bangsa Surabaya channel, faces technical challenges such as unstable internet connections of *streaming live* help increase transparency and public participation by giving the public the opportunity to interact through comments and *chat* in a way *real-time*. (Prasetyo & Ayuningrum, 2024)

On the other hand, using OBS Studio for live *streaming* YouTube offers technical advantages and more complex and interactive communication. OBS Studio allows for professional broadcast display setup, combining multiple media sources (such as cameras, screens, and audio), making communication more engaging and effective in conveying messages. (Amanullah & Wiharja, 2022)

Quality & Content

According to ISO 9000 (2005), quality is defined as a group of specific characteristics or criteria that must be consistently present and meet established standards. Quality is not merely the superiority of a product or service, but rather the product's ability to meet customer needs and expectations. Therefore, quality is the primary benchmark for ensuring that the products or information presented are reliable and relevant for use in various processes, such as decision-making. (Alex, 2022)

Digital content is the essence of digital information, encompassing various types and formats such as text, images, video, audio, documents, reports, and others. In general, content encompasses anything that can be accessed electronically and serves as a tool to convey messages, information, or entertainment to a specific audience. Furthermore, digital content enables interaction and engagement between users. (Hendra et al., 2023)

John Mueller in Search Engine Journal states that quality content is the overall quality of a web page, including text, design, images, speed, and everything else within it. It can be defined as consumers' perceptions of the accuracy, completeness, relevance, and timeliness of information displayed on social media pages. (Yunizar, 2023)

OBS as an Interactive Communication Medium

Open Broadcaster Software (OBS) is not just a technical tool for broadcasting live broadcasts, but can also be understood as an interactive communication medium. From a communication science perspective, digital media not only conveys one-way messages but also builds two-way interactions between communicators (*streamer*) and the communicant (audience). This is in accordance with the concept of two-way *communication* (two-way communication) which emphasizes the importance of direct feedback.

First, Improve *Engagement Audience*. *Engagement* is an important indicator in live *streaming* Audience engagement is not only measured by the number of viewers, but also by their active participation in communication. OBS provides a space for engagement through the feature *chat box* interactive, donation *pop-up*, as well as *custom overlay*.

Alief emphasized the ease of OBS in connecting direct interactions with the audience: "There are several features that can be used in OBS so that we can interact with several people *viewers*. So OBS has a feature *live chat* directly... so everything can be integrated directly in OBS without any application of *additional software*."

Suli added that engagement increases through interactive visualization: “At most, the interaction can be the same *viewer*, the most important thing is *live chat* and can also display donations for interaction.”

Lumiere underlines the creativity of the display *chat box* which makes the audience more active: “They like to chat a lot because they want to see what their UI looks like on the screen.”

This finding is in line with the theory of *Uses and Gratification*, where the audience is motivated to participate because of the social satisfaction (interaction), entertainment (engaging in engaging visuals), and community identity (engaging in shared conversations). In other words, OBS not only displays content, but also creates an interactive communication space that strengthens engagement.

Second, Improving Communication Effectiveness. Communication effectiveness is achieved when the message is received clearly, engagingly, and contextually. OBS supports this by providing scene *transition*, *overlay text*, as well as *layout flexible* visuals. This allows streamers convey messages more systematically and interestingly, thereby minimizing audience boredom.

Alief said that OBS helps him organize the flow of communication during broadcasts: “The more I use OBS and the more I know the functions of several *tools* it will be easier to do streaming, especially the goal is to interact with *viewers*.”

Suli emphasized the importance of visual transitions in strengthening the appeal of communication: “OBS features can be interesting from the perspective of viewers, at most he can play like a transition between *scene*... that's a feature that is nice.”

Lumiere also explains the role *layout* in clarifying the message according to the type of content, “*Layout-nya*... from the appearance alone you can see which one is which is gaming competitive, which ones are casual, or for VTubers.”

From this side it can be understood that the effectiveness of communication does not only lie in verbal ability of *streamer*, but also in how visual messages are packaged to make them more easily understood by the audience. OBS provides tools that support multi-channel communication (verbal, visual, and audio), resulting in a more coherent message.

Third, Facilitating Interaction of Real-Time. Interaction of *real-time* is a key element in live *streaming* because it allows for direct, responsive, and minimally obstructive communication. OBS contributes by providing *latency* low, features auto-reconnect, as well as direct integration with YouTube. This feature ensures two-way communication continues even in the face of technical difficulties.

Alief emphasized that the minimum *delay* makes communication livelier: “Maybe because of its nature of *real-time* maybe... so it can bring a good community, because OBS doesn't exist *delay* long time, so you can chat directly and get a fast response.”

Suli highlights how *delay* can ruin the communication experience: “If you legit really have an impact on *viewers*... if minimal *delay experience* communication is not lost between the audience and *streamer*.”

Lumiere added that the interaction of *real-time* can be more interesting when accompanied by media features share: “Sometimes people want to see reactions *streamer*. If you are given media share... in OBS it is easier, you can adjust the volume, and if it is disturbing you can turn it down *mute* direct.”

This shows that OBS enhances immediacy in communication. In communication theory, immediacy creates psychological closeness between communicator and recipient. With quick responses and features *real-time*, the audience feels closer to streamers, so that loyalty and engagement increase.

Fourth, OBS and the Formation of Digital Communities. Another important aspect of communication in live *streaming* is the formation of a digital community. Audiences aren't just viewers, but rather part of a social ecosystem that grows through regular interaction. OBS facilitates this by maintaining stable visual and audio communication, enabling consistent two-way conversations.

Alief emphasized that the community he built on YouTube started from healthy interactions: "So far *streaming*, I always maintain good relations with viewers. I don't think so *viewers* just that *viewers*, but sometimes there are some *viewers* whom I consider a friend."

Suli explains that his community was formed from close personal relationships with the audience: "If live *stream*... there is a special relationship between me and the people I like to live *stream*... I've gotten used to it, "I also make people active and open-minded."

Lumiere added that his community is growing as a space *hangout* for audiences from various channels: "My purpose in creating YouTube is to unite viewers – *viewers* from *other channels*... if *streamers* are busy, I just made it *channel*-it makes a place to hangout them."

This shows that OBS supports ongoing community communication, in line with symbolic interaction theory, where symbols (text, visuals, emojis, overlays) become a medium of shared meaning between streamers and audiences.

Fifth, Audio-Visual Quality as a Communication Factor. Technical quality, especially audio and video, greatly influences audience perception and engagement. OBS provides this feature of *noise canceling*, resolution control (up to 4K), and flexible audio settings. However, quality still depends on the hardware used.

Alief emphasized that technical quality is very influential: "The audio and video quality in OBS itself tends to be good... but it goes back to...*devices* that we use have quite an influence on *output*."

Suli also added that there are high expectations from the audience regarding broadcast quality: "The audience definitely expects, like, to see the stream, why isn't the quality 1080p, why isn't it 60fps... so there's also pressure, like I need to...*upgrade* so *viewers* *watching* it are comfortable."

Lumiere reminds us that audio quality is crucial to the success of communication: "If the audio is unclear or the music is too loud, our voices can't be heard, this can really affect communication with others "*viewers*."

Thus, technical quality is not just a technological aspect, but also an integral part of effective communication. When quality is poor, interactions suffer; when quality is good, communication flows smoothly and engagement increases.

4. CONCLUSION

From the discussion above, it can be concluded that based on findings in the field, OBS has been proven to have a significant role in increasing audience engagement, communication effectiveness, and interaction of *real-time*. *Engagement* created through interactive features (*chat*, donation, *overlay*), communication effectiveness is strengthened by message visualization (*scene*, text, *layout*), while the interaction of *real-time* awake thanks *latency* Low latency and integration with YouTube. Furthermore, OBS supports the formation of active digital communities and maintains communication quality through audio and video stability. Therefore, from a communications perspective, OBS functions not only as a technical tool but also as a strategic communication medium that strengthens the relationship between streamers and their YouTube audiences.

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