# Interactive Live-stream Guidebook for Chinese News Broadcast

by

YANJUN LI

B. Radio & TV Directer, Shanghai Normal University, 2009

A Major Research Paper

Presented to Ryerson University

In partial fulfillment of the

Requirements for the degree of

Master of Digital Media

In the Yeates School of Graduate Studies

Toronto, Ontario, Canada, 2018

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## Abstract:

In recent years, Chinese news organizations and video websites have begun developing live-stream programs on various platforms, including smartphone apps and websites. These programs are aimed at growing audiences, encouraging engagement, and improving competitive strength. However, most of the live-stream programs in China are still run by traditional media giants. Their live-stream production teams have not found out how to effectively engage with audiences in the digital era. Their live-stream discourse only includes reporters and anchors, rather than involving audiences and guests. Thus, a guidebook which can offer everything you need to run a successful interactive live-stream production would serve as a useful tool for the Chinese media industry. In this interactive live-stream guidebook (https://highwayking1986.wixsite.com/mysite), there are several principles which explain how this platform can fill the audience's demand for discourse in today's news world. The guidebook also provides methods on how to resolve and improve an interactive live-stream workflow.

*Keywords: guidebook, live-stream, broadcast, interactive, Pear Video, China*

## Acknowledgements

I want to express my appreciation to the people who have helped and inspired me at Ryerson University. These people recognize problems and know they are capable of influencing the future and creating opportunities in all circumstances. I would like to lend my appreciation to the faculty in the Master of Digital Media program and Yeates School of Graduate Studies. A special thank you goes out to our program director Dr. Alex Ferworn for the opportunity to learn about digital media.

For the opportunities I have received to research and develop my skills, I would like to thank my supervisor Ahmed Sagarwala. Another thank you goes to my second reader, Kathryn McKenzie, always finding the time to meet and provide advice for my major research paper.

Writing this major research paper has pushed me to develop a level of expertise with a well know live-stream platform, allowing me to improve the concepts I've outlined in this paper. I would like to thank Pear Video's director Wenyi Yuan. Live-stream applications are scarce, and I'm grateful for having the access to Pear Video.

The equipment to support my research has been developed by Dejero, LiveU, Sony, DJI, Gopro, and Canon. Software is by Adobe and Wix, which provides me a friendly multi-format editing environment and an easy web-based platform.

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# 1. Introduction

According to “The Modern News Consumer”(Amy Mitchell, Jeffrey Gottfried, Michael Barthel, Elisa Shearer, 2016), traditional TV news channels aren’t connecting with young audiences. The public still consumes news, but young people are no longer sitting in front of the TV during prime time news hours. In a study done by Mitchell, Gottfried, Barthel and Shearer on media habits, they found that “the two younger groups of adults are much more likely than older adults to turn to online platforms for news – 50% of 18- to 29-year-olds and 49% of those ages 30-49 often do so.”(Mitchell, Gottfried, Barthel, Shearer, 2016, p. 2). In “A Cultural Approach to Communication”, James Carey (1989) suggested that communication can be alternatively defined as ritual. In “A Cultural Approach to Communication” (1989), Carey determined that “In a ritual definition, communication is linked to terms such as sharing, participation, association, fellowship, and the possession of a common faith.”(Carey, 1989, p. 18) A modern news broadcasting method should not only transmit the information to news consumers but also allow them to interact with it. The news consumers will engage in the news story, rather than only watch it. To succeed in this goal, the news broadcasting method should be in real time, personalized, and interactive. Interactive live-stream is an effective new communication method within the digital realm.

For purpose of this paper, a user refers to the team or individuals that are using this guide-book. Other terms such as broadcaster, live-streamer, etc. Audience refers to consumers of the live-stream

Interactive live-stream’s production includes three necessary elements: a personalized interactive live-stream platform, wearable augmented reality (AR)

equipment or an intercom device, and a field journalist. The live-stream channel is embedded in a popular social media platform, such as Weibo or Wechat. Weibo is a mature live-stream platform that has a customer analytics function that allows for big data analysis. It is used to effectively personalize content delivery. Wearable AR headsets or intercom devices can facilitate the interaction between journalist and audience. AR headsets are the preferred method because on-field live-streams require the headset to be light, small and possess a long battery life. However, current wearable AR technology is still developing and is very expensive, making cell phone systems the more reasonable choice. Interactive live-streams are different from older versions of live-streaming on television. On-field journalists need to understand how the interactive functions work in order to effectively host in a way that engages and interacts with audiences. This guidebook will help the user learn how to boost audience engagement, ensure production quality, and enhance communication.

## 2. **Background**

In China, a commonly used live-stream platform is the Chinese news company Pear Video. The platform also provides a smartphone app and social media apps (embedded in Weibo). Once the interactive live-stream is on air, all three channels — the smartphone app, website, and social media account — operate together. Audiences are able to comment, share, and like the content through all three channels as well. In this way, audiences can interact with the journalist or guest during the live-stream. The duration of the interactive live-stream is typically two hours long. Audiences may keep watching the entire stream, but they can jump into the interactive live-stream at any moment.

According to China Business Journal, the Pear Video live channel started in 2016, and after two years running, the interactive live-stream program has hundreds of thousands of users. "Pear Video has reached at least two million users until November 16, 2017."(Ma & Guo, 2018, p. 3). They cover topics from almost everywhere around the world, so the demand for on-site reporters familiar with this technology is very high.

## 3. Specific Problems

Most Pear Video reporters are not professional TV or radio reporters. Even if the reporters have professional TV or radio live-stream production background, they may not know how to effectively interact with audiences in the digital realm. There are several issues that still need improvement. Leading up to the live-stream typically there is often little to no advance promotion of the episode. This lack of promotion leads to low initial audience numbers because only a few audience members are waiting for the live-stream. Secondly, audiences are often very slow to initially react to the live-stream as they prefer to watch the live-stream for a couple of minutes to figure out what the topic is and determine if they are interested in the content. If no one is engaging with the content they are less motivated to engage themselves. “Humans often reproduce others’ emotions in themselves. This phenomenon, which is called emotional contagion, has long been known among psychotherapists who treat depressed clients.” (Kameda, Inukai, Wisdom, & Toyokawa, 2015, p. 64).

Often the topics do not match the Chinese audiences’ interests. Local reporters usually focus on topics they are familiar with, but audiences are not interested in them. Also, local production teams can not always ensure professional quality video and audio. Finally, some local production teams struggle with how to produce enough content for a two-hour length live-stream. In order to fill the time, some local production teams end up having uninteresting content, losing the audience in the process. To improve interactive live-streams, Chinese news channels are looking for a standard that can make the programs maintain a level of quality, which will hopefully lead to increased audience engagement.

# 4. Conceptual Framework & Literature Review

### *4.1 Film Guides*

In the media production field, there has been great demand for guidebooks or regulations to improve the procedures. However, media production is a complex area that involves multiple formats and disciplines, so guidebooks or regulations are often only suitable for certain types. “Code of Best Practices in Sustainable Filmmaking” (Engel & Buchanan, 2009) and “Cámara retórica: A feminist filmmaking methodology for Rhetoric and Composition” (Hidalgo, 2017) are two recent examples of guidebooks in the field.

Larry Engel and Andrew Buchanan provide a framework that focuses on reducing the environmental impact and carbon emissions from the media production process. The code includes four principles: calculation, consumption, travel, and compensation. Each principle explains how to decrease the use of carbon during production, and what the limitations are. The code also provides two tools, such as, checklists and carbon trackers.

The code is formed by some good practices that make it effective and trustworthy. Thus, it has been coopted by several large organizations. “The survey was aided by national and international filmmaking organizations, including Filmmakers for Conservation, the International Documentary Association, Real Screen, Women in Film and Video (D.C. Chapter), and the Producers Guild of America. ” (Engel & Buchanan, 2009, p. 3). They reduce the carbon footprint by “limiting print production of this code and by using the Web to distribute it, provide additional information, update documents,

and encourage interaction."(Engel & Buchanan, 2009, p. 2). The code also includes two specific tools, including checklists and carbon trackers. The checklists are a practical way of encouraging users to follow the code. "Best practice is to do everything on the lists — but in the real world that's a very big task. Don't give up. Just do as much as you can, and try to do more on your next production."(Engel & Buchanan, 2009, p. 4). Similar to the Code of Best Practices, I hope to ensure that I create a guide book that can be realistically practiced. Engel and Buchanan accomplished this by partnering with organizations that are active in media production. For my guidebook, I will be partnering with Chinese news media channels to ensure my guides are practical. This guidebook will be published online at https://highwayking1986.wixsite.com/mysite. In order to keep the information up to date.

On the other hand, there are some methods in the Code of Best Practices in Sustainable Filmmaking that are concerning. First, Larry Engel and Andrew Buchanan created the code in cooperation with big organizations that have had an influence on it. The website contains links that allow these organizations to project their interests.

> *The list of Web sites provided on our Web site is not all-inclusive. Inclusion or exclusion does not mean that the Center for Social Media, the Center for Environmental Filmmaking, or Filmmakers for Conservation is endorsing or not endorsing a particular company or organization.* (Engel & Buchanan, 2009, p. 1).

Second, the code does not give users clear guidance on how to overcome the conflict between maintaining the business and making sustainable filmmaking. The code only acknowledges the limitations of the principles. "To be effective, sometimes our work requires carbon-expensive choices such as glossy posters or eye-catching press kits.

We need to understand those choices as carbon expensive ones, while also understanding the requirements of our businesses. ”(Engel & Buchanan, 2009, p. 2). For challenges that are identified I will make sure to provide ways to help the user know how they can find a solution while making an interactive live-stream.

Alexandra Hidalgo explores how to make a feminist film or be a feminist filmmaker. The author provides photos and videos to give users a clear understanding of how to use a feminist filmmaking methodology.

“*Cámara retórica: A feminist filmmaking methodology*” is very flexible. All six chapters are independent. “While some viewers will watch every chapter, others will only watch the chapters that directly intersect with their interests. ” (Hidalgo, 2017, p. 2). Users can consume the content of each chapter using three different methods: text transcript, YouTube, and downloading the files. Reading the transcript is faster than watching the video. On the other hand, watching the video is more clear. There are also photos in the guidebook, showing how feminist filmmaking works both in front of and behind camera.

There are some points that need to be fixed. The video and the transcript for each chapter is too long.  For example, in chapter one, the transcript is 14 pages long, and the video duration is 26 minutes. It is hard to imagine users concentrating and being creative after spending 26 minutes just to understand a single chapter.

Similar to Cámara retórica, there will be three different versions of the Interactive Live-stream Guidebook for Chinese News Broadcast, consisting of: transcript, online videos, and download sources. The guidebook will use the following standards to maintain engagement and clarity with the guidebook.

1. Chapters will be 3-5 pages
2. Videos will be 5-6 minutes in length
3. Current industry practices linked
4. Hands-on tutorials
5. Direct real-life examples

### *4.2 Audience Interaction*

Interaction is a key point of interactive live-streams. News storytelling used to only be a product made by reporters or writers. However, in the digital era, the game is changing. Public communication requires more interaction, so the broadcasting procedure also requires embedded interactive engagement. Before You Start Designing – It's Time to Get Out of the Building by Michael Gaida, 2017, How Interactive Technology Is Transforming Storytelling by Naomi Alderman, 2013, and How to engage your audiences in 5 key steps by Mónica Guzmán, 2016 are three good reference guides to help with creating an interactive live-stream production.

#### Before You Start Designing

Michael Gaida provides a significant principle of design, which is to be knowledgeable about your customers. The article proposes that there are a lot of similar products being offered by competitors in the market, since it is easier to use smart-tools designed to help startups to get to know their users. Startup expert Steve Blank states that "when the barrier to entry is low; competition is very high. "(Gaida, 2017, p. 4).

Thus, customer research becomes an important step, and the entrepreneur should do this before starting a product's design.

Gaida recommends approaching customer research by providing a series of steps to follow. First, the article encourages the designer to observe questions or problems from customers. "You can find that the most important problems aren't discovered through your questions but rather through information that the potential-customer volunteers"(Gaida, 2017, p. 5). For my interactive live-stream, the interaction procedures are consistent with the host, guests, and audiences. Therefore, audiences should be allowed to ask questions to the guest, and the audiences' demands should be shown in the content. Second, the article suggests showing the prototype to customers as soon as possible, and then getting feedback. "You may not be all the way there but if you have a bit of a prototype – hand it to the interviewee; get their opinion."(Gaida, 2017, p. 5). In my interactive live-stream, the summary video can be seen as the prototype, which will be released before the live-stream. Once audiences watch the summary video, their feedback can be collected as questions within the live-stream.

**How Interactive Technology Is Transforming Storytelling**

Naomi Alderman is a game designer. She provides three methods for games that improve the user's experience for interactive storytelling. In these cases, the game players can engage or influence the story, rather than only be able to watch or read the story.

The first method is immersion, which is used in the game Zombies, Run!. It is a game that asks players to run in the real world and engage with the game via GPS. The

players engage in the fictional story through immersion in the real world. “We track where you go via GPS and an accelerometer, reward you with (fictional) item pickups, and tell you a story in audio drama clips that alternate with tracks of your own music” (Alderman, 2013, p. 11). The interactive method directly encourages the players to do what the character needs to do in the games simulation. The second method is representing choice. The story’s outcome is decided through user choices. The audiences can therefore experience the emotions that the characters would feel, since their decisions push the story in different directions.

> *“Similarly, digital media naturally express choice. Playing an interactive fiction like Slouching Towards Bedlam or First Draft of the Revolution (the work of the genius Emily Short), multiple outcomes are built into the format. Again, the person experiencing the emotions and thoughts of the character – and making their decisions – is you.”*(Alderman, 2013, p. 13).

The third method is audience participation. Audiences have an opportunity to decide the outcome of the story. The author suggests that receiving suggestions from audiences can refresh the writer’s mind.

> *“a work can benefit from the best ideas of dozens, or thousands of minds. In this way, via the internet, we come right back to campfire storytelling; a single tale-spinner, yes, but a whole audience to shout out ideas if the teller runs dry.”* (Alderman, 2013, p. 14).

In my interactive live-stream, the audiences will interact with the host or guest in real time, so the story is ongoing and can be influence by audiences. Audience participation, in the form of choices, will be embedded into the interactive live-stream.

Audiences can question the host or guest by writing comments on social media or within the live app, and then, the host will respond to the comments immediately. The story is influenced by audiences in real-time. When audiences see their questions or comments being responded to directly on-screen, more and more participants will comment and share the live-stream link. The audience's opinions matter in deciding the direction of the story. However, the approach to immersion may be difficult to be embedded in the interactive live-stream. Creating a virtual reality environment for each live-stream is too expensive due to equipment costs on the consumer and production end. Instead, we can add on-screen pop-up links to encourage the audience to interact.

### How to Engage Your Audiences in 5 Key Steps

In her article, Mónica Guzmán explains the principles of interaction in the news field through five steps: target your outreach, invite valuable contributions, cultivate strong interaction, honour community work, and track and learn. Through these steps, the audiences and news journalists can build a relationship where they are co-creators rather than only audiences and broadcasters. "What they have in common is that they connect with communities of interest and develop relationships with them. You are not simply delivering a product."(Guzmán, 2016, p. 9). The article also teaches the news broadcasters how to encourage the audience to engage, distribute, and improve the news communication within society.

For the first step, “target your outreach”, the author suggests narrowing the engagement group to those who know the topic well, and allowing them to help the journalists build the story frame.

*“It’s easier to help someone who knows what they’re building, especially if they’ve already begun. Whenever you want the community to contribute, it is always helpful, I heard over and over, to seed your request with examples of what you are looking for.”* (Guzmán, 2016, p. 22).

The author states that the procedure of news engagement involves both audiences and reporters. “Creating the news with people, rather than for them, puts them at the start of the process”(Guzmán, 2016, p. 19). In addition, engagement needs to be achieved by the use of correct timing and appropriate locations. The second step is to invite valuable contributions. In this case, the author requires journalists to answer four questions:

- Are you asking for something you will use?
- Are you making it easy for people to contribute?
- Will people feel rewarded for participating?
- Are you asking good questions?

Answering these questions ensures contributions are valuable, easy to access, incentivized, and promotable. The third step is to cultivate strong interaction. During this step, the author provides ways to make the interaction stronger. The requirement is to find trustworthy people in the public to share the news. This can encourage the public to be involved in the news engagement procedure. “When these influencers participate and share your project early on, word of what you’re doing spreads more quickly and more people who respect those people are likely to participate.”(Guzmán,

2016, p. 24). The fourth step is to honor community work. This step encourages the journalist to honour participating audiences through rewards — letting them feel like their contributions matter. “One of the easier and more powerful ways to give your project an early boost is to let contributors know it’s published and thank them publicly for their role in shaping it” (Guzmán, 2016, p. 25). The final step is to track and learn, requiring journalists to review the news with audiences.

In my interactive live-stream, I am going to use the four steps to improve the interactive experience. First, once I decide on a specific topic, I will find an expert who is knowledgeable in it. The search process includes posting questions online or on social media, narrowing the search using curated lists and group hashtags. Second, I will ask the four questions in the article to ensure the contributions are valuable, arranging a conversation before the live event happens. Through the conversation, I will make a plan with the guest. The plan includes what will be shown live, how to guide the guest to interact with the host and audiences, how to benefit the guest through the live-stream, and what content the guests would like to show on-screen. Third, I find a topic specialist or a popular influencer to share my first release in order to boost the live-stream exposure. This can encourage the public to become involved in the news faster and more effectively. Fourth, in order to honour the engagement, I am going to include and announce the audience member’s name that is interacting with the host during the live-stream. However, the fifth step is hard to achieve in the interactive live-stream. The review process requires someone to maintain the conversation after the live event, but the live-stream group is small, and they will want to move onto the next topic. Instead we can use audience analytics and prepare a summary report to share.

The main takeaways from the article include; making sure that the prototype is released as soon as possible in order to get feedback from the market, encouraging the audiences to influence the storytelling, and providing opportunities for the public to easily engage with the story. In my case, the prototype is a summary video. Once the video is posted, it can attract audiences to share and comment during the live event or after the event takes place through the archived video.

### *4.3 Audience Viewership*

An increasing number of news agencies realize that analyzing the audience is an important part of the news industry. More personalized news services are emerging and their audiences are growing. Three articles explain how important this is, and why the news industry is supporting this.

Federica Cherubini and Rasmus Kleis Nielsen believe that news organizations have increased their use of analytics all over the world.

*"News organizations all over the world have in recent years increased their use of analytics – systematic analysis of quantitative data on various aspects of audience behaviour aimed at growing audiences, increasing engagement, and improving newsroom workflows."* (Cherubini & Nielsen, 2016, p. 17)

The new trend of data analysis provides a strong tool for improving journalists' work, helping them increase their reach with audiences.

> *"Journalists today not only need analytics to navigate an ever-more competitive battle for attention. Many journalists also want analytics, as an earlier period of skepticism seems to have given way to interest in how data and metrics can help*

*newsrooms reach their target audiences and do better journalism."* (Cherubini & Nielsen, 2016, p. 18)

In addition, Federica Cherubini and Rasmus Kleis Nielsen provide some tools that have been used for several years. For example, The Guardian's Ophan is an in-house real-time analytics tool:

*"Ophan offers minute-by-minute data on individual articles with a high level of granularity. It is browser based, easily accessible on mobile, and can be accessed with a Guardian email address and a password."* (Cherubini & Nielsen, 2016, p. 19)

In my interactive live-stream guidebook, I will suggest the production team gets access to data which can reveal their live-stream audience's engagement rates to improve their performance. My guidebook will follow the new trends of the news industry, using an effective tool to do audience data analyzation.

Pablo J. Boczkowski and C.W. Anderson believe that audience data encourages improvements to journalism ethics, as it usually uses traditional or commercial metrics. They advocate for the use of ethical metrics. The authors define the three archetypes, the first being the traditional way.

*"These organizations focus on hard news, especially on topics important to democratic self government. They assign their resources based on elite judgments about which stories are most important, not which stories are likely to get the largest audience."*(Boczkowski & Anderson, 2017, p. 9)

The commercial metrics require journalists to attract as large an audience as possible in order to optimize revenue. "This breed of news outlets uses digital metrics and

instrumentation to maximize attention and revenue."(Boczkowski & Anderson, 2017, p. 6).

Ethical metrics neither represent a bias towards a specific point-of-view or maximized revenue.

> *"These outlets' goal is not (just) to produce important stories on topics of civic import, nor do they attempt to maximize revenue. Rather, their aim is to maximize the audience for civically valuable content. The goal of informing the public is unchanged, but the journalism practices adopted can be significantly different."*(Boczkowski & Anderson, 2017, p. 15)

The authors suggest that news should attract audiences by making a good-faith effort to assume the outcome of their professional selection.

> *"This ignorance of how citizens consume the news is no longer ethically defensible. For journalists to fulfill the role they claim for themselves, they must attract a wide audience. Journalists must now make a good-faith effort to anticipate the consequences of their professional choices. This requires both new organizational patterns, and new responsibilities for individual journalists."*(Boczkowski & Anderson, 2017, p. 16).

In my guidebook, I will encourage journalists or Chinese-based website companies to make a professional interactive live-streams.

In the article, "News selection criteria in the digital age: Professional norms versus online audience metrics," Wouter Van Atteveldt et al, determine that the preferences of the audience can be observed by audience clicks, which is low-cost. Through the observation, the authors found that the news selection is influenced by audience clicks.

*“Using a cross-lagged analysis covering 6 months, we found that storylines of the most-viewed articles were more likely to receive attention in subsequent reporting, which indicates that audience clicks affect news selection.”*(Welbers & Atteveldt & Kleinnijenhuis & Ruigrok & Schaper, 2016, p. 26)

The authors prove that clicks can be an effective tool to explore the audience’s interests.

*“Online, journalists can track how many times a web page is viewed (from here on referred to as audience clicks), which discloses real-time information about the interests of the audience in specific news articles.”*(Welbers & Atteveldt & Kleinnijenhuis & Ruigrok & Schaper, 2016, p. 30)

Furthermore, audience analysis reduces the importance of an editor’s selection.

*“Monitoring online audience metrics can affect the gatekeeping process because it enables journalists to more accurately take the preferences of the audience into account.”*(Welbers & Atteveldt & Kleinnijenhuis & Ruigrok & Schaper, 2016, p. 33).

The authors also provide an effective method to analyze the preferences of the audience, which includes data, operationalization, and model specification. This method will be used in the guidebook.

# 5. Methodology

### *5.1 Iterative Design*

Iterative design is a cyclical process. First, designers research users to identify their demands. Second, the designer generates ideas on how to reach these demands. Third, the designer develops a prototype, and then tests the prototype to confirm whether the prototype reaches those demands in the best way. Fourth, the designer obtains findings from the test, and corrects the design. Finally, the designer creates a new prototype and repeats the process until the prototype solves customer needs in the best possible way. Amending a prototype based on user experience is easier and cheaper than amending a released product. Also, there are some free tools which allow for prototypes to be easily modified. Iterative design can quickly achieve product-market fit. The designer can recognize what users actually do when they use the product. Most users of the *Interactive Live-stream Guidebook for Chinese News Broadcast* are people without a media production background. Before the web-based guidebook is published online, I will ask individuals without a media production background to produce a live-stream for Pear Video and provide their feedback. After the web-based guidebook is published online, I will ask the individuals to read my prototype and then produce the interactive live-stream for Pear Video again. Finally, I will compare the audience data from Pear Video and obtain feedback from the individuals to determine whether the guidebook is an effective tool. If it is not, the Interactive Live-stream Guidebook for Chinese News Broadcast will be improved using their feedback, and tested repeatedly

until the feedback is satisfactory.

### *5.2 Designing Principles*

1. Selected topics must be relevant and timely.

2. A two-to-three minute summary video must be created to highlight the key concepts covered in the program.

3. The summary video should be released on social media, and the feedback from potential audiences should be analyzed.

4. Live-streams can be improved by embedding new questions and suggestions based on audience feedback.

5. The interactive live-stream workflow and equipment requirements must be standardized.

6. The interactive live-stream should be formatted to fit a minimum two-hour time slot broken into three larger segments, with summaries between segments so audiences just tuning-in can “catch-up.”

7. The feedback and audience data should be analyzed

8. Improvements based on feedback and data should be planned and implemented.

### *5.3 Design Phases*

#### *5.3.1 Demo live-streaming*

The initial interactive live-stream I did was “Live: Fake Kidnapping Focusing on Chinese Students”. In 2017, some Chinese students who study in Canada and their parents were blackmailed to pay a large ransom. The criminals asked the victims to disconnect from their social networks. Then, their parents got a phone call notifying them that their children had been kidnapped. The parents believed their children were really kidnapped because they could not connect with their children. This was a hot topic in China.  I found one of the students who was blackmailed and brought her onto my live-stream feed. The live-stream was separated into three segments; the overview of her story, how she hid from her social connections, and testimony of the Canadian public safety leak. During the live-stream, I interacted with audiences through the backend platform in Shanghai. Audiences posted some specific questions in the comment area, which I did not ask the victim prior to the live-stream. Once the back platform staff saw it, they messaged me through my cell phone. The live-stream reached total 1.62 million viewers. Then, I did another live-stream called "Live: Illegal overcrowded rental houses in Toronto". This reached between 500 to 700 thousand viewers . Both live-streams included a pre-recorded introductory summary video and a live-stream production.

#### *5.3.2 Key Principles (version 1): Identification*

After these two live-streams, the production strengths are as follows:.

First, Pear Video was satisfied that there are no obvious technical mistakes during the live-stream. I followed all the Chinese broadcasting technical standards, so both my


*Figure 1: Screenshot of "Live: Fake Kidnapping Focusing on Chinese Students" from Pear Video*

summary video format and live-stream format matched with Chinese broadcasting requirements (see guidebook section Video & Audio Standard Setting). There were some communication signal connection issues that happened during live-streams, but the live-streams still ran well because the backend platform staff played my summary videos to allow time to fix the signal issues.

Second, both live-streams reached large audiences. This meant that Chinese audiences were attracted by the topics. In these cases, the topic selection was successful. The audience number significantly increased 30 minutes after the beginning of the live-streams. However, the audience data shows that at the beginning of the live-

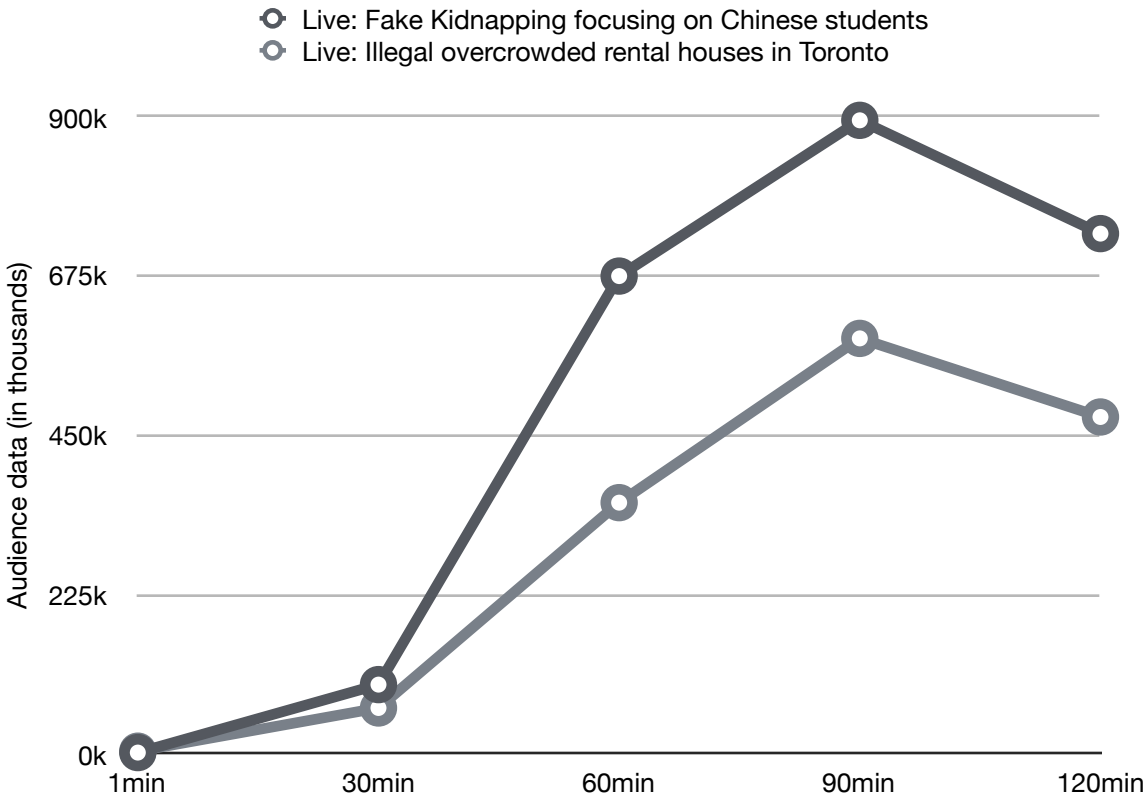



*Figure 2: Audience data from Pear Video (in thousands)*

streams, only a small audience was tuned in and there was no interaction. I polled the audience, and the answers showed that they were not very clear on what would be shown in the live-streams. They understood only after they saw some early audience members sharing the live-stream link on their social media. Creating early view growth became the next focus for improvement. Therefore, I made a first wave of key principles, which are:

1. Selected topics must be relevant and timely.

2. A two-to-three minute summary video must be created to highlight the key concepts covered in the program.

3. The summary video should be released on social media, and the feedback from potential audiences should be analyzed.

4. Live-streams can be improved by embedding new questions and suggestions based on audience feedback.

### *5.3.3 Key Principles (version 2): Modifications After Follow-up Live-Stream*

After identifying the four principles, I did a "Live: Frozen Niagara Falls” live-stream to test them. I focused on whether the summary video improves audiences' early engagement if I posted it on social media before doing the live-stream. Before the live-stream, I made a 5 minute summary video which includes all highlights of frozen Niagara Falls. Then, I posted it on Chinese social media. The summary video was popular on social media, and it was played a total of 3.26 million times. It actually improved early engagement by audiences. In the first few minutes, I reached over ten thousand people. However, total audience numbers were not as high as the former two live-streams. After audiences knew all the highlights of frozen Niagara Falls, they were not willing to watch a two-hour long live-stream. In conclusion, I amended my first wave of principles. The summary video should not be as long and neither should it include all highlights that will be shown in the live-stream production. Also, the live-stream should be separated into several segments.

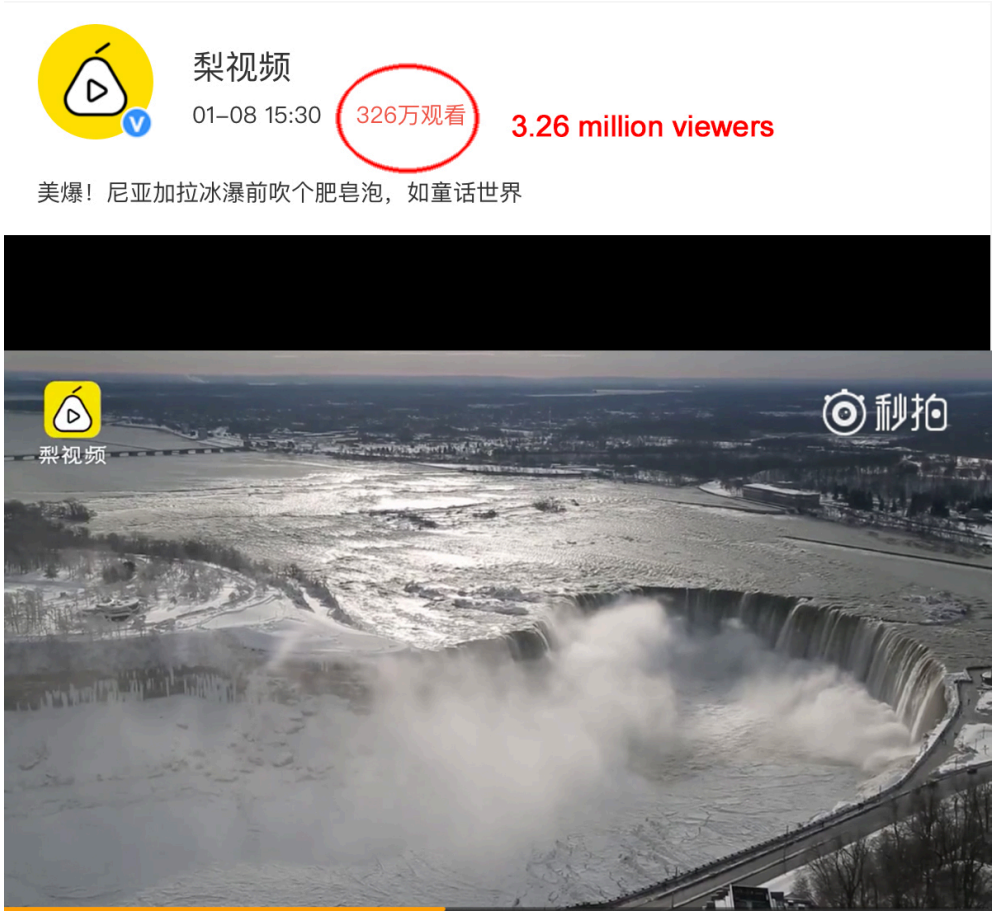



*Figure 3: Screenshot of "Live: Frozen Niagara Falls" from Pear Video*

I summarized the modified principles below.

1. Selected topics must be relevant and timely.

2. A two-to-three minute summary video must be created to highlight the key concepts covered in the program.

3. The summary video should be released on social media, and the feedback from potential audiences should be analyzed.

4. Live-streams can be improved by embedding new questions and suggestions based on audience feedback.

5. The interactive live-stream workflow and equipment requirements must be standardized.

6. The interactive live-stream should be formatted to fit a minimum two-hour time slot broken into three larger segments, with summaries between segments so audiences just tuning-in can “catch-up.”

7. The feedback and audience data should be analyzed

8. Improvements based on feedback and data should be planned and implemented.

#### *5.3.4 Created a white paper*

Following the principles I summarized above, I started to create a white paper with help from the article: “How to Write White Papers People Actually Want to Read” by Ben Sailer. The white paper is the foundation of my first prototype.

#### *5.3.5 Test the white paper with someone trying your principles*

Once the white paper was created, I made an interactive live-stream with Jessica Zhao, a student at the University of Toronto. This was her first time doing an interactive live-stream, and she did not have any media fieldwork experience at that time. The topic is about a family band consisting of eight children and their parents. All kids in this family are homeschooled. Both big family bands and homeschooling are not common in China.

Following the principles in the white paper, Jessica made a 3 minute summary video. The video was posted and shared on Chinese social media three days before the live-stream. The backend platform staff also queued the video as a backup for the beginning of the show and any issues that may occur during the show. Before the live-stream, we amended our questions list because we received some comments from the audience that watched the summary video. During the live-stream, viewers also interacted with Jessica through our backend platform staff, who are tasked with  paying attention to the social media comments. We were able to satisfy the audiences' real-time demands throughout the interactive live-stream.


*Figure 4: Before the starting of the live-stream, an earlier filmed summary video was played.*


*Figure 5: After the summary video, the opening took place. The host introduced the guest to audiences.*


*Figure 6: "Scene 1" The kids performed with music and dancing.*


*Figure 7: "Scene 1" Then, some audiences were interested in the kid's dancing shoes.*


*Figure 8: "Scene 2" Before the live-stream, some audience wondered whether the kids had time for entertainment.*


*Figure 9: “Scene 3” Study time.*


*Figure 10: “Scene 3” Some audiences had questions about how differently aged children studied in same room. Jessica represented these audiences to ask the questions.*


*Figure 11: Ending*

During the interactive live-stream, Jessica did not have any technical issues on her end. The only technical issue was related to a weak cellphone signal when the family played instruments. However, once the signal disconnected, the backend platform staff played the summary video immediately. This allowed us to change our location in order to find a better signal. After the live-stream, Jessica did not feel nervous even though it was her first time operating an interactive live-stream. Also, the Vice President at Pear Video called to commend us on our interactive live-stream. The total audience number was over one million viewers.

## 6. Product Described & Design Strategy Explained

The Interactive Live-stream Guidebook for Chinese News Broadcast is a web-based guidebook that helps users without a broadcasting background to be confident in doing an interactive live-stream. The guidebook includes an equipment list, standard media settings, and step-by-step production procedures. From concept setup to technical preparation, the guidebook provides the whole interactive live stream process. An interactive live-stream can be successfully produced by non-broadcasting background users who follow the guidebook step-by-step, rather than hire expensive professional media staff. The guidebook not only explores a new broadcasting approach, but it is also a practical handbook. The equipment list, technical standards, and production setup have been utilized in real-life productions for Pear Video.

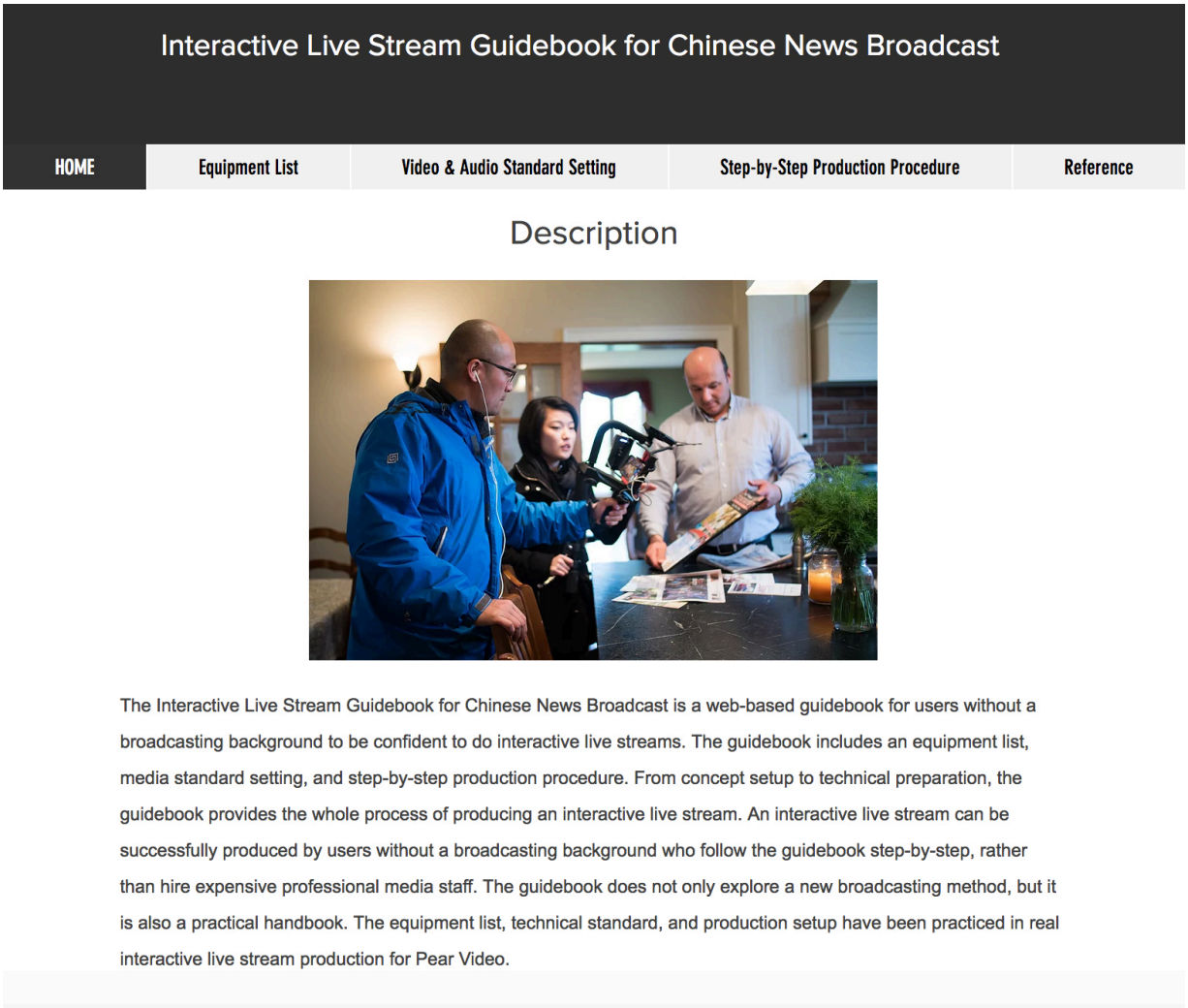



*Figure 12: This is the home page (https://highwayking1986.wixsite.com/mysite). It gives a general idea about the guide book and interactive live-streams.*


*Figure 13: From the home page, users can easily switch between different sections.*

The horizontal menu is designed for different experience levels of users. Experienced users do not need to go through all content. For example, some users already know the Chinese broadcasting standards, so they can skip to the Step-by-Step Production Procedures page to learn how to run the interactive parts.

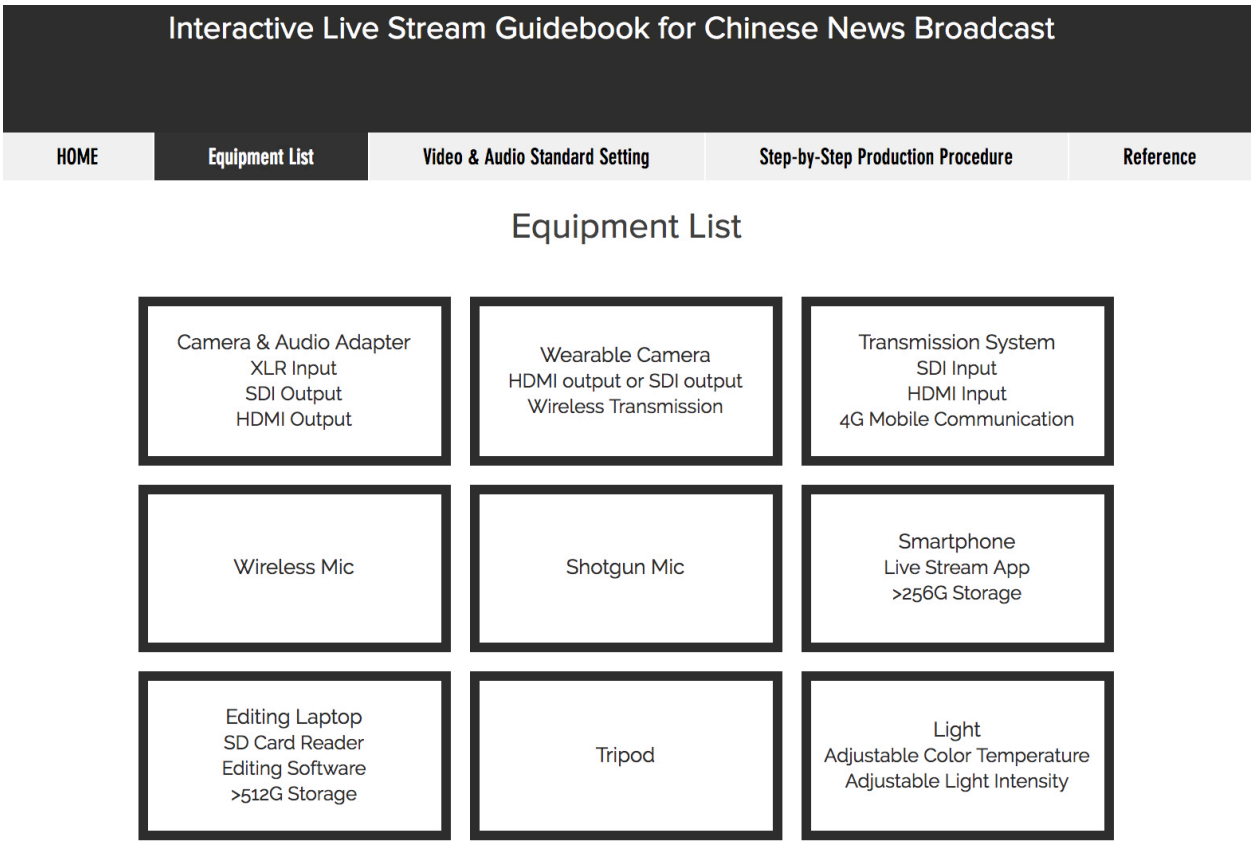



*Figure 14: Equipment List page. It provides all equipment that is used for an interactive live-stream.*

In this equipment list page, users can see equipment photos and their features. So even if the user is not knowledgeable about media production, the equipment list can still be helpful to prepare the equipment.

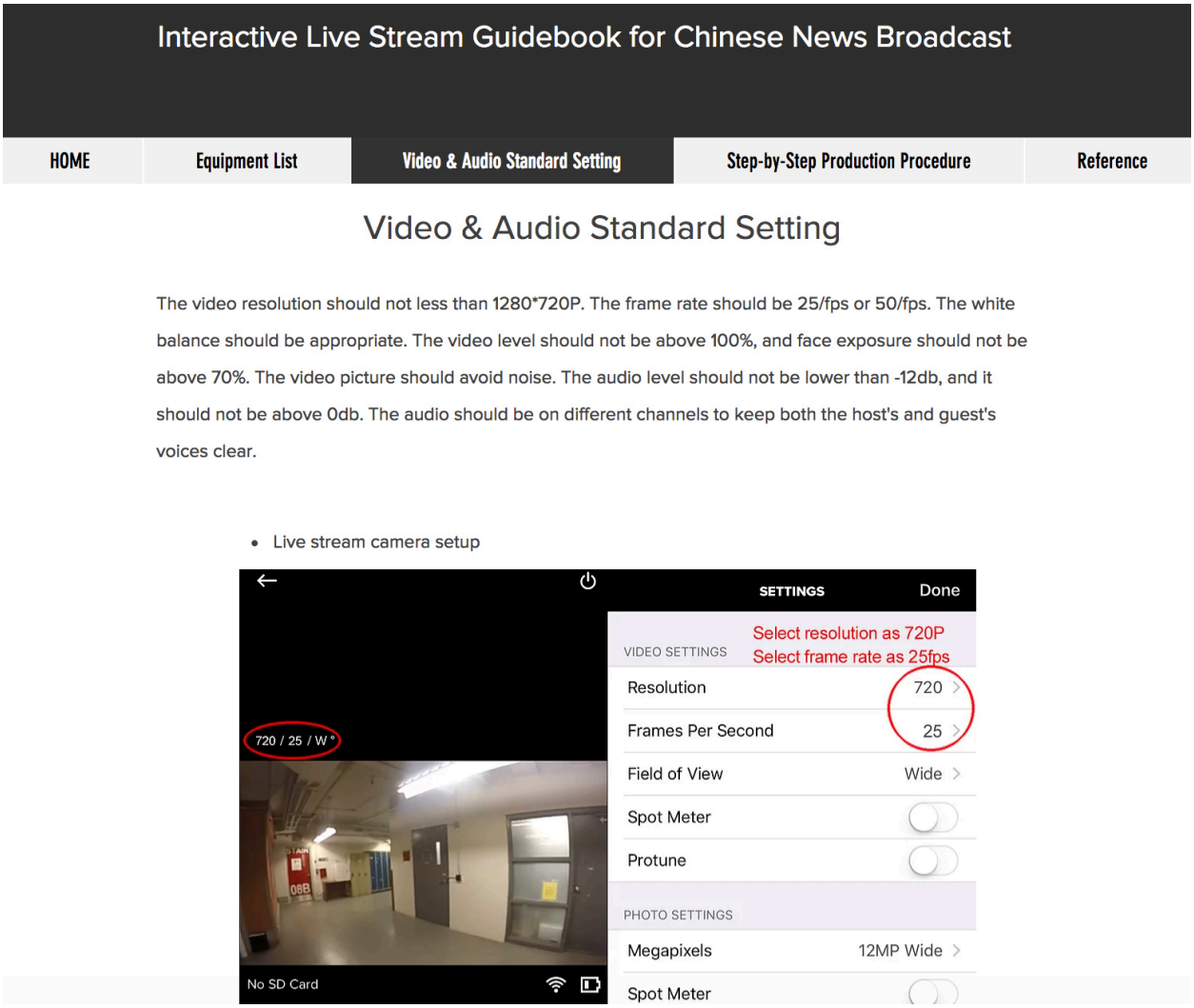



*Figure 15: Video & Audio standard setting page. It explains the Chinese video and audio standards, and teaches users how to set it up.*

It does not only explain Chinese standards for live-streams, it also explains how to set up a non-line editing system. Either the summary video and interactive live-stream should follow this page to set up their technical standards.

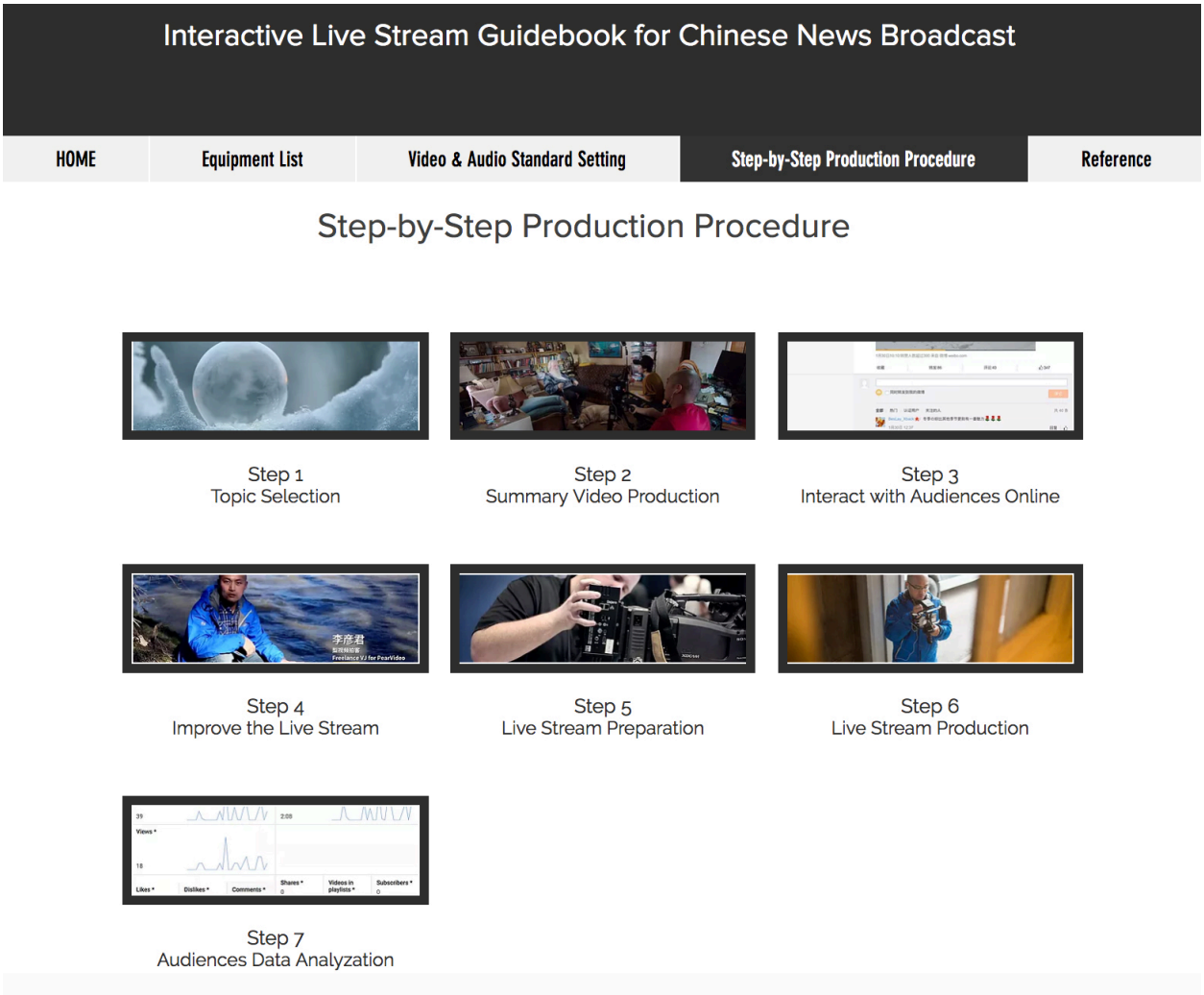



Figure 16: *This is the Step-by-Step Production Procedure page. Users can learn all stages of an interactive live-stream production step-by-step.*

All principles from the white paper are composed into a step-by-step production procedure page. Users do not necessarily need to understand all principles. Once they follow the procedure, they actually practice the principles for creating an interactive live-stream for a Chinese broadcaster.

Chinese news broadcasters focus more and more on international events and stories. However, dispatching a professional production team from China to other countries is expensive, and to hire a local professional production team in some highly developed countries is expensive as well. Chinese news broadcasters are potentially looking for someone who may not have a media background to run some specific topics. Therefore, a guidebook which can clearly and quickly teach someone without a media background to confidently do an interactive live-stream for Chinese news broadcasters is necessary.

First, since potential topics or live-stream production crews are around the world, the guidebook should be easily accessed everywhere. Therefore it is designed to be a web-based online guidebook. Users can access the guide anywhere the internet is available. Second, as users may not have any media background, the guidebook should be understandable and practical. The guidebook includes photos of equipment with explanations of their features, and the selected video & audio settings. Users will be aware of which equipment should be prepared before starting the whole procedure of interactive live-stream. Third, the step-by-step procedure explains how to run the interactive live-stream from topic selection to live-stream production. It also teaches users how to use and set up the equipment correctly.

Other media production guidebooks in the market do not have a specific focus on interactive live-streams for news broadcasters. From topic selection theory to audio & video standard, the guidebook is focusing on the Chinese market. For example, Chinese television broadcasting is based on the PAL system, which only accepts frame

rate speeds of 25 fps or 50 fps. The guidebook practices are built off repeated tests of interactive live-streams for Pear Video.

## 7. Testing and Test Results

After the Interactive Live-stream Guidebook for Chinese News Broadcast was posted online, I made a new interactive live-stream for Pear Video. “Live: Sharing Economy in Canada” to focus on a tool store, called The Tool Library, in Toronto. The tool store does not sell tools, but leases them out. In China, environmentally friendly ideas and sharing economic models are popular arguments on social media. Following the step-by-step production procedure, this appeared to be a suitable topic. We connected with the owner and filmed the summary video. The video was posted on the Chinese social media app Weibo, and then we interacted with audiences in the comments zone. We amended our live-stream arrangement to allow the audiences to input comments and questions about what they’d like to know more about.


*Figure 17: Audiences commented on the summary video.*

The live-stream was separated into three big segments; store overview, unique workshop services, and the business model. In between each segment, Jessica did a warm-up introduction and played the summary video. During the live-stream, the transmission signal was disconnected several times because the store workshop location is underground. We needed to switch from a cell phone 4G signal to a local wifi signal. However, this did not affect the audience's experience because the back platform staff used the summary video as backup.


*Figure 18: Live-streaming the beginning and summary video.*


*Figure 19: The introduction.*


*Figure 20: “Scene 1” Store owner introducing his store.*


*Figure 21: "Scene 1" Customers donate their unwanted items to the store, and the store leases it to someone  who needs it.*


*Figure 22: "Scene 2" Moving to the underground workshop where the signal was weak, and then switching to the summary video.*


Figure 23: “Scene 2” In the workshop area, the owner explained that customers can get a guide to show them around the workshop area and teach them how to use the tools. We designed this scene because some audiences who watched the summary video early asked about how customers operate tools they are not familiar with without a guidebook.


*Figure 24: "Scene 3" The store owner mentioned his sharing economy based business model. Through the app, some audience members asked us to find out how the owner maintains the sharing economic business model, as the sharing business in China dramatically grew up and then collapsed down.*

The whole interactive live-stream procedure went smoothly, including the summary video production, online audience interaction components, and the final live-stream. The Chinese online news broadcaster, Pear Video, was satisfied with our performance. There was no obvious technical issue during the whole procedure, and the video and audio quality met Chinese broadcasting standards. We reached 1.23 million viewers during the live-stream. It is lower than formal live-streams, but the on-air time was 8 am in China, making the timing not ideal for a live-stream.

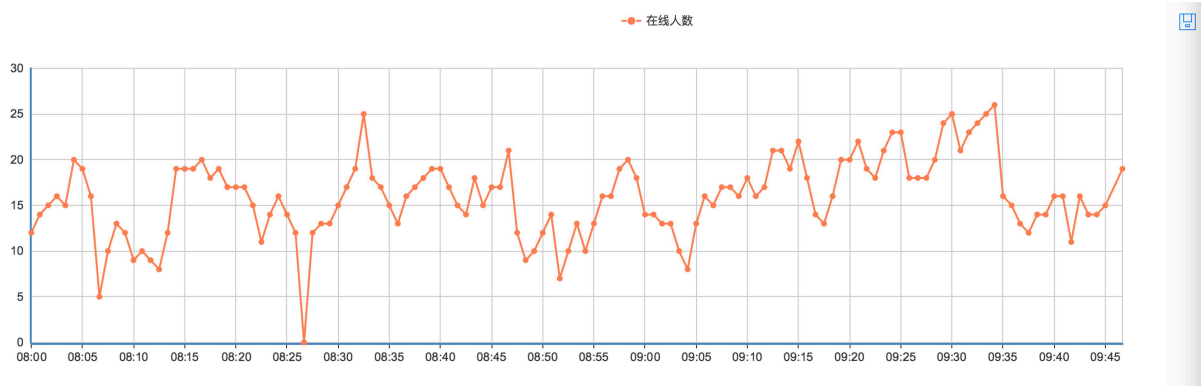



*Figure 25: Screenshot of Audience data from Pear Video (in thousands)*

We received audience data from Pear Video's back platform. The data shows that there were around twelve thousand people waiting to watch the live-stream at the very beginning. The three highest points appeared around 08:32, 09:30, and 09:35. We found that a large number of people appeared at the beginning because they were attracted to the summary video. The three peak time points appeared at segments two and three. These two segments had more interactive moments. Segment one had a low number because it was only an overview of the store, therefore audiences could not get involved. The guidebook makes producing an interactive live-stream program for a Chinese broadcaster both an appealing and accessible task.

## 8. Contribution to Professional Practice

The Interactive Live-stream Guidebook for Chinese News Broadcasts offers the Chinese online broadcasting industry two benefits: a growing audience and a popularization of the interactive live-stream. First, since I began exploring interactive live-streams and making the guidebook, my crew members and I did twelve interactive live-streams for Chinese news broadcasters. The interactive live-stream gives audiences an alternative choice to watch and participate in some ongoing events, rather than simply watching events on TV. The audiences can then subscribe to the platforms where we do our interactive live-streams. Second, the guidebook focuses on people with non-media backgrounds, so anyone who is willing, can access the Chinese online live-stream industry. In the meantime, Chinese broadcasters can run an interactive live-stream with lower costs because they no longer need to deploy their own crews to a foreign country for only one live-stream. They can instead send the guidebook to someone who is already here, making it more affordable and accessible to talent already abroad.

The guidebook will also help those studying interactive live-streams for Chinese news broadcasts, since it's focused on providing a practical model for the industry by gathering user experiences and providing a dynamic guidebook in the interactive live-stream field. First, the guidebook draws a complete picture of how to run an interactive live-stream production from the beginning to the end. Other researchers can follow this shortcut to enter the industry, rather than starting from scratch. Second, since the guidebook has been posted online, users can suggest feedback based on their user experiences — which can be incorporated back into the document. Finally, the

guidebook can also adapt audience feedback and industry changes in real-time. Researchers of interactive live-streams can follow the guidebook to see the newest trends in this field.

## 9. Recommendations & Next Steps

The guidebook follows all seven principles, and is a tool which can help users quickly and accurately to run an interactive live-stream for a Chinese news broadcaster. I use screenshots, photos, and videos to explain the production procedure clearly, rather than writing long paragraphs to describe the principles. I also link some summary videos and live-stream clips to serve as examples to the users. Users may not quickly understand the principles behind these videos, but they can follow the video examples to operate the whole interactive live-stream. In addition, except for with the videos and photos, I write a couple of short paragraphs explaining why the interactive live-stream production needs to follow the procedures listed in the guidebook.

The results that I received from formal productions show that following specific technical standards and doing adequate preparation works well. However, the interaction part has only been tested by Chinese students who are living in Canada. For the next step, I plan to present my live-stream guidebook to hosts and help them produce an interactive live-stream for Chinese news broadcasters. These people will be selected from various skill levels and nationalities. Then, I will check their live-stream results and gather their feedback. Using this data and feedback, I can improve my guidebook to be more applicable to all users. I will also encourage Pear Video to use this guidebook to serve as their official guide.

## 10. Final Thoughts

Traditional television news production methods have been challenged by online news media for years. Some limitations such as, on-air timing and viewing locations restrict the development of traditional television news communications. In the meantime, Chinese news organizations and video websites have focused their live-stream programs on various platforms, such as smartphone apps or websites, aimed at growing audiences, encouraging engagement, and improving competitive strength. The popularity of interactive live-streams are growing in some Chinese online news broadcasters. However, it is hard to affordably train and deploy mature reporters from China to do interactive live-streams around the world. Thus, a guidebook which can define and regulate the interactive live-stream production is a necessary offering. The purpose of this book is to not only teach users what an interactive live-stream is, but also to allow users to run the production firsthand. In order to achieve this, the guidebook is made as a website that can be easily accessed and updated. New trends in media plan to be incorporated. The Interactive Live-stream Guidebook for Chinese News Broadcast is a kind of exploration into the development and practice of a new dissemination method.  The guidebook is intended to become the industry standard for the Chinese online news broadcasting field.

# 11. Appendix

**Screen shots of Interactive Live-stream Guidebook for Chinese News Broadcast**
(https://highwayking1986.wixsite.com/mysite)

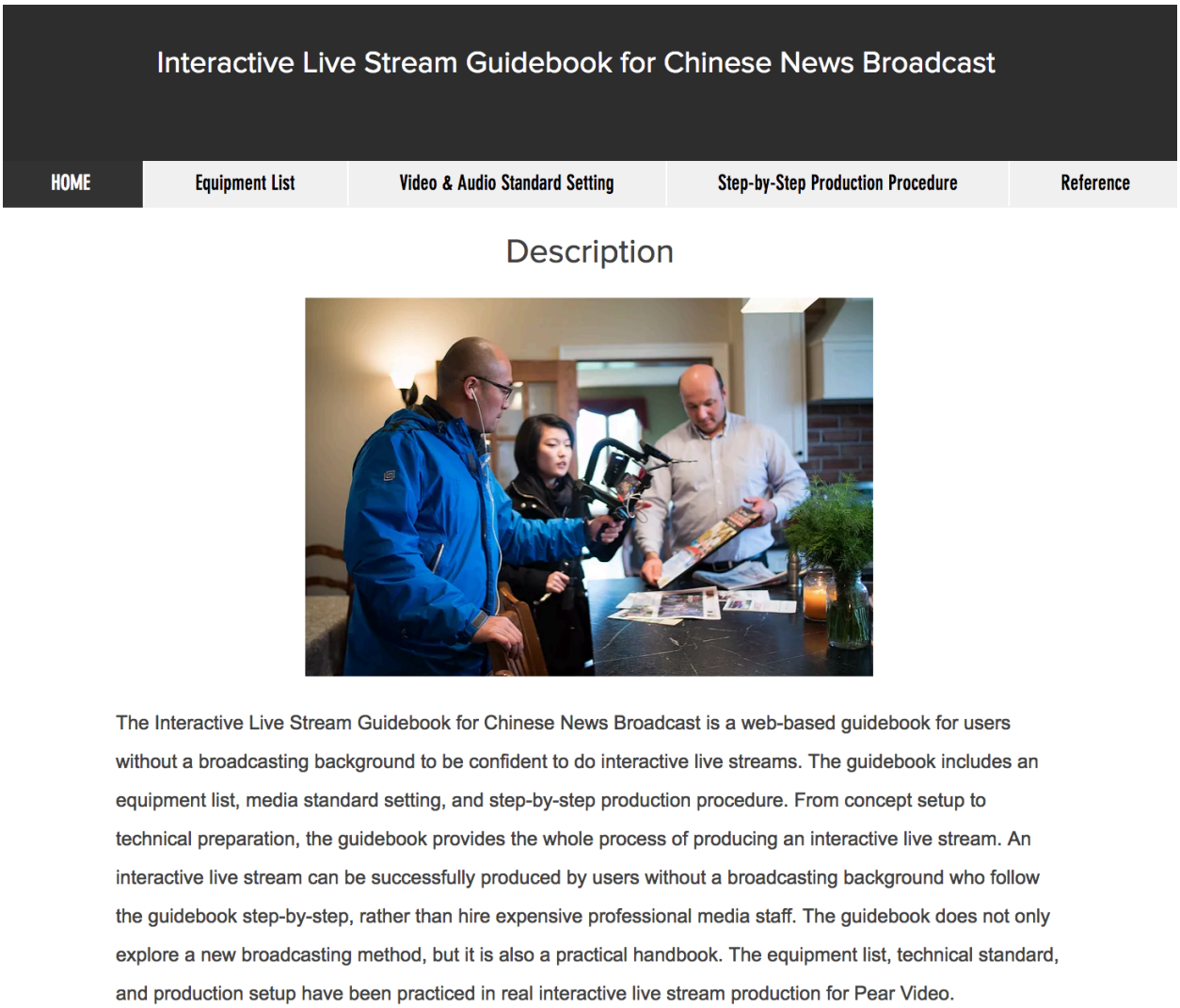



*Figure 26: The guidebook Home Page*

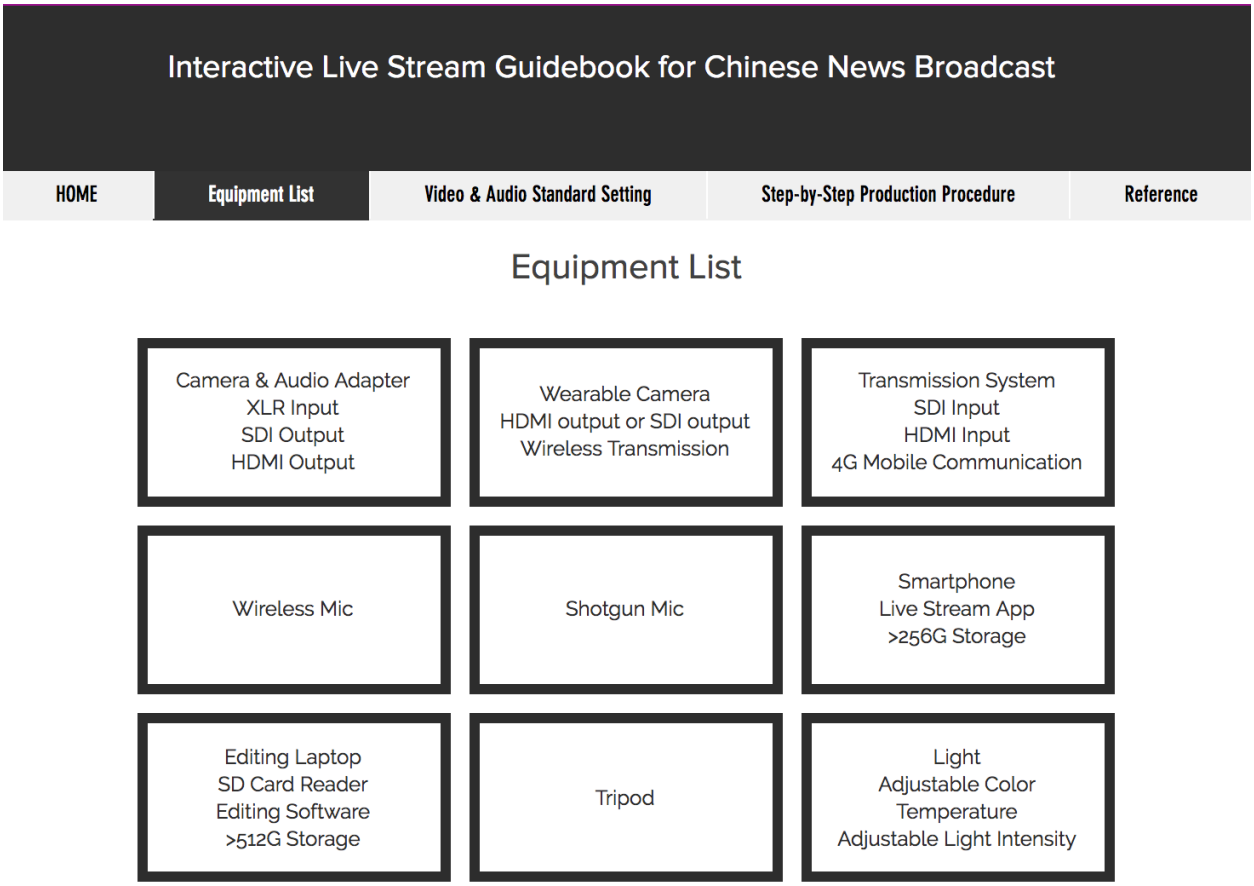



*Figure 27: The guidebook Equipment List Page*

Interactive Live Stream Guidebook for Chinese News Broadcast

HOME | Equipment List | Video & Audio Standard Setting | Step-by-Step Production Procedure | Reference

## Video & Audio Standard Setting

The video resolution should not less than 1280*720P. The frame rate should be 25/fps or 50/fps. The white balance should be appropriate. The video level should not be above 100%, and face exposure should not be above 70%. The video picture should avoid noise. The audio level should not be lower than -12db, and it should not be above 0db. The audio should be on different channels to keep both the host's and guest's voices clear.

- Live stream camera setup

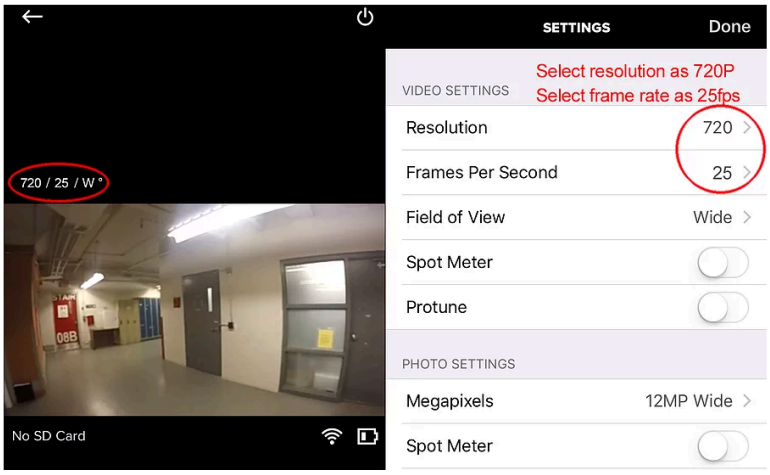



*Figure 28: The guidebook Video & Audio Standard Setting page*

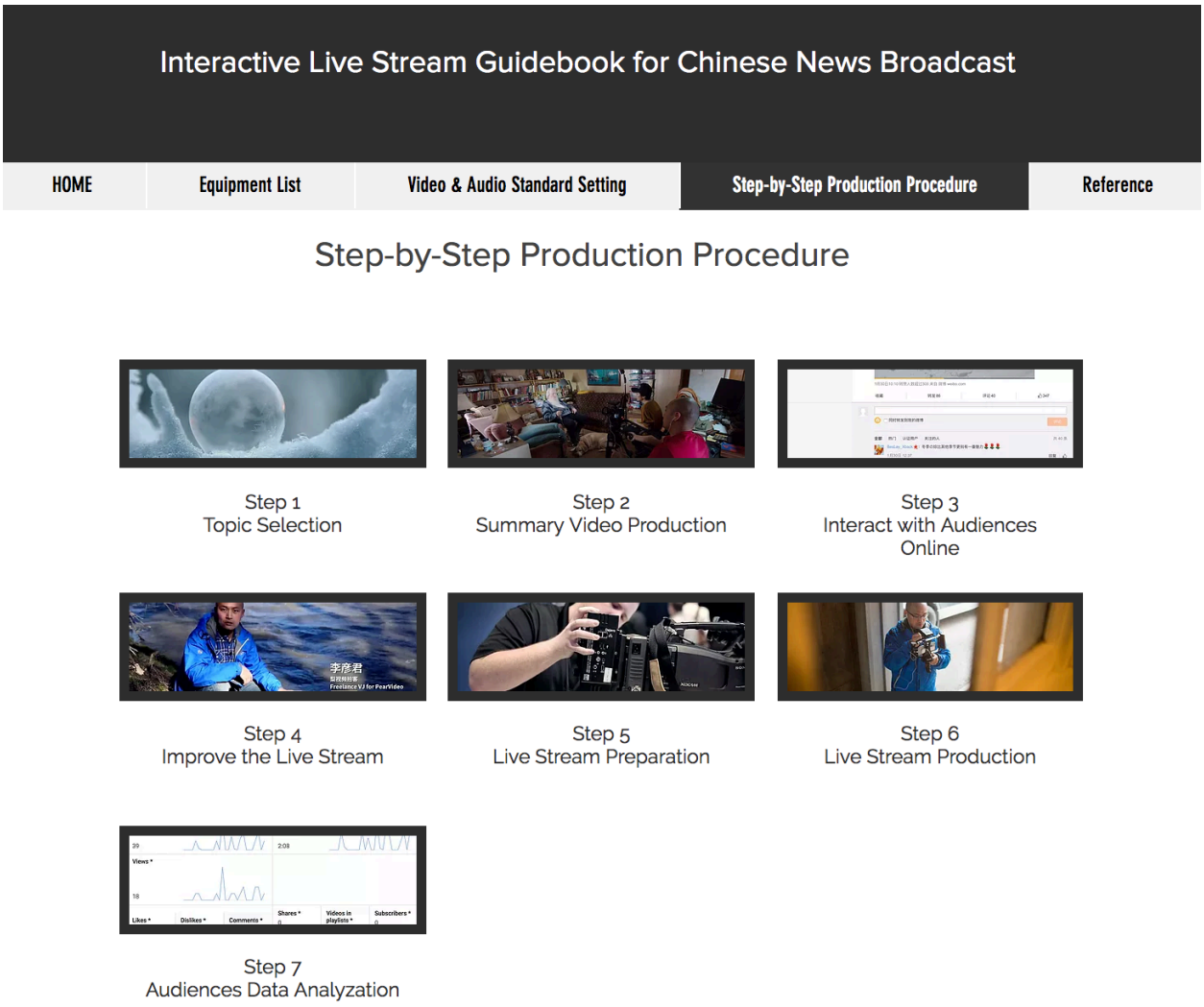



*Figure 29: The guidebook Step-by-Step Production Procedure page*

Interactive Live Stream Guidebook for Chinese News Broadcast

HOME | Equipment List | Video & Audio Standard Setting | Step-by-Step Production Procedure | Reference

## Step 1: Topic Selection

***Topics must be selected which are relevant and timely:***

Relevant: The topics chosen should ensure that they are novel, popular, or significant. Also, the topics need to be easily shown as motion pictures.

The topics should attract and encourage the audiences to engage with the live stream. Typically, people are willing to engage with the topics that they are looking for or they have been involved with recently. “If someone expresses something interesting and therefore shows a willingness to engage with a topic” (Mónica Guzmán, 2016). Thus, the topic should be popular to share and search online.

Timely: The local production team should choose a topic which corresponds with current significant events or meaningful historical events.

When a big event happens, the public struggles to search for relevant content. This gap in information represents an opportunity for interactive live streams to be easily explored while the audience is searching for results relevant to the event topic. On the other hand, the public's interest has an expiry date. As time goes by, the focus of the public will move to another event, so the production team should run the topic as soon as possible.

Unique perspective (person or area of interest)： Since the interactive live stream focus is on the Chinese market, the topic should explore the unique local cultures or phenomena in China.

*Figure 30: The guidebook Step 1: Topic Selection page*

Interactive Live Stream Guidebook for Chinese News Broadcast

HOME | Equipment List | Video & Audio Standard Setting | Step-by-Step Production Procedure | Reference

## Step 2: Summary Video Production

*A summary video that is 2-3 minutes in length must be created to highlight key concepts covered in the larger program*

- To watch an example, please click the video below


1. ***The summary video can be used as a teaser video in advance of the live stream to promote it.***

Summary video production includes filming and editing. The filming part can be a kind of pre-interview, which allows the production team to become familiar with the content and the guests. The style of filming can be kept basic since the important thing is to communicate with the guest to gain an understanding of the content. Editing is also an important process which can promote the live stream. The summary video will be posted before the start of the live stream, so the

*Figure 31: The guidebook Step 2: Summary Video Production page*

Interactive Live Stream Guidebook for Chinese News Broadcast

HOME | Equipment List | Video & Audio Standard Setting | Step-by-Step Production Procedure | Reference

## Step 3: Interact with Audiences Online

*Release the summary video on social media and analyze the feedback from the potential audience*


***1. Release the summary video to build the audience's engagement before the live stream***

Releasing the summary video online is the process to target outreach. In *How to Engage Your Audiences in 5 Key Steps* by Mónica Guzmán, she suggests narrowing engagement to audiences who know the topics very well, and then they can help journalists to build the story frame.

*Figure 32: The guidebook Step 3: Interact with Audiences Online page*

Interactive Live Stream Guidebook for Chinese News Broadcast

HOME | Equipment List | Video & Audio Standard Setting | Step-by-Step Production Procedure | Reference

## Step 4: Improve the Live Stream

***Improve the live stream by embedding new questions and demands from feedback***

The biggest difference between interactive live stream and the traditional TV stream is that the content in an interactive live stream is dynamic. The content of the live stream is driven by audiences and the production teams, rather than only by the production team. Thus, there are often new questions asked by the audience during the interaction. Naomi Alderman (2013) believes that if the story outcome can be different by different choices, and the audiences can experience the same emotions and concepts as the characters, the storytelling will be more attractive.

"Similarly, digital media naturally express choice. Playing an interactive fiction like Slouching Towards Bedlam or First Draft of the Revolution (the work of the genius Emily Short), multiple outcomes are built into the format. Again, the person experiencing the emotions and thoughts of the character – and making their decisions – is you" (Naomi Alderman, 2013).

The interactive live stream is also a dynamic storytelling, so the audience can, through their questions, partly drive the story.

In order to achieve the process, the production team should interact with the audience after the summary video is posted online. The more often and sooner they interact with the audience online, the earlier the production team can get more questions for the guest to improve their question list. Also, the audience will feel they matter during the whole production process, and then they will be more engaged in the story.

*Figure 33: The guidebook Step 4: Improve the Live Stream page*

Interactive Live Stream Guidebook for Chinese News Broadcast

HOME | Equipment List | Video & Audio Standard Setting | Step-by-Step Production Procedure | Reference

## Step 5: Live Stream Preparation

***Standardize the interactive live stream workflow and equipment***

In the media field, a smooth workflow or quality control is undeniably important. “Quality or delivery compliance issues that occur prior to broadcast can add costs if the program material must be rejected and sent back to the content provider for costly rework” (Andrew Scott, 2017). To achieve high quality results, the following specifications should be used. The video resolution should not less than 1280*720P. The frame rate should be 25/fps or 50/fps. The white balance should be appropriate. The video level should not be above 100%, and face exposure should not be above 70%. The video picture should avoid noise. The audio level should not be lower than -12db, and it should not be above 0db. The audio should be on different channels to keep both the host's and guest's voices clear.

In order to meet this standard, the production should appropriately set up the cellphone live app (LiveU). The setting should be set as 720p 25fps, and switch the audio level control to manual. The summary video should be filmed by a professional camera or DSLR to keep the quality high. The camera setting should be above 1920*1080P, and use wireless microphones and shotgun microphones to gather the audio. For the interactive live stream, the production team should test the signal and detect the live location during the summary video production. On the day of the live stream, the production should arrive at the scene 30 minutes before going live to check the signal and set up the scene.

*Figure 34: The guidebook Step 5: Live Stream Preparation page*

Interactive Live Stream Guidebook for Chinese News Broadcast

HOME | Equipment List | Video & Audio Standard Setting | Step-by-Step Production Procedure | Reference

## Step 6: Live Stream Production

***The program should be formatted for a minimum 2 hour time slot broken into 3 large segments with transitions between for re-introduction.***

1. [5 min] Introduction
2. [30 min] Activity 1 (location1)
3. [10 min] Transition to location 2 (warm up)
4. [30 min] Activity 2 (location 2)
5. [10 min] Transition to location 3 (warm up)
6. [30 min] Activity 3 (location 3)
7. [5 min] Ending

The segment length follows the audience's behaviour. More and more people use mobile devices to consume news.

"Within the digital realm, mobile news consumption is rising rapidly. The portion of Americans who ever get news on a mobile device has gone up from 54% in 2013 to 72% today" (Amy Mitchell, Jeffrey Gottfried, Michael Barthel, Elisa Shearer, 2016)

The factor that most influences the live stream segment length is audiences' watching environment. For example, people use mobile devices to watch live or video during their commute time, so the segment should follow the commute time.

*Figure 35: The guidebook Step 6: Live Stream Production page*

Interactive Live Stream Guidebook for Chinese News Broadcast

HOME | Equipment List | Video & Audio Standard Setting | Step-by-Step Production Procedure | Reference

## Step 7: Audience Data Analysis

***Analyze the feedback and audience data to improve the live stream for next time***

Recently, news organizations have increased their use of analytics all over the world. The research shows that it is very useful for growing audiences, increasing engagement, and improving production workflows. In Editorial Analytics: How News Media are Developing and Using Audience Data and Metrics, Federica Cherubini and Rasmus Kleis Nielsen argue that reporters have to know more about the audience to achieve their purpose.

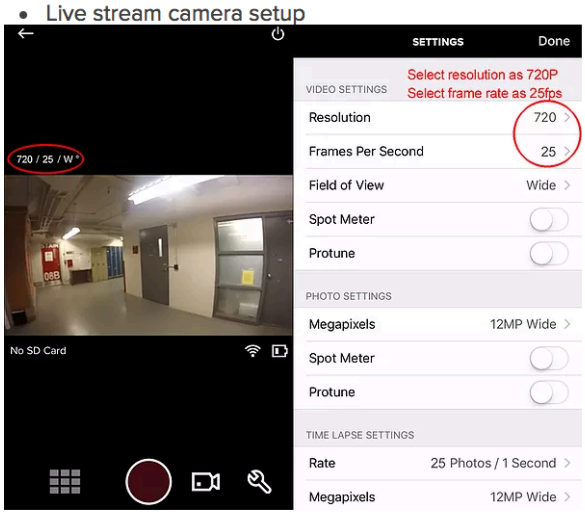
"Journalists today not only need analytics to navigate an ever-more competitive battle for attention. Many journalists also want analytics, as an earlier period of skepticism seems to have given way to interest in how data and metrics can help newsrooms reach their target audiences and do better journalism" (Federica Cherubini & Rasmus Kleis Nielsen, 2016).

To achieve the goal, there are some tools have been used for several years. For example, The Guardian's Ophan which is an in-house real-time analytics tool is used for analyzing minute-by-minute data on certain articles. It is embedded in browsers, and can be accessed on mobile platforms. Pear Video also has their own audience analysis tool. The production team should get the data which can show their live stream audience engagement status to improve their performance.

Therefore, in order to improve the interactive live stream analytics is needed.

*Figure 36: The guidebook Step 7: Audience Data Analysis page*

- Live stream camera setup




- Editing project setup

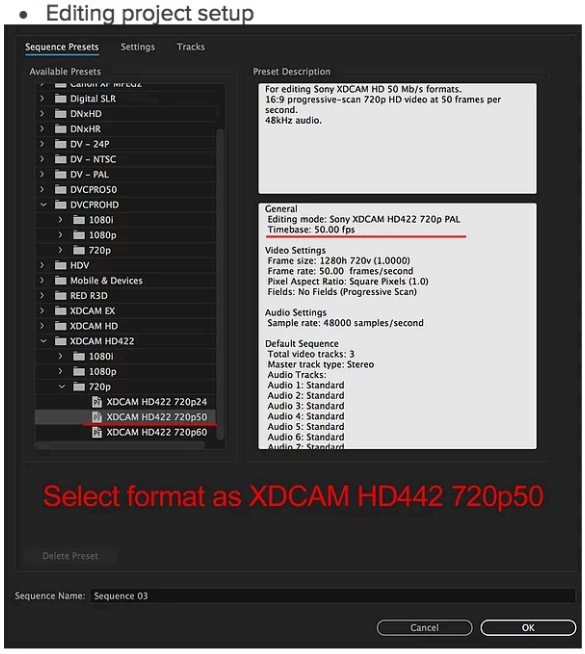



*Figure 37: The setup guide*

- To watch an example, please click the video below


*Figure 38: The example video*

- Click the video to learn the setup process

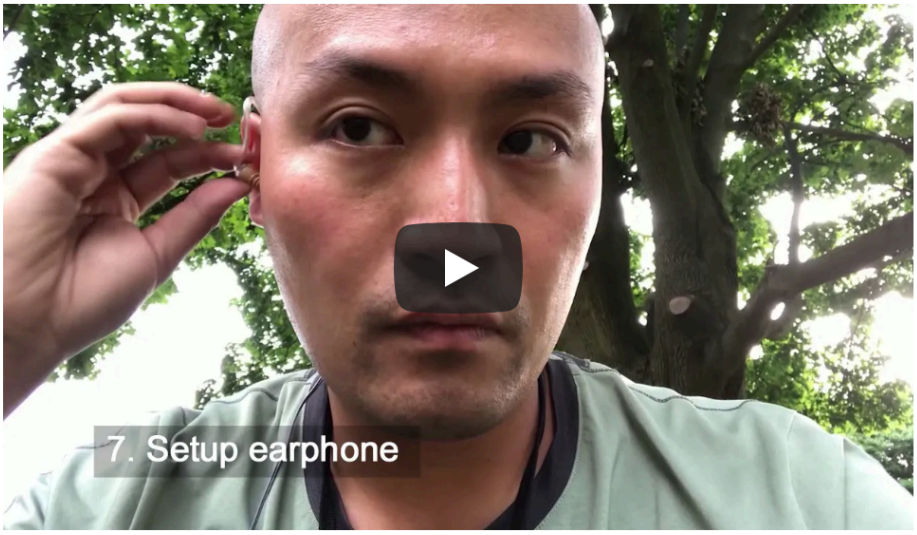



*Figure 39: The guide video*

## 12. Reference


Alderman, N. (2013, July 12). How interactive technology is transforming storytelling. Retrieved from https://www.theguardian.com/culture-professionals-network/culture-professionals-blog/2013/jul/12/interactive-technology-transform-storytelling-fiction

Carey, J. W. (1989). *Cultural Approach to Communication.* Boston, Massachusetts: Unwin Hyman.

Cherubini, F., & Nielsen, R. K. (2016). Editorial analytics: How news media are developing and using audience data and metrics. *Reuters Institute for the Study of Journalism.*

Delmar, A. (2016, May 9). What is the optimal length for a podcast?. Retrieved from https://www.weeditpodcasts.com/what-is-the-optimal-length-for-a-podcast/

Guzmán, M. (2016, May 10). How to engage your audiences in 5 key steps. *American Press Institute.* Retrieved from *https://www.americanpressinstitute.org/publications/reports/strategy-studies/5-steps-engagement/*

Kameda, Tatsuya, et al. (Jan. 2015) The concept of herd behaviour: Its psychological and neural underpinnings." *Contract Governance.* pp. 61–71. doi:10.1093/acprof:oso/9780198723202.003.0002.

Lagarde, E. (2018, March 16). The Challenges of 24/7 Live-streaming. Retrieved from https://www.dacast.com/blog/the-challenges-of-247-live-streaming/

Mitchell, Amy, et al. (7 July 2016). The modern news consumer. *Pew Research Center's Journalism Project.* Retrieved from www.journalism.org/2016/07/07/the-modern-news-consumer/.

Ma, X., & Guo, M. (2018, May 06). Discovering the business model of pear video. Retrieved from http://tech.qq.com/a/20180506/003529.htm

Raskin, A. (2016, September 15). The greatest sales deck I've ever seen. *The Mission – Medium.* Retrieved from https://medium.com/the-mission/the-greatest-sales-deck-ive-ever-seen-4f4ef3391ba0

Scott, A. (2017, March 8). Understanding quality control for file-based video workflows. *The Broadcast Bridge - Connecting IT to Broadcast.* Retrieved from https://www.thebroadcastbridge.com/content/entry/8002/understanding-quality-control-for-file-based-video-workflows

Ward, H. H. (1985). *Professional Newswriting*. San Diego: Harcourt Brace Jovanovich.

Welbers, K., van Atteveldt, W., Kleinnijenhuis, J., Ruigrok, N., Schaper, J. (July 28, 2015 ). News selection criteria in the digital age: Professional norms versus online audience metrics. *Sage Journals.* Retrieved from http://journals.sagepub.com/doi/abs/10.1177/1464884915595474

Zhang, X. (2016). Chinese state media going global. *East Asian Policy*, 42-50.