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Which Platform Do Our Users Prefer -- Website or Mobile App?

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Biography: Rebekah Wong has been working at the Hong Kong Baptist University Library since 2001, first started as a reference and instructional librarian. In 2007, she became the supervisor of the Multimedia Services Section to oversee multimedia collections and services. She also served as the convenor of the Library's Web Development Team to oversee the Library's public web site for 8 years. Her current interests are video streaming service, mobile technologies, and library-faculty collaborations.

Which Platform Do Our Users Prefer -- Website or Mobile App?

Introduction

The mobile revolution is upon us. People are moving rapidly from ordinary cell phones to smart phones, in both developed and developing countries. Data show that Hong Kong is one of the leading regions when it comes to smart phone usage. The people of Hong Kong are inseparable from their smart phones, and they like to use mobile technologies to access different kinds of information. The literature also demonstrates that mobile access to networked resources permeates all aspects of daily life and has changed people's expectation of access. The impact of the trend of mobile access is felt in every part of the business world, and the higher education sector does not remain aloof. Higher education institutions in different regions have become more aware of user demand for mobile access and are starting to respond to it. More universities and their libraries share success stories about their attempts at mobile service, but can this success translate to our students? Can the success translate to mobile videos? We believe a proof-of-concept in the local setting is necessary. Only users can demonstrate which platforms (mobiles or computers) are going to be used. It is also important to learn how usable mobile videos really are in the local environment.

This paper describes a case study carried out by the Hong Kong Baptist University (HKBU) Library, with the creation of an app, using Apple's mobile operating system (iOS), and its web counterpart. Both the app and the website showcased and displayed the same streaming video contents, which were the selected video entries of the 8th Global Chinese Universities Student Film and Television Festival. This endeavor sought to compare the use of these two platforms and study the popularity of watching videos via smart phones within both the University and the local region. Interesting use patterns and use comparisons will be examined. Some useful tips for building an educational iOS app will also be discussed.

Literature Review

The people of Hong Kong have a great affection for mobile phones. The Hong Kong Special Administrative Region (HKSAR) Government announced that the penetration rate of mobile service subscribers in Hong Kong was 197.5 percent in May 2011 (HKSAR Government, August 2011). In other words, every person has almost 2 mobile phones on average. This data also makes Hong Kong one of the regions in the world with the highest penetration level of mobile service. The mobile market in developed countries is estimated to reach an average of 116 subscriptions per 100 inhabitants at the end of 2010 (The International Telecommunication Union, 2010). Last year, a global market research firm, TNS (2010), interviewed over 24,000 consumers in 35 markets and concluded that Hong Kong was also at the forefront of global smart phone usage. "Almost half (48%) of respondents in Hong Kong own a smart phone, more than double the global rate of 23%".

What do the people of Hong Kong do with their mobiles? TNS (2010) discovered that mobile internet is the primary use. Another report issued by HKSAR Government (May 2011) echoed this point. The report shows that mobile data use in Hong Kong has increased 14 fold in 2 years, with an average of 343.4 megabytes per customer in March 2011. On top of mobile internet, mobile apps are also gaining growing popularity in both local and international regions. In the United States, “as of June 2010, 59 percent of smart phone owners... report having downloaded a mobile app in the last 30 days” (Nielsen, 2010). Some studies even claim that mobile phones are becoming the first choice for accessing networked resources for many people (ITU, 2010; The New Media Consortium, 2011; mobiThinking, 2011). “The reason experts believe... that mobile access to the Web will overtake PC access at some point is that mobile phone penetration outnumbers fixed internet users 5:2” (mobiThinking, 2011). No one should underestimate the potential of mobile internet and mobile apps.

The impact of mobile access technologies is not only felt by the business world, but also understood by the higher education sector. Every year, the Horizon Report seeks to identify and describe emerging technologies that are likely to have a large impact on teaching, learning, or creative expression in higher education settings over the coming five years. “Mobiles” has been identified as one of the top “Key Trends” since 2006, for a total of at least 6 years. It was also ranked second, first, and first most important “Technologies to Watch” in 2011, 2010, and 2009 respectively. “The story of mobiles is no longer solely about the devices we carry. Mobiles... are doorways to the content and social tapestries of the network, and they open with just a touch” (The New Media Consortium, 2011).

More academic libraries have become aware of the demand for mobile access and are starting to respond to this demand. A review of recent literature revealed good general coverage on the latest library mobile services. Aldrich (2010) studied the websites of the 111 English-speaking members of the Association of Research Libraries. He found that 24 member libraries had mobile websites, which provided a wide range of functions and services. From the most commonly found “events calendar” (72 percent) to the least commonly found “iTunes University” (4 percent). A whole special issue of the *Reference Librarian* (2010, Vol. 52, Issue no. 1-2) was dedicated to the topic of mobile application to library services and collections. It contains papers from two Handheld Librarian Conferences. This issue touches on various mobile features, including text messages, mobile reference service, mobile collections, mobile use in medical sciences, tagging, e-readers, etc. One particular example of recent attempts was at Ryerson University. Wilson and McCarthy (2010) shared their experiences of creating a mobile library website and then playing a leading role in developing a university mobile app. Kazakoff-Lane (2010) introduced ANimated Tutorial Sharing Project (ANTS), which built a large number of multimedia learning objects for the purpose of providing information literacy. ANTS’ materials are open to the public, and they can be accessed via a computer or smart phone.

There is also literature focusing on mobile media, including Nicholson’s book chapter published in 2010. She explained how smart phone screens can be used as mobile television, movie screen, and mobile monitor. She also discussed how the trend of mobile media evolved in

North America and how this trend affected the culture (Nicholson, 2010). The World Association of Newspapers and News Publishers (2010) echoed the increasing popularity of mobile videos through stating that “between second quarter 2008 and 2009, mobile video viewing has grown 70 percent among subscribers, from nine million users to 15.3 million users in the United States” (p.81).

However, the literature coverage on the topic of mobile access to audio and video collections in academic libraries is uneven. Only a highly limited number of articles could be found. Doi, Mason, and Wiercinski (2011) explained that “while many libraries are effectively presenting digital [audio and video] collections online mainly for desktop users... libraries are not usually tailoring this content to mobile use.” They further stressed that “making an effort to present content appropriately for mobile devices is possible and quite beneficial to a growing percentage of a library’s user base.” Then, they went into introducing and commenting the few mobile video and audio collections that were created by libraries and cultural institutions. The “NFB Films” iPhone app was one of the largely successful examples that they mentioned. One of the highlights was the ability to download a video, which was only usable for a 48-hour period. Within the first nine months, this app had been downloaded more than 235,000 times, with 821,000 film views. Murray (2010) listed some smaller mobile collections, such as listening assignments preloaded in iPods and mobile audio/video library tours.

The literature affirms that mobile access to networked information, or more specifically, audios and videos, is gaining immense popularity. Although an increasing number of academic libraries are providing mobile service, not many of them provide mobile access to media collections. User response to this particular kind of mobile service also varies. The absence of precedents provides rationale for developing a proof of concept in the local setting.

Methodology

New technologies create great opportunities as well as challenges when academic libraries provide multimedia collections and services. Since the successful establishment of a video streaming server in 2009, we have shifted the main focus of our service from providing DVDs to providing online videos to meet the changing user needs and user behaviors. In 2010, we started to become aware of the need to respond to the demand for mobile videos. Before committing ourselves to the provision of an additional platform, we believed a proof of concept would bring insight for the next move.

Our plan was to build a small-scale mobile app to showcase and display videos, and study its use and the popularity of watching videos via smart phones. To yield a more accurate result, we believed a web counterpart was needed as well, so that users had the choice to choose their favorite platform(s). The basic criteria for the success of this analysis include the following:

1. Both the app and web versions share the same videos (that also implies that the creators of the videos allow us to do so)
2. Both versions are released on the same day, having the same promotional strategies

3. The videos are new materials (old materials that were watched by some people may affect the accuracy of this study)
4. The number of videos is around 30 to maintain simplicity of the project
5. The videos relate to some popular topics that can easily catch the attention of the University community
6. The videos are eligible for open access

Every year, the Academy of Film (AF) of HKBU organizes an international event named “The Global Chinese Universities Student Film and Television Festival,” which contains a video production contest for university students. Its aspiration is to facilitate interactions, face-to-face discussions, and exchanges between university students from the Greater China Region and international students. This contest is an important and well-received event for higher institutions in the Greater China Region. As the video entries of this contest fit the criteria set earlier, the authors attempted to make use of this opportunity to carry out our study.

In September 2010, the Library approached AF and discussed how options for supporting the upcoming Festival, focusing on making the final round of video entries available to the general public via a web platform and a mobile platform. AF was very pleased with the suggestions and corollary support. After screening, 31 videos (out of over 90 video entries and over 50 participating institutions worldwide) were selected and sent to the Library for processing in March 2011. These videos came from different areas of the region, including Mainland China, Taiwan, Singapore, Macau, and Hong Kong. Finally, the app and the website were released on April 6, just before April 11 when the opening ceremony of the Festival was held. The latter part of this article discussed more about the project schedule and how the ways that Apple works affected our schedule.

MOBILE OPTIONS

Broadly speaking, there are two approaches to going mobile: (1) app -- either a native app or a hybrid app; and (2) mobile website. Apps are software applications developed and coded with a specific operating system. Users have to download them in prior of use. Through an app, users are still able to access networked information that is linked by the app. A mobile website is a mobile version of an internet website. Users can use the pre-installed browser (e.g., Safari for iPhones) to access it. No downloading is needed before using. Wisniewski’s (2011) article clearly presents the good and the bad of these different approaches in a precise way. The preliminary reasons of the HKBU Library for choosing the app approach follow:

1. The “coolness” effect. In recent years, the Multimedia Services Section of the Library has attempted to get closer to our users, who are mainly between 18 and 22 years of age, through adopting the latest technologies and promoting an energetic image. For example, the provision of a critical mass of high-quality online-streaming videos, a cool design for the video website, and a user-interactive videoblog. Maintaining this “coolness effect” was deemed important, as was encouraging our users to continue to use our services.
2. Each smart phone model (Android, iPhone, BlackBerry, etc.) provides a strong, built-in

marketing and discoverability support for its apps. Apps are promoted through websites, PC app stores, and app stores installed on the smart phones, making use of the information provided by the app developers. This marketing support provides a means for reaching out to a broader group of potential users.

3. Smartphone manufacturers also provide detailed use and/or download statistics for app developers. Although some internal programs to track the use statistics of our videos were developed, statistics provided by the manufacturers were still very useful.
4. The authors discovered that the members of our project team liked to use apps more than mobile websites; it was expected that our users to feel the same. Wisniewski (2011) agreed that apps are more responsive than mobile websites, since “apps provide one-click access, unlike a mobile website that can take several clicks, and text entry, to access”.

The main drawback of the app approach is that apps are model-specific. Since our intention was to build a testing app to study its use, we chose not to go for more than one smart phone platforms. We chose Apple’s iOS based on some objective data and some subjective observations. In March 2010, Apple’s iPhone and iPod Touch accounted for 37 percent of global device manufacturer share (admob, 2010) but 72 percent of share in Hong Kong (admob, 2010). It seems like Apple dominates the mobile device market in Hong Kong. More importantly, the Office of Information Technology of HKBU has collaborated with some local mobile service providers to launch iPhone sales for the university community since 2009. Many HKBU staff and students got their iPhones through these special subscription plans.

Our app name is “*HKBUtube (on the go)*”. Its description can be found from iTunes Preview at: <http://itunes.apple.com/us/app/hkbutube-on-the-go/id427735080?mt=8&ls=1>. Its web counterpart is located at: <http://www.hkbu.edu.hk/lib/hkbutube.html>.

Findings and Discussion

Since the app and the website were directly related to one particular event, “The Global Chinese Universities Student Film and Television Festival”, the number of users and the actual usage of these videos were limited. Most likely, our users came from one of these four groups: (a) HKBU staff and students (HKBU was the main organizer of this event, so the Festival and our venture were extensively promoted within the campus); (b) contest participants and their friends; (c) staff and students of the participating institutions in the Greater China Region; and (d) app users who incidentally discovered our app and found it interesting.

Most videos have a short “shelf-life”, except the classic works, documentaries with historical value, and immensely popular movies. It was anticipated that not too many people would watch these videos a few weeks after the closing of the Festival on April 13. Consideration of all these factors informed our belief that an analysis of 2 months of usage data was reasonably comprehensive.

SIMILARITIES IN USE

After releasing both the app and its corresponding website for two months, from April 6 through June 5, 2011, the total use of the app was 2,903 video views and the website was 3,117 video views. Their proportion was 48:52. Figure 1 shows the daily cumulative use of each version over these two months. Overall, the use of the app and the use of the website were more or less the same.

(Insert Figure 1)

To be frank, the eventual app usage exceeded our expectations. Prior to this proof of concept, it was anticipated that the use of the app would account for no more than 20 percent of overall usage. This anticipation stems from a literature review (although not much literature directly presents a usage comparison between an app and its corresponding website). For example, the mobile services provided by Ryerson University and its library revealed that “mobiles still represent a very small percentage of overall usage of Library services” (Wilson and McCarthy, 2010). To the authors’ surprise, such was not the case here. It seemed that both mobile and PC platforms had their “fans” for this particular case of video screening.

Based on this result, commitment was made to the provision of mobile videos in the long run. The authors plan to renew this app, *HKBUtube (on the go)*, through reproducing part of the Library’s video streaming website and incorporating them into the mobile version. Because of the success of this testing app, it was also decided to continue to concentrate on the iOS platform in the near future and adopt a wait-and-see approach to other mobile platforms. The change of the global and local mobile device markets and the possibility of having different platforms compatible will be monitored, positioning the authors to respond to the changing trends promptly.

THE POWER OF APPLE’S MARKETING SUPPORT

In general, the use of the website was slightly higher than that of the app, except for the period between the 4th day (April 9) and the 15th day (April 20) of release. In particular, on April 11, the app accounted for 61 percent of total video views. On top of local promotional strategies within campus, it was believed Apple’s marketing and discoverability support was the major contributor. All new apps can be listed in iTunes (for PC) and App Store (for mobile devices) under the category “Release Date.” New apps can also easily get posted under the category “Top Free” (or “Top Paid” for paid apps) which is based on some undisclosed formulas. iTunes and App Store are favorite places to look for new apps, as Nielsen (2010) indicated that “Searching the Application Store on My Phone” was the most commonly used method for smart phone users to discover new apps (43 percent). “Device Homepage” ranked third (17 percent). These tools helped us attract a certain number of international users.

This marketing effect has been lowered starting from the 16th day, after the app was removed from the “Release Date” and “Top Free” lists of App Store. (Apps can stay “permanently” on iTunes). Since then, the app was less discoverable for people who were neither HKBU members nor participants of the Festival. In our experience, a new app can be removed from App Store quickly.

Because of the device's small screen size, App Store on iPhone and iPod Touch usually displays only 200 apps for each category. Since there are many new apps released every day, app developers may find their newly released apps being removed from the "Release Date" list in just a few days to no more than two weeks. For a medium-sized university like HKBU, the student size is comparatively small, it was also difficult for us to accumulate enough app downloads to keep the app staying in the "Top Free" list for a long time. The app was removed from this list slightly after two weeks.

In view of this, future plans include developing effective strategies for maintaining the appearance of the app in App Store. If we could keep the app in the App Store for a longer period of time, the app would be able to attract more outsiders. Keep creating new apps with slightly different names is an emerging strategy used by commercial firms. This method can keep the apps appearing in the "Release Date" and the "Top Free" lists for a very long time, but it can make app download statistics and video use statistics very complicated. The exploration of different strategies, which are needed to be tested for effectiveness, continues.

INTERNATIONAL USERS

Disregarding the unidentified locations, the app successfully attracted viewers from 23 countries/regions. The top three regions were: Hong Kong (1,249 video views; 43 percent), the United States (758 video views; 26 percent), and Canada (305 video views; 11 percent). See Figure 2. This pattern of use was somehow within as well as out of the authors' expectations. It was reasonable that Hong Kong accounted for most uses, since the Festival was organized in Hong Kong. We also believed that a large proportion of Hong Kong use came from the HKBU community itself. However, the authors expected China to be the second top user, but it turned out to be the 6th only. Our assumption was based on the fact that most video entries were contributed from Mainland China. The most surprising pattern was the large group of international users. All 31 videos were Chinese culture-based, with Putonghua or Cantonese dialogues. Although these videos provided English subtitles, we could not imagine how these videos could attract such a large group of international users who came from non-Chinese speaking countries, especially those with fewer Chinese immigrants like Italy, Malaysia, France, Vietnam, etc.

(Insert Figure 2)

This part of result led us to redefine the target users of our future app. The authors plan to attend to the needs of international users. Currently, three kinds of videos are provided online: local TV documentaries, scholarly talks organized at HKBU, and multimedia productions of HKBU students. To attract the huge group of potential international users, the first phase will focus on student productions. In particular, the authors will first process and provide access to animation movies and music performances, as most of these videos do not have dialogue which can minimize the language barriers.

EFFECT OF BROADBAND SPEEDS

To fulfill the requirement of Apple and to accommodate different broadband speeds, three versions for each video have been prepared. Please see Table 1. If the detected broadband speed was fast enough, then Video350 was streamed for the device. For medium broadband speed, Video200 was streamed. Audio was streamed for lowest-speed connections. An iPhone or iPod Touch user could not choose the type of video/audio files he/she used, the device made the choice based on the broadband connection it detected. The whole process was transparent to the end users. For some cases, an iPhone user may watch Movie A with 350 kilobits per second (kbit/s) and Movie B with 200 kbit/s, because of the instability of broadband connection.

Table 1: Three Versions of App Videos that We Prepared

	Bit-rate	Graphic Quality
Video350	350 kbit/s	Best
Video200	200 kbit/s	Medium
Audio	64 kbit/s	No graphics, just audio

Interestingly, all versions accounted for a certain percentage of use: Video350 with 39 percent, Video200 with 22 percent and Audio with 39 percent (see Figure 3). These figures demonstrated two important points. The negative side was that the broadband speed provided by some countries or areas was still slow or unstable, so only 39 percent of our users could access the videos with best quality. The positive side was that although some users could only enjoy videos with poorer quality or even audios, the unsatisfactory connections could not diminish their interests in using mobile media.

(Insert Figure 3)

Tips on Developing iOS Apps

Based on the authors' proof of concept and the review of literature, it is believed that it is necessary for an academic library to provide mobile services and collections, since this provision can meet one of the major and current user demands. Selected implementation challenges will be discussed in this section.

1. **Take note of the requirements of the "iOS Developer University Program".** Prior to the creation and submission of an app, an app developer has to register for a developer's account named "iOS Developer Program." As a university library, the authors first applied for the "iOS

Developer University Program,” since it is free of charge. Unfortunately, we were informed by Apple that we were not eligible for this kind of account, which can be used to create course-related apps only. Since our app was not course-related, we were asked to re-apply for the “iOS Developer Program - Company” at an annual fee of USD 99.

2. **It takes weeks to get an app reviewed and released.** It is good that Apple reviews every submitted app very carefully to ensure the quality of the apps. However, as thousands of apps are submitted to Apple every day, the whole review process can take two to six weeks. While it was the authors’ first attempt to build an Apple app, this time lag was neither anticipated nor expected. The authors had a difficult time waiting. App developers are encouraged to consider the review period in their planning.
3. **Be cautious about App download statistics provided by Apple.** This is the author’s personal experience. During a business trip in Thailand, the author invited a Hong Kong colleague to download *HKBUtube (on the go)* to her iPhone and select one video to watch. Apple’s statistics showed that this app was downloaded in Hong Kong, though it was downloaded in Thailand. It is because the colleague’s iPhone was bought and registered in Hong Kong. Based on our own statistics, the video that the colleague watched in Thailand was watched in Thailand. This can be tricky, and the authors encourage app developers to think carefully what kind of statistics they want beforehand.

Conclusion

From the result of this proof of concept, it is clearly seen that both mobile and PC platforms have their users. Therefore, the authors believe that it is worth committing ourselves to the provision of mobile videos, on top of the existing web services. The whole mobile project will take place in several phases over one to two years. The first step will include processing and providing access to animation movies and music performances to attract the immense group of potential international users. By doing this, we could also market our university to overseas audiences.

We will concentrate on the iOS platform at the moment. It is to be regretted that Steve Jobs (the co-founder and chairman of Apple Inc.) just passed away, and the authors are not sure whether his death will bring any major impacts on Apple Inc. and the mobile device market. We will adopt a wait-and-see approach to all platforms. The most difficult part of the app creation is to develop effective strategies for maintaining the appearance of the app in App Store. Exploration of several strategies which will be tested for effectiveness continues.

Evidence and trends reveal an increasing use of mobile internet, mobile apps, and mobile videos. Some researchers even estimated that mobile access to networked information will surpass desktop web access. As one of the major and professional information service providers, academic libraries should be fully aware of the trend and respond to it wisely. The authors hope the result of this case study can be of use to other libraries which are still struggling with or planning mobile services or collections.

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Figure 1: Daily Cumulative Use of the App and the Website

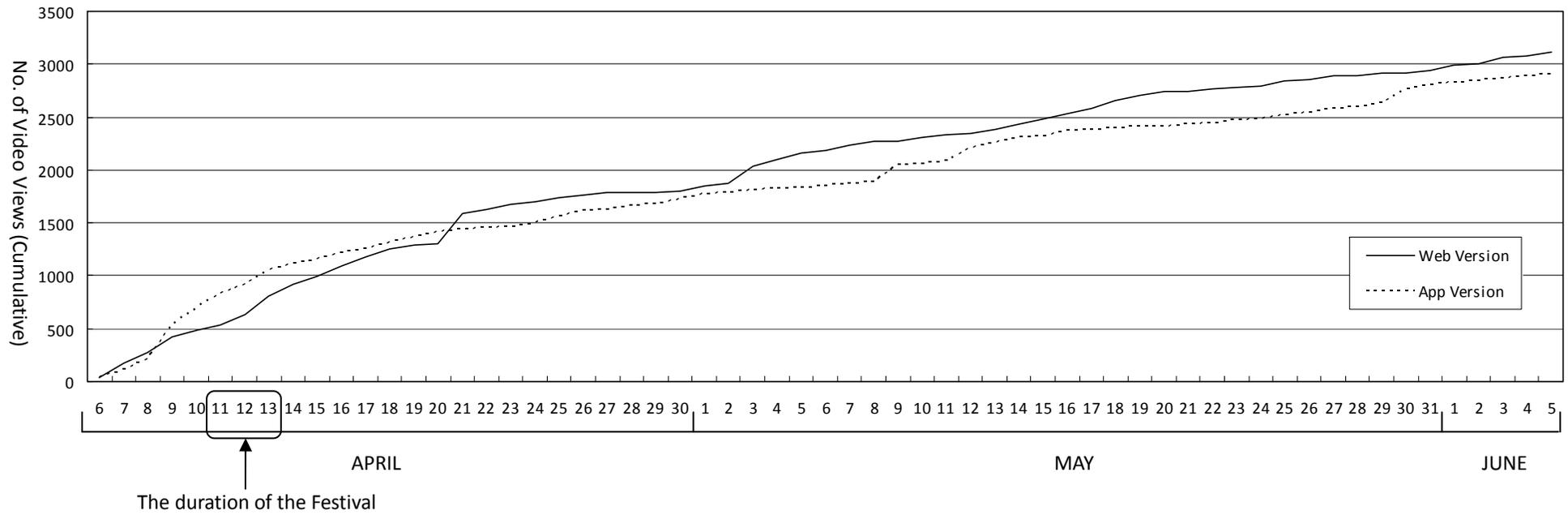


Figure 2: Use of the App (By Geographic Location)

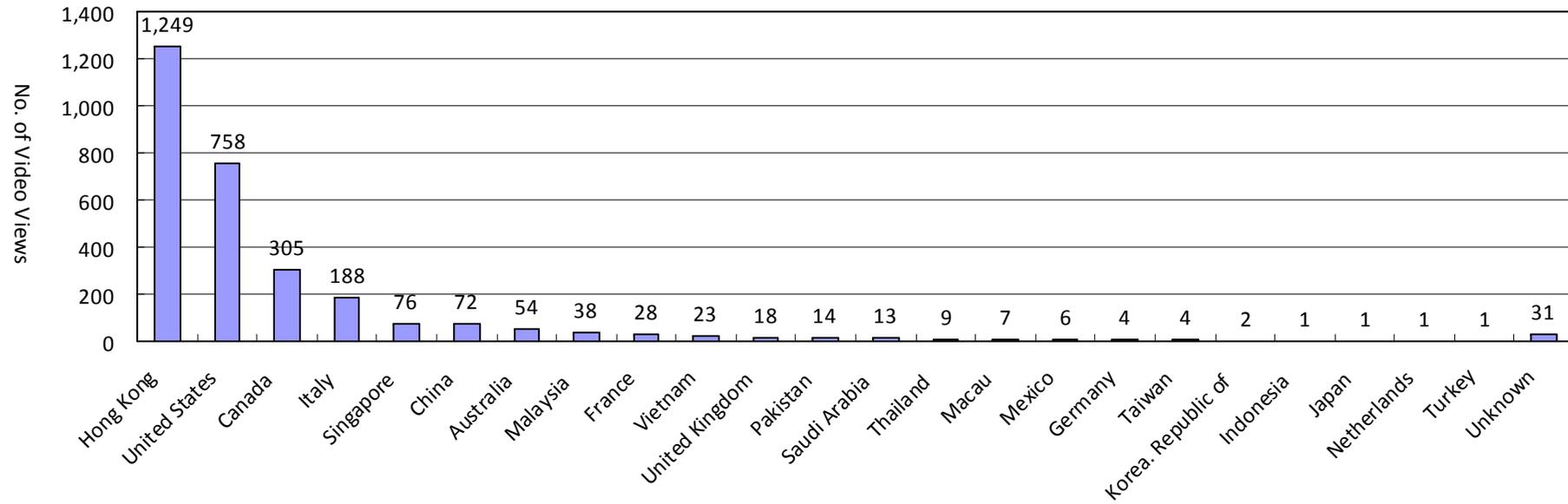


Figure 3: The Use of Different Video Versions

