

Innovative Collaborating Environment Building using OKMindmap Embedding Node Capability

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Abstract

Collaboration has become a very important issue in recent time. In human knowledge process, collaboration plays an important role to accomplish better work performance and higher knowledge accumulation. Wikipedia service is a good example of collaboration. Collaboration is also emphasized as an important factor of open paradigm as an activity of peering. Recently, advancement of device, infrastructure, and IT tools can increase the productivity and efficiency. Google Docs, for example, supports collaborative documentation environment. Even the conventional documentation method can evolve to different method like mind map or concept map. In this paper, a new collaboration method using mindmap is proposed. Not like any other collaborative mindmap service, the innovative way of mindmap node representation can upgrade the level of collaboration with big difference. This method is about optimal use of collaboration service as mindmap nodes. This can solve spatial limitation and allow versatile presentation style. The best practice will be presented for many useful services integrating nicely and seamlessly.

Keywords: Collaboration, Mindmap, OKMindmap, Open Service

1. Introduction

Beginning from the success of Wikipedia, open source paradigm has been spread all around the world. Even though the “open” paradigm initiated from “open source software”, this movement has been dispersed to the domain of contents, service, and hardware. In contents, many universities provided their courseware as open resources which are called OCW (Open Course Ware). Also OER (Open Educational Resource) can be viewed as the open source movement in contents domain and MOOC (Massive Online Open Courseware) as a service opened to public. MOOC can be understood as the extension of open contents. Now, Raspberry PI and Arduino is a new open trend in hardware. That hardware opened its architecture and many applications are implemented with the open hardwares.

The paradigm has foundation on the ideas of “Open, sharing, peering, and acting globally” as defined in Wikinomics¹. Among them, peering describes the core

implementing activity of open source paradigm. On-line peering for collaboration is usually text-based. Most of technologies are focused on document manipulation. But some information is represented better in non-textual way like images, symbols, and geometrical structure. Because of this reason, mind map has been widely used as a knowledge representation tool².

Since the advent of OKMindmap³ and many web-based mindmap services, new method of integrating service is possible. Because web mindmap needs to integrate many kinds of information like url links, url images, streaming videos, and web services. One of the innovative attempts is OKMindmap’s embedding capability of web service as a mindmap node. This can take most advantage of mindmap’s original effective space utilization. With this function user can access web service directly from the mindmap page.

Usually, common barriers of the collaboration are identified either as time or space. Time barrier can be solved by asynchronous communication method. Space barrier usu-

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ally identified as limitation of a workspace like papers and blackboards conventionally. People used to collaborate by writing their ideas on those devices and shared them. The computer transferred these spaces to screen and projector. Now people collaborate using keyboard and screen. This method has not been changed for a long time. Use of better GUI for the software with refined menus and sectioned frames was the only noticeable change at most. Now the regions of screen can be segmented and reorganized in revolutionary way. Even the different services can be organized and integrated into one screen (a web browser page so to speak) for their maximum collaboration effect by virtue of OKMindmap's embedding web service capability.

2. History of Mindmap Software

The mind map was invented by Tony Buzan as a learning and thinking tool in the 1970's. As it is shown in Figure 1, it has radial structure with connecting symbols beginning from a main keyword. Images and concise texts are used with various colors to stimulate the brain. Originally, the mindmap emphasize the use of handwriting for the purpose of manual brain stimulation.

Recently, the collaborative mind mapping is possible in OKMindmap and Mindmanager⁴. Those services run on Internet browsers and users can work on a same map together. Because mind map provides good knowledge representation structure⁵⁻⁸, it is convenient to work on a map simultaneously with other users. Collaboration using mind map results in very efficient and effective outcome.

As a special feature, OKMindmap provides a way to embed web service as a node. With this capability, any web service can be embedded as a node on a single map. Eventually, many users can work on a same map together and the map itself contains web services as a node. This innovative technology has a very powerful strength. Our OKMindmap development team have developed and stabilized this service and the result was astounding. Many

users can work on a same map. In addition to that, many different web applications can be accessed through a map.

3. Case Studies and Result

3.1 Implementation of Technology

Text, images, videos, and web link can be added as nodes of OKMindmap. The distinguishing capability is that even a web page can be embedded as an OKMindmap node. Any web page with a unique service can be integrated in one map. The resulting mind map can be visualized in different modes like Prezi or PPT. In each mode the embedded nodes (services so to speak) are active, which means users can access the same service in different views. Definitely, this enhances the UX of the service. We tried to integrate many different unique web services into OKMindmap. The services integrated are described in Table 1.

Those services are most frequently used and famous web services in the domain of education and business. Those services can be effectively used when is used in contextualized environment. OKMindmap integrated these services into one page seamlessly. The review of each service is as follow.

3.1.1 Google docs

Google drive service as in Figure 2 is most famous services for online office. This service provides on-line editing for word, spreadsheet, and power point. It also supports collaboration of multiple users for a same office document. Usually these services occupy a full screen for normal usage, but also can be used in limited space inside of OKMindmap.

3.1.2 Google map

Google map as in Figure 3 can display the location on online map. Insertion of annotation is possible. A map



Figure 1. Example of hand written mind map.

Table 1. Integrated web services

Service	Description
http://drive.google.com	Survey and office
http://map.google.com	Map service
http://kahoot.it	Quiz
http://todaysmeet.com	Chatting
http://padlet.com	Post it
http://walmademo.opinsys.fi	Drawing
http://okmindmap.com	OKMindmap
http://dropbox.com	File sharing



Figure 2. Google doc service.



Figure 3. Google map service.

can be inserted as a mindmap node. This map is fully interactive, which means user can drag and move the map inside of OKMindmap node area.

3.1.3 Kahoot.it

Kahoot as in Figure 4 is a web-based online quiz system. Users can establish the quiz environment quickly. With this technology, a classroom turns into fully interactive and engaging one. There are apps called Socrative and pingpong. Both of them are good apps, but the web service should be fully web-based to be embedded into OKMindmap.



Figure 4. Kahoot service.

3.1.4 Today's meet

Today's meet as in Figure 5 is a web-based online chatting system. User can ask a web address for a new thread of chatting. This service is active based on the time slot when the user asked for chatting service application. This service is web-based and not device dependent.

3.1.5 Padlet

Padlet as in Figure 6 is a web-based service similar to physical post-it. Users can post their ideas or data as posts. Many users can work on a padlet instance simultaneously.

3.1.6 OKMindmap

OKMindmap can be embedded into OKMindmap itself. Because OKMindmap support different view format, watching other OKMindmap with different view format can be a big advantage in visualization.

3.1.7 Walma

Walma is an open source whiteboard system. The GUI is shown as in Figure 7. Users can draw together on drawing spaces just like what they do in chatting room.



Figure 5. Today'sMeet service.



Figure 6. Padlet service.

If we embed this in OKMindmap, it means user can draw something on that provided area. Of course many users can draw together because of Walma's collaboration feature.

3.2 Case Scenario

Those aforementioned services can be embedded as a iframe node of OKMindmap. As it is shown in Figure 8, users can provide web address of service. "Width" and "Height" mean the actual node size of pixels. X and Y means offset from origin coordinate of web service screen. If user leaves this information as 0 and 0, the original screen will appear without any offset from the origin.

Figure 9 shows an OKMindmap which includes every service mentioned in previous section. Users can now edit goole docs on OKMindmap together. Now mindmap users can access google doc embedded. If the embedded google document is shared, users can document in collaboration. User also has an access to interactive google map in the OKMindmap. If they write a post in Kahoot embedded



Figure 7. Walma whiteboard service.

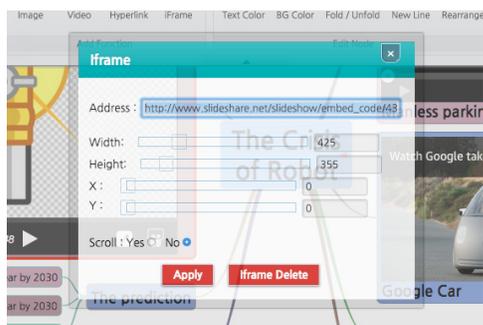


Figure 8. Iframe dialog box.

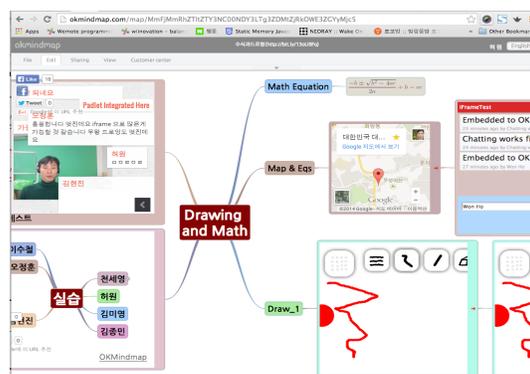


Figure 9. Integrated iframe service.

node, everybody can see the update information of Kahoot post is reflected and synchronized in the map.

Users also can make a post on embedded Padlet. For collaboration, the sharing setting of all the embedded service elements are better be set as public or open. The same scenario can be applied to the drawing service.

If a file is uploaded on cloud service, the web-link to the file can be obtained and the hyperlink can be inserted to the OKMindmap. User can download the document directly by pressing this link on the mindmap. OKMindmap can be used as collection of contents, resources, and services.

There are many different views provided by OKMindmap. For presentation, the OKMindmap structure can be converted to Figure 10 shows as PPT and Prezi-like style. The nodes are rearranged in conventional Figure 11 shows as PPT page presentation or in Prezi-like presentation. The advantages of this view enable us to watch the contents in totally different user experience. The iframe service nodes are still active even after the view conversion. This function can be used during presentation of OKMindmap. Because it can be used in mobile environment, audience can access the same map while presentation. They also share the service in the OKMindmap. For example they can directly draw together on the map with other users.

4. Conclusion

The proposed idea suggested that web service can be embedded and integrated as a mindmap format using OKMindmap. Various web services are tested for embedding and all of them embedded successfully. The work plane is a very important infra to increase productivity

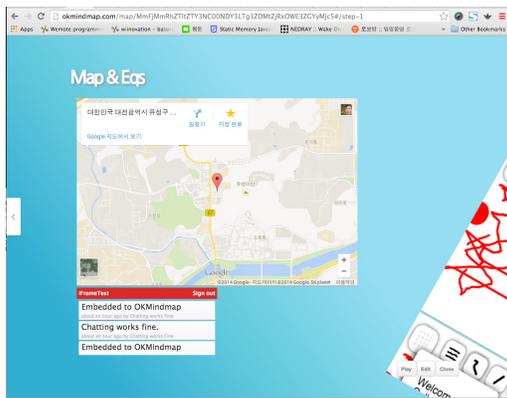


Figure 10. OKMindmap with Prezli-like presentation.

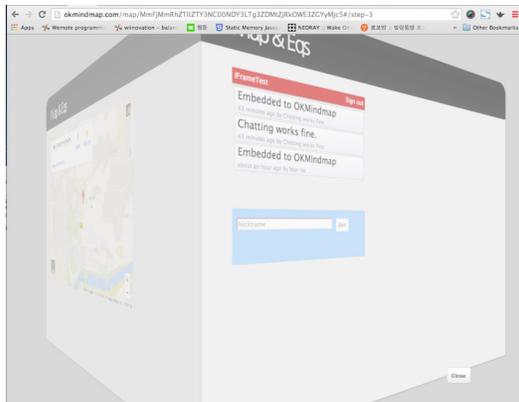


Figure 11. OKMindmap with PPT presentation.

and enhance the quality. The optimum division of the screen with valuable tools adds power production. The OKMindmap's unique capability of HTML page embedding as node enabled different level of collaboration. Many web services could be accessed in one mind map page. The mind map page can be transformed into other presentation modes maintaining the embedded web services.

This work result surely enhanced the effectiveness and efficiency of collaboration work. The feedback was very positive and world widely acknowledged.

5. References

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