

# Open Educational Mobile Contents Platform: Mobile SNS Application Designed for Managing Academic Q&A

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## ABSTRACT

This paper is to suggest a mobile SNS application design focused on academic Q&A. Through that students get answers and solutions to their questions and problems while studying. This open educational mobile platform is designed to lead students' learning behavior to learner centered learning. By the behavioral change, it is expected for students to get stay motivated in learning and become successful. To make this process easier, this paper suggest simple user interface design which offers users to upload questions and receive answers and keep the track of their status by the data accumulated. To make the experience more dynamic, answering can be processed with a direct pen tool, screen recording and camera. This is expected to open chances for those who lost hope in learning and study.

**Keywords:** *Open education, E-learning, Real-time Q&A, Mobile SNS application*

## 1. INTRODUCTION

The term e-learning has been used since the emergence of IT, and it has been developed into innovative open educational contents platforms. This transformation on learning and education made the term e-learning familiar and almost all academic institutions, both private and public, are taking advantage of ICT. E-learning has been widely adopted. As information technology evolves, e-learning has been developed. Since e-learning has ubiquitous accessibility, its impact on education from social and economical aspects has been expected to be high and it is actually transforming education and learning. Nevertheless, our public education still remains conventional. Today's students have a new vernacular, which is a digital. But today's students still learn in the way that a teacher transmits knowledge to multiple students in a classroom. Many students easily lose their interest and passion in motivation by not being able to get answers to their trouble and problems while studying. To prevent this obstacle and help students get help right away, students should be offered some form of connection tools, which provide real-time Q&A and ultimately keep them motivated in learning.

Which is a form of open educational contents platform on mobile devices, and its design that ultimately helps students find their passion and motivation by overcoming fundamental obstacles while studying.

## 2. LEARNER CENTERED LEARNING

### 2.1. Paradigm shift in education

The dominant issue in education is not access to more information. In fact, making sense of the quantity of material exposed to is a serious challenge for students. The goal is to give students the abilities and strategies required to manage this overwhelming breadth and depth of information<sup>[1]</sup>. Educators must realize the only long-term solution was to construct an educational environment in which students would not only learn, but where they would learn to learn. In this regard, the focus of education is shifting to the development of critical thinking and self-directed learning abilities that can serve the individual over a lifetime<sup>[1]</sup>.

E-learning is most certainly be the dominant tech in supporting new approaches to teaching and learning, sound educational principles must inevitably create the foundation if we are to realize meaningful and worthwhile learning outcomes<sup>[2]</sup>.

## 3. BENEFITS OF LEARNER CENTERED AND COOPERATIVE LEARNING

Frances, Muller, Kinzie and Simmons described how to make a classroom learner centered and cooperative and its benefit (1998). When student-student interaction is greatly promoted, students tend to assist each other in understanding material/content. This may even help students broaden their perspectives on issues or problems. They are often hesitant to speak up and offer opinions, especially in very large classes. Students must be free of anxiety and must be offered to process information given. This builds self-esteem in students<sup>[3]</sup>.

Students are more likely to respond to the whole class after discussing thoughts with a partner or small group. Responses may be more carefully conceived as they try responses with each other. They may even discover that

they understand the information because they must articulate the content to another. Greater satisfaction with the learning experience occurs here and they start to make personal connections to the content. Enjoyment of learning often leads to greater retention. Interaction often promotes a more positive attitude toward the subject matter or course and provides for improvement of social interaction skills, greater acceptance of others, and a greater sense of “community” in the class - in part by addressing learning style differences<sup>[4]</sup>.

#### **4. OERN EDUCATIONAL MOBILE CONTENTS PLATFORM**

##### **4.1. Mobile SNS designed for managing academic Q&A**

As e-learning evolves according to mainstream change of IT devices, e-learning device has already moved to hand-held device such as cellular phones, media players and tablet PCs. Since mobile devices are easy to carry and technology and software made it possible for learner to exploit PC programs in mobile. The use of smart phone arose among teenagers and this seems to cause the shift from PC to mobiles. In addition, the emergence of social network service that introduced a new and easy way of sharing information is considered to be ease the conventional way of learning process, because almost all-kind form of information is sharable with one click. Therefore, bringing the open mobile educational contents platform seems appropriate and it is decided to be the device for the platform, expected to create convenient base ground for the application<sup>[5]</sup>.

Other beneficial points of the mobile platform are privacy and connectivity. The main target group for the application is teenagers. They are very sensitive and vulnerable in terms of revealing their weakness and this applies to most people as well. For students or learner, it is important to provide an environment they feel comfortable by so that they can adapt to it automatically. Otherwise, these vulnerable learners will not be able to overcome the obstacles, which are mainly caused by leaving difficult parts while they are studying because of the embarrassment by exposing them, and this will keep them away from the joy of learning. Consequently, a tool that these troubled learners can show academic obstacles without getting hurt emotionally may help learner to overcome the fear so that they eventually get to resolve the fundamental problem in their study and become an active learner. Once they realize there are many who have same problems by sharing problems the via this tool, they will no longer be afraid with a thought that they are losing and left behind compared to others. This online community is expected to keep them connected and motivating them by providing a virtual space they get comforted by people like them.

##### **4.2. Interface design principle**

This mobile application user interface is built based on design principle, which is the result of Heuristic Evaluation of preceding open educational contents platform case, ‘Khan Academy’. Heuristic Evaluation is an evaluation method to test usability of online user interface and experience. Even though the evaluation is done on the web based information, it was considered to be meaningful because it made it possible to see the essential feature of open educational contents platform and specially its Q&A support system from usability point of view. By conducting the evaluation of ‘Khan Academy’, the 5 design principles in Table1, are derived and the direction of app service was achieved.

**TABLE 1 Design principles**

<b>Design principle</b>	
Visibility of system status	User must be able to recognize the location of current page.
Match between system and the real world	Graphic and text contents must be matching the real world and intuitive.
Consistency and standard	Graphical contents, text and information order, layout and style must be consistent.
Recognition rather than recall	Active path and contents must be visible. There should not be unnecessary empty space.
Aesthetic and minimalist design	The use of color, icons and typeface style must be representing brand identity and continuous. Avoid unnecessary graphic elements.

As an application expected to have an effect on education and learners’ behavior, color scope was considered as shown in Figure 1.



**Figure 1. Color**

Green and blue are known to create visibly easy atmosphere and to ease fatigue that is caused by looking at screens. It is one of the most important factors that the app should not cause any visual tiresome since it is designed to be educational use. However, blue seems to be widely used and its coolness does not seem to provide adequate atmosphere for it. On the other hand, even though green has coolness it does give warmth and liveliness. Additionally, it calms users’ eyes physically and lowers stress by screens psychologically.

### 4.3. Interface design principle

Name of the app is Qnote. For new users, the purpose of the app should be recognizable at a glance. For current users, brand experience should create uniqueness. Consequently, the name was made of a compound word from Q and note. Q stands for question and note means note which is used to write and record in school or everyday lives. With a use of familiar words, users should feel familiar with the application brand identity and acknowledge the purpose right away.

In the beginning phase, a use can sign up with an existing SNS account such as QQ or Wechat. In that way, it eliminates the inconvenience that is cause when a user must fill up an application form for signing up. Another benefit from signing up the app with the SNS account is that the app can reach the contact list from the SNS so it makes the app be more flexible in terms of sharing information and being connected to others, which is the most significant factor in this app in terms of sharing academic problems and asking others help.

Figure 2 is a brief interface plan of main page. This page contains list of questions from friends and the user, menu and tabs to other features and pages. It functions as the main gate of the app, so the user should be able to move to the rest of the app pages and functions. For better usability, the basic layout followed commonly used interface layout, keeping main menu and features on top. It is because human eyes move from top to bottom when tracking or browsing information on screen and also most users are familiar with digital devices and computers, so they must have experience they have learned from previous devices. Figure 3 is a wireframe of user home page, where a user views own information that includes profile and questions uploaded. The main layout is not different because of consistency otherwise users may get lost and it becomes the main frustrating factor to lower usability and consistency. Meanwhile what is important in this page is that the user should be able to view the list of own questions and status. User home page layout is same when a user visits another user as well, but users decide the scope of personal information or privacy. Since main page contains the list of questions from friends and a user at the same time, it is designed to show the extract of questions, on the other hand on user home pager is designed to view the question and its answer or solutions in detailed view.

The main page is the main gate to the rest of features in the application, so it has to embrace all the features and keep the look of identity as well. To start from the top of the page, name of the application is present in the middle of the top bar with menu icon on the left and question icon on the right side as shown in Figure 4. The application allows user to get connected to other users by inviting from their existing contact list. All the questions from friends or other users are viewable and these questions are browse abled by scrolling up and down.

The questions on the main page are academic. For each question, the person who uploaded the question, a related subject which is graphically represented with an icon and

located next to question text, a question, image or video of question itself, keywords or tagging, a light bulb icon to indicated whether the question is indicated or not, 'I can answer' icon to answer to question, a check icon to scrap and a star icon to indicate the person's level are included as shown in Figure 5. Each question is laid on a cardlike to provide the look of word card, which is used to practice core concept of subject or memorizing words.

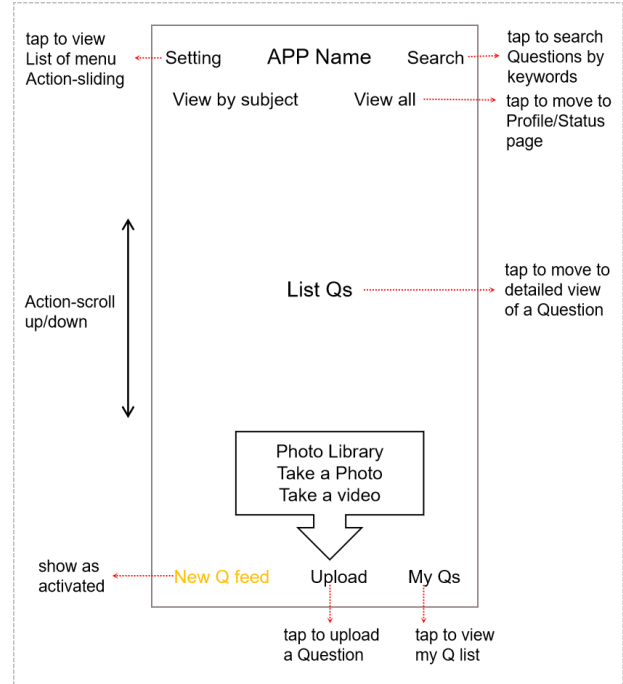


Figure 2. Wireframe: Main page

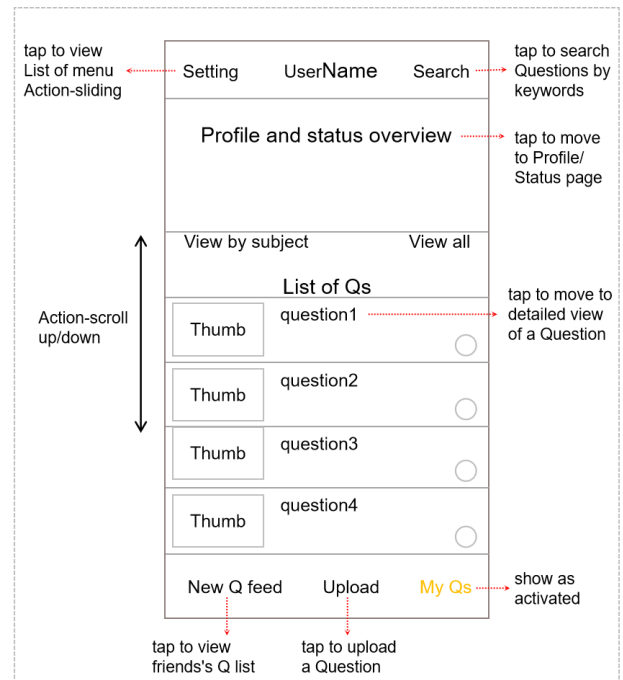


Figure 3. Wireframe: User home page

If the uploader uses the app actively he or she levels up, and it shows the level like in Figure 5. Each color symbolizes subject, for example if a user uploaded many questions and helped others' questions, he gets green star. Likewise, subject is described with icon and color as well. If the light bulb changes color into the subject of the question, it means it is answered. Since a user can upload image or video of difficult questions, a user who answers the question can get better understating of the question, since the image keeps the context and text or words may not be able to deliver the right information because language is very subjective.

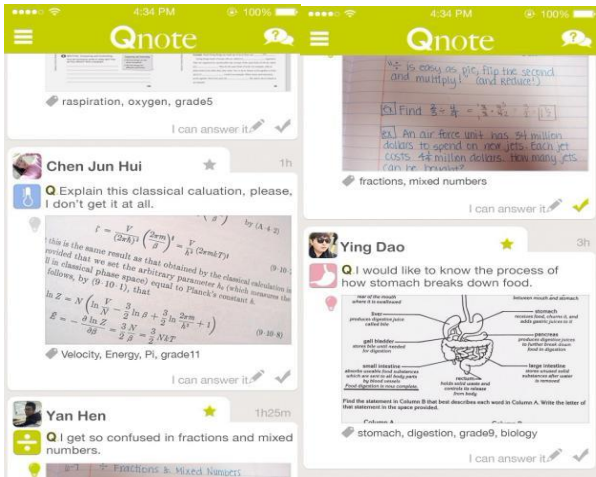


Figure 4. Main page 1

Figure 5. Main page 2

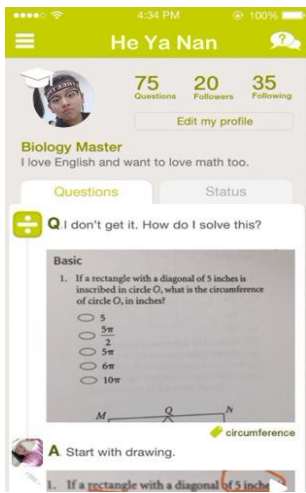


Figure 6. User home page

To view more detailed answer and solution the one question, one can touch on the content and it will switch to the detailed page, which is available on home page like in Figure 6. Home page includes a user's profile, status and list of own questions. User can view or watch answers to the questions in detail and scrap the question when it seems helpful.

Another feature in home page is status. It displays statistics of a user's question by subject. The user can learn

his or her weak subject or strong subject and the subject is also color-coded. With a touch on math in the statistics pie chart as on Figure 7, the user can view math related knowledge map that is visualized based on the data the user put in when uploading questions. Since an overall curriculum is available on the knowledge map, the parts that are not asked is on gray to discriminate information shown as Figure 7. With a touch on a keyword of the knowledge map, it will switch to show questions related to the keywords.



Figure 7. Home page: Status Figure 8. Menu and knowledge map

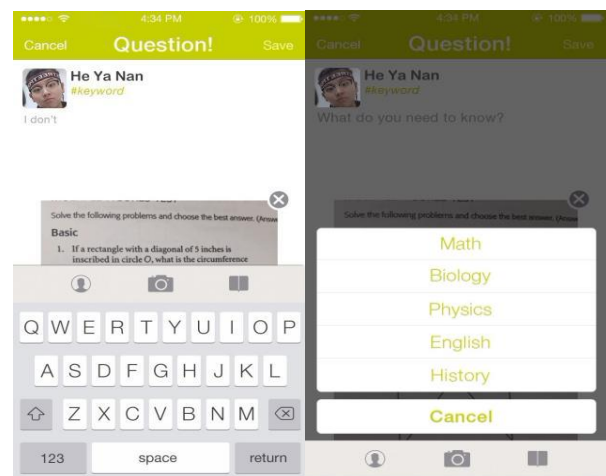


Figure 9. Question edit page

Figure 10. List of subject

To move to other pages, activate the list icon on the left hand side on top by touching it. Then it will push down menu list like Figure 8. Five different pages are available, especially a user can set friends list by moving to Friends page and invite or friend them choosing list from the existing contact list via external SNS or phone itself. To change setting on privacy and other user information, setting page will do. If switching page is not necessary, touch on cancel, then it will close up the list of menu.

A user can use the question icon on the right hand side at the top. Its color turns to gray when it is activated and

switch to a page like Figure 9. There are 3 icons which include contact list, camera and subject list. With the camera icon a user can take a picture or video of question or problems they need help with, and then type in the question and keywords. Image can be converted to text. By touching subject icon, selection of subject is available (Figure 10). Once editing question is done, choose a person whom will answer the question and then with the save button the question is uploaded and a message to the person to answer is delivered.

## 5. CONCLUSION

This paper is to suggest a tool that helps learner take control of their learning process in a form of open mobile educational platform. In terms of learning process, missing out a part in a curriculum causes chain reaction since the subject and theme are intertwined and connected to each other. Students skip parts they get stuck because they are shy to reveal their weakness or they do not know anyone to ask help right away. Students must be free of anxiety and must be offered to process information given. This builds self-esteem in students. As this situation piles up, they become frustrated and end up losing interest and passion in learning. This open mobile Q&A SNS platform is designed to ease and eliminate these obstacles and make them take a control of their learning process by allowing them to stay connected and interact with others.

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