

USABILITY TEST *of* www.HKedCity.net

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Executive Summary

This report documents the findings of a usability test of the website www.HKedCity.net, which was conducted in March-April 2003 by student of MSc in New Media Programme of The Chinese University of Hong Kong. The main objective of the test is to assess the usability of the current website for target users: students, teachers and parents.

Positive feedback on www.HKedCity.net :

- ✓ **Rich Resources.** Most test participants highly appreciated the wide coverage of the site on the educational information and resource. Parents commented positively on the interactive corners with social workers and the fruitful learning resource for their children. Teachers thought that it was a good platform to offer teaching references. Twenty-one of thirty test participants considered re-visiting the site because most of them found the information useful.
- ✓ **Attractive Homepage Design.** Fifteen of thirty test participants commented that the homepage design was very attractive. The graphic was pleasant and lively. The image was colorful. The flash and icons was very eye catching.
- ✓ **Interaction.** Most test participants commented the process for uploading, downloading and posting a question process was smooth and convenience. They were also satisfied with the speed of the website.

Areas of improvement for www.HKedCity.net:

- ✗ **Poor search function.** Most of the participants encountered difficulties in finding their information through the search function on homepage. The homepage search could not find much information in other areas. Eleven out of fifteen test participants gave up the tasks when they could not find the desired information from the homepage search.
- ✗ **Unclear navigation.** Sixteen of thirty test participants gave up their tasks because they could not find their ways to the requested information. The navigation areas failed to reveal what lies beneath the links, and consequently users could not easily identify the correct paths for proceeding.

- ✘ **Unclear category.** Most test participants noted that the name of the categories were not straightforward. Some categories titles were very similar, which had hidden the possibilities for users to go to the right pages efficiently. There were eighteen of thirty test participants failed to complete the tasks according to the unclear category.

Based on the usability problems identified in this test, we recommend that:

- * The search function on home page should be improved. Wide input box should be given on the homepage to enter search queries. Search on the homepage should search the entire site by default. It should be noted that users would assume the site does not have the requested information if they don't find it via using the search function
- * It is recommended to re-locate the primary navigation area in a highly noticeable place. Pull-down menu is highly suggested to be used for both homepage and inside pages so that users can know where to go efficiently.
- * Categories need to be immediately differentiable from each other. It is necessary for the usage of straightforward and clear terminology for the easy identification of the content in categories and titles otherwise users will quickly lose patience. Card-sorting exercise can be carried out to collect users' preference to classification.

1. Approach

The usability test of the website www.HKedCity.net was carried out in March-April 2003. The test was carried out on the public version of the website.

1.1 Purposes

The test has two objectives. The primary objective of the test was to assess the overall usability of the current website. The secondary objective was to test the search function of the current website. As Hong Kong Education City has previously undertaken a usability test for primary school students the target group for this test is secondary school students, teachers and parents.

1.2 Methodology

The test was carried out with two groups of people. Each group included five secondary school students, five teachers and five parents. There were a total 30 test participants and their ages ranged from 12 to 45 years old. Each group of participants had the same number of males and females. All participants were tested individually.

Students of the MSc in New Media course of The Chinese University of Hong Kong acted as the test facilitator. Due to the spread of atypical pneumonia in Hong Kong which began in March 2003 the test could not be conducted in Hong Kong Education City office as planned because all participants would have needed to travel a long distance. For participants' safety and convenience, the test took place mainly in schools and in the homes of the participants. The test was conducted in Cantonese. Each test took between 45 minutes to one hour.

The usability test consists of four phases: Introduction, Interview, Surfing the website, Solving test tasks and Debriefing.

The tests phases contained the following elements:

Introduction: Participants were briefed clearly regarding purposes of the test. They were informed that the test only focused on studying the site and not on their technical skills.

Interview: Test participants were interviewed about their expectations of the site before they saw it.

Surfing the website: Before taking the usability test, all test participants were allowed to take 5-10 minutes to surf the website in order to have an overview.

Solving test tasks: Group one was asked to do tasks related to the search functions of the website; that consisted of the test keyword search function in the homepage and in lower levels. The second group of test participants were required to solve different test tasks which were related to the overall usability of the website; this consisted of uploading and downloading an article or program, posting a question to the interactive zone and testing the feedback & response function.

All test participants were asked to think aloud and to comment on the website while they were carrying out their tasks. They were encouraged to say what they were thinking.

Debriefing: Test participants were asked to fill in a questionnaire after finishing the test. They were then debriefed about their general impression of the website.

After 60 minutes the test facilitator terminated the test regardless of the number of test tasks completed. Individual tasks could be interrupted if the test participant could not proceed with the task or if the test facilitator found that no new information would result even if they continued with the task.

1.3 Discussion of Method

The basis of this usability test was the recognized “think aloud” method. This method is suggested by some recognized books within the usability field, for example:

- Usability Engineering by Jakob Nielsen (Academic Press 1993)
- Brugervenligt webdesign (User-friendly web design) by Rolf Molich published by ingenioeren/Boger 2000.

1.4 Equipment

Ten test participants took the test with a laptop with 850MHz processor and a 15” monitor set to a resolution of 1024 X 768. The computer was set to communicate with the website through So-net Broadband Internet Access Services.

Twelve test participants took the test with a desktop with 550MHz processor and a 15” monitor set to a resolution of 800 X 600. The computer was set to communicate with the website through Hutchison Global Crossing Broadband.

Five test participants took the test with a desktop with 330MHz processor and a 15” monitor set to a resolution of 800 X 600. The computer was set to communicate with the website through Netvigator Internet Access Services.

Three test participants took the test in Hkedcity office with a desktop with 2.0GHz processor and a 15” monitor set a resolution of 800 X 600. The computer was set to communicate with the website through Hutchison Broadband Internet Access Services. Microsoft Explorer 5 was used in all computers.

1.5 Test Participant Profiles

The tests were carried out with test participants who fulfilled the following requirements:

- They belong to the targeted three groups, i.e. teachers, secondary students, parents
- Age between 12-45 years old
- Had basic computer skill and internet experience
- Never or seldom visit HKedCity.net

Participant	Gender	Age	Title	Internet Experience	Familiar With Hkedcity	Visit HKedcity before
1	Male	45	Parent, Workshop instructor	experienced	No	No
2	Male	41	Parent, Lecturer	Somewhat experienced	No	No
3	Male	40	Parent, Lecturer	experienced	No	No
4	Female	40	Parent, Housewife	experienced	No	No
5	Female	41	Parent, Deputy Director	experienced	No	No
6	Female	40	Secondary school teacher	Somewhat experienced	No	Few times
7	Male	34	Secondary school teacher	experienced	No	Once
8	Female	32	Secondary school teacher	experienced	No	No
9	Male	28	Secondary school teacher	experienced	No	Once
10	Male	24	Primary school teacher	experienced	No	No
11	Male	18	F.4 student	Somewhat experienced	No	Once
12	Male	15	F.4 student	experienced	No	Few times
13	Female	14	F.2 student	experienced	No	No

14	Female	14	F.2 student	experienced	No	No
15	Female	12	F.1 student	experienced	No	Once
16	Male	44	Parent, Senior Agent Director	experienced	No	No
17	Male	40	Parent General Manager	experienced	No	No
18	Male	32	Parent, Art Director	Somewhat experienced	No	Once
19	Female	36	Parent, Part-time job	Somewhat experienced	No	Few times
20	Female	32	Parent, Housewife	Somewhat experienced	No	No
21	Female	43	Secondary school teacher	Somewhat experienced	No	Once
22	Female	40	Secondary school teacher	experienced	No	Few times
23	Male	36	Secondary school teacher	experienced	Yes	Many times
24	Male	30	Secondary school teacher	experienced	No	Once
25	Female	23	Primary school teacher	experienced	No	Few times
26	Female	19	F.7 student	experienced	No	No
27	Female	18	F.7 student	experienced	No	No
28	Male	18	F.6 student	experienced	No	No
29	Male	18	F.6 student	experienced	Yes	Many times
30	Male	17	F.5 student	experienced	No	No

1.6 About the Report:

- Quotes: The report contains some quotes from test participants. The quotes are translated from Cantonese to English and are indicated by “...”
- Menus and headings: User entries and quotations from web pages such as menu items, headings, and text are shown in *italics*.
- Test facilitator’s recommendation: CUHK made suggestions to the problems faced by test participants.
- Test Participants’ suggestion: Test participants made suggestions to the problems during the test or at debriefing session.
- Appendix A: contains the full usability test script including the tasks given to the test participants. It also contains all interview questions, questionnaires for before and after the test , test record form to be filled up by test facilitators during the test.
- Appendix B: contains screen shots of some of the central pages on www.hkedcity.net
- Appendix C: contains a table that shows test tasks and the test participants’ success in solving them.

2. Expectations

Before the test participants saw the website and started to carry out the tasks, they were interviewed on their expectations to the website and why they seldom visit Hkedctiy.

Prior surfing the website, test participants voiced out their expectation on an educational website:

Parents:

- Easy access to all education resource (6 test participants)
- A very user-friendly site (4 test participants)
- Educational interactive games for kids (2 test participants)
- Provide readings and resources to enrich children's mentality development and moral education (1 test participants)

Teachers:

- Provide rich and updated examination questions data (8 test participants)
- Provide teaching resources that are updated, interactive and focused (6 participants)
- Provide extra-activities information (2 test participants)
- Provide news cutting for economy subject (1 test participant)
- Provide diagrams and visuals related to Mathematics (1 test participants)
- Provide teaching resources for chemistry (1 test participants)
- Main navigation by clear text link rather than colorful icons (7 test participants)

Students:

- Educational interactive games and competitions (4 test participants)
- Provide examination questions or mock up tests data (3 test participants)
- Provide updated leisure information. (3 test participants)
- Provide updated news information (3 test participants)
- Ask homework online (2 test participants)
- Provide trendy information e.g. sports, overseas trendy news (1 test participant)

The reasons that they seldom/never visit the website are:

- Never heard of it before (8 parents and 6 students)
- Heard of it but not sure whether it is helpful or not (2 parents, 6 teachers,)
- Have visited the site and find the information not updated enough (4 teachers)
- Have visited the site and found the information not interested to them. (3 students)

3. Findings –www.HKedcity.net

Findings are categorized by the facilitator as follows:

- ✓ Good. This approach is recommendable.
- Cosmetic problem. Caused test participants to hesitate for a few seconds.
- Serious problem. Delayed test participants in their use of website for 1 to 5 minutes but eventually they were able to continue. Caused occasional “ catastrophes”
- ✗ Critical problem. Caused frequent catastrophes – situation where test participants cannot solve a reasonable task or which causes the test participants great frustration.

- * Test facilitator’s comment and recommendation
- ◆ Test participant(s)’ suggestion or comment that will be good reference for the improvement of the website.

3.1 Users’ Experience

- ✓ Most Test participants highly appreciated the rich resource, its wide coverage of information and the attractive homepage design. Most of them were highly satisfied with the website speed, upload and download process. They would have liked to have an online community of their own. Student participants would like to make a personal website.

- ✓ The website is mostly welcomed by new teachers as they found it very useful. It provides a good platform for them to know more about Hong Kong’s education information services and resources.

- ✓ Twenty-one of thirty test participants showed interest to re-visit the website. Most parents said that they would visit the website again because they could find Hong Kong schools’ information there. They highly appreciated the service of (親子信箱) which allowed them to seek advice from professionals. They also found the educational resource very useful for their children.

- Nineteen among thirty test participants commented the website had fruitful resources but was difficult to use, especially for the first-time user.

- ◆ Many test participants suggested HKedCity should have more promotions to let more parents, teachers and students know better about its fruitful content.

Those test participants stated did not want to return to HKedCity for the following reasons:

- Too complicated to search for information (all)
- Easier to search by using other websites e.g. Yahoo and Goggles (all)
- More focused and professional website preferred.(all)
- No time (3 teachers, 2 parents)
- Not used to go to internet to search for teaching aids (3 teachers)
- Other publisher will provide CD-Rom that follows the same progress of the textbook they use. (4 teachers)
- The information is boring and conservative. (3 students)
- The name and image looks too childish (3 students)
- Prefer seeing entertaining news in sites like boxup.com, hkmovies. (8 students)

3.2 Homepage Design

- ✓ Fifteen of thirty test participants said that the homepage design was very attractive. The graphic was pleasant and lively. The image was colorful. The flash and icons were attractive too.
- Among the thirty test participants, six parents, five teachers and three students preferred having text rather than the existing busy graphics for the homepage navigation. They commented that it was too childlike and didn't look professional or practical enough. Three test participants even used “低 B” to describe it. Three students thought it was more suitable for kindergarten or primary school students.
- Eight test participants found that the pop-up window was very irritating. One of them even lost his temper and said, “ This is really disgusting.” Test participants did not want to see the pop-up window coming up again and again.
- ◆ One test participant suggested that it should be in a non- disturbing position and should only take up a small space. The window could be enlarged when the user clicked on it.

* Test facilitator's comment:

Graphic layout suits target users

If students, teachers, parents and general public are HKedCity's target users, it is difficult have a design that suits all ages. Setting primary and secondary target users is important. If the primary target user for Hkedcity is a primary school student then the homepage graphics are very suitable. If it is aimed however at older age users the design should be more practical and user friendly. For example a navigation bar with a pull-down menu on left-hand side is needed.

Avoid pop-up window

Users usually dismiss pop-up windows as advertising. It is recommended the homepage layout be redesigned to give higher priority to important content.

3.3 Search

- ✓ All test participants felt the key word search in (*資源庫*) and *School directory* (*校園區*) helpful to them if they knew the topic of information required.
- ✓ Four out of five parent test participants appreciated that the keyword search in the school directory accepted both English and Chinese type, as most of them did not know how to type Chinese.
- ✓ Six out of fifteen test participants liked to have selection lists which contained options in (*資源庫*) and *School Directory* (*校園區*). They found it was more convenient in narrowing down their search.

3.3a Search Visibility

- All of the test participants clicked on the graphic icon on homepage one by one to search. Most of them pointed out that the search button in the homepage was difficult to see. Test participants expressed the word was too small and the color was not outstanding enough. Six of fifteen test participants commented that the homepage graphic drew away too much attention from users. See Appendix B, figure 1.
- ✗ Since the homepage search box was hidden in pull-down menu, the text box would be disappeared when the mouse was moved. Most test participants found it very inconvenient. The pull-down search menu was always blocked by updated news graphics and stopped test participants to use the text box search. See Appendix B, figure 2.

- ✘ In English version, there was no “Search” function provided on homepage. One participant described it as “Stupid & Useless”
- ◇ Eight of fifteen test participants suggested that search text box should be displayed in dominant position on every page.
- * Test facilitator’s comment: Search is one of the most important elements of the homepage, especially for first users or those who are not familiar with the website. It is recommended that there should have an input box on the homepage to enter search queries instead of just giving them a link to search page. The input box should be wide enough for users to input standard queries on the site.
In Jakob Nielsen’s website homepage - useit.com, after the change from a link to a text box, the use of search function increased dramatically.

3.3b Search Scope

- ✘ Most information could not be found by the homepage search. As a result most participants thought that the site did not have the information they wanted and gave up searching further. In fact, the information was available in lower levels of the hierarchy and users needed to use lower level search functions to find what they want.
- ✘ In searching the resource for air pollution, one teacher typed in “空氣” “空氣污染” and “污染” in the homepage search box. The result was “No such items found.” He commented that the search was useless, “ I don’t have enough patience, I want to give up”.
- ✘ The search box title was quite misleading. One test participant wanted to find a poem named “快樂” by Steven. He input both the topic of the article and name of the member on the text boxes. He expected the search engine could recognize both input. To his disappointment, he discovered that the search boxes were separated and he could not locate what he was looking for, even in separate search. “ This is really ridiculous, the poem cannot be found in home search. ” See Appendix B, figure 3.
- ✘ There were a of total eleven out of fifteen test participants who gave up the tasks when they could not find what they wanted from homepage search.
- * Test facilitator’s comment: Search on the homepage should search the entire site by default. Users will assume that they have searched the entire website. Without this facility users will not re-visit the site again if they cannot find what they want.

3.3c Search box

- Nine of fifteen test participants felt confused about the search function in the homepage and inside pages. In the homepage, there was two search boxes: one for finding an article and one for finding members. In *School Directory* (校園區) and (資源庫) and, it provided a selection link option and a keyword enter box.
- Unlike the homepage and school directory, there was no search button next to the keyword search box in (資源庫), three participants just waited without pressing the enter button on the keyboard. When there was no response, they were not sure whether the search was in process or not. See Appendix B, figure 4a,b,c
- ✗ One participant selected English school + Boy school, surprisingly there was only one school found in total. When the participant selected English & Chinese school + Boy or Girl school, there was no school found. This indicated that the selection list option was not helpful all the time. See Appendix B, figure 5.
Test participants found it quite confuse to adopt different search formats on one site.
- * Test facilitator’s comment: The layout maxim of the basic search function should be ‘keep it simple’. There should be one search box (text entry field) for the search query and one button to start a search. It is suggested that there could be an advanced search. Users can be offered the option, when the search results are presented.

3.3d Search Expression

- ✗ Search boxes could not allow spelling mistakes. In the school directory, the search box could not produce any result when test participants typed in “Lam Wu” instead of the correct name “Lam Woo” One participant typed in the wrong spelling “Harry Potter” and “Harry Potty” and as a result no items were found.
- ✗ The search also could not accept wider scope of similarity. For example, while looking for “Lam Woo Memorial Secondary School”, “Lam Woo” was accepted but “Lam Woo Secondary School” will produce a ‘zero school found’ result. Test participants commented there were too many restrictions in the search functions.

* Test facilitator's comment:

1. Make the search engine error-tolerant.

The website should tolerate spelling errors. The website can consider the provision of a search engine that includes a spell check function. Spell check makes it more likely that customers will find what they are looking for even if their spelling is not perfect.

2. Accommodate multiple-word input

Test participants were confused by the search results when a site didn't respond as expected to their multiple-word queries. Nielsen Norman Group suggested that when a user enters more than one word in the search box it should do an exact search for the whole string. The no results page should also explain how to conduct multiple-word searches on the site.

3.3e Search Result Interpretation

✘ Thirteen of fifteen test participants used the homepage search to find educational information but were frustrated to see the no results page without any further hints and instruction to lead them go further.

✘ Four parents wanted to search for international schools but were unable to finish the task because they assumed that international schools could be searched in the secondary or primary school inside pages. However, it presented "0 items found" and there was no other information telling the user to try searching in another area. Test participants complained that there was no further instruction for users to know how to continue their search.

* Test facilitator's comment:

1. Provide constructive advice.

Whenever users have problems, it is recommended that the website provide constructive, precise and comprehensive messages, instead of saying, "Zero items found". Hkedcity can let users know why the search failed. Ask the users to checking their spelling or broaden their search.

2. Provide hints and alternative ways of locating information.

When a search fails, HKedCity can suggest hints and other means of finding information on the search error page. For example, telling them to go to Resource

Centre > Resource store room if they are looking for school subjects resource or give links to those popular centers which had the most resources. The site map, a table of contents and FAQ (frequently asked questions) list can also encourage users to continue.

3.4 Navigation

- ✓ All test participants found the homepage navigation icons very attractive. All of them clicked on the icons to search the information.
- ✓ Most of test participants found the homepage hyperlink text useful because they could see all titles at one time.
- ✓ Six of fifteen test participants appreciated that there was menu bar on top of *Resource Library* (資源中心) so that they could easily go to other subtitles easily.

3.4a Homepage Navigation

- ✗ Most of the test participants felt that it was a key problem that there was no pull down menu showing the exact content inside the main section titles. All information was hidden in lower level of hierarchy. One test participant commented that “it can’t expect people to go to all pages to find things, it is just wasting my time.”
- Hyperlink text was too subtle which was displayed at the bottom of the homepage. It was hidden in many screen display when the computer monitor is set to a resolution of 800 X 600. See Appendix B, figure 6.
- ✗ There were total sixteen of thirty test participants gave up the tasks because they faced difficulties in finding their ways to the information they wanted. Most of them lost their patience after spending over 10 minutes but still didn’t know where the information they searched were.
- ✗ One participant failed to find additional Mathematics exercise. He then went to Yahoo and demonstrated how it could search better. “See, how fast it is!” Many test participants expressed their ideas that they preferred going to Yahoo to find information if they are not doing the test. One parent refused to find readings for his kid in the website. Instead, he went to Yahoooligans to show how simple and easy to search children’s reading there.

- * Test facilitator's comment: The primary purpose of a homepage is to facilitate navigation elsewhere on the site. The navigation area should reveal what lies beneath the links so that users can know where they should go to effortlessly. It is recommended HKedCity re-locate the primary navigation area in a highly noticeable place. It is also suggested to use pull down menu navigation in homepage and inside pages, so that user can know what content is inside each section titles and subtitles easily.

3.4b Navigation Menu Bar

- Except *Resource Center*, *Library* and *Cultural Center*, other titles inside pages don't have navigation menu bar to let users go to other subtitles easily. Users needed to click their way back by using the Back button. See Appendix B, figure 7.
- Test participants would easily get lost and didn't know where they were: "I don't know where am I" "Where am I before this page?" Two student participants need test facilitator's encouragement to continue the test, as they didn't have the patience to keep on trying.
- * Test facilitator's comment: It is recommended that all pages should have navigation menu bar in dominant position to let users go to other topics easily. Different color needed to differentiate which title is the user in.

3.4c Back to Home

- Twenty-one of the thirty test participants had problems finding their way back to the homepage. They did not notice either the Home icon at the left top of the page or the text link at the right top corner. They clicked their way back using the Back button. The homepage icon is very small and subtle. The name "HKedCity homepage" was not clear and did not stand out enough. See Appendix B, figure 8.
- ◇ One test participant suggested that "Back to homepage" (返回主頁) was clearer than "HKedcity homepage" (教城主頁). Another participant suggested that the company name should put on top of homepage rather than at the bottom.
- * Test facilitator's comment: There should have enough hints making the back to homepage icon visible. Hkedcity can make the icon flash and let the logo come with the logotype. If the icon is eye-catching enough, there is no need to put both icon and text in different corners.

3.4d Add Link

- Eight of fifteen test participants clicked on the graphic icon in (資源庫) but found that it was not a link button.
- ◆ One teacher suggested that user should be able to find teachers' resource in *Teachers' Corner*. It would be better to have a link to the *Resource Library*.
- * Test facilitator's comment: Users usually click on icon rather than text if both exist. It is suggested that the icon in (資源庫) should add link. If school directory can link to *Parents' Corner*, it is quite reasonable to have (資源庫) link to *Teachers' Corner*.

3.5 Categorization

- ✗ Four of the five parent test participants wanted to search for international school information. They were unable to finish the task because they assumed that international school could be found in secondary or primary school inside pages. "They only have local information, there is no international school information here" In fact, there was international schools information that was under the title: "Other schools".

3.5a Unclear Terminology

- Many test participants found the name of the category unclear and not straightforward enough. One test participant said, "The titles are too mysterious, it is difficult to understand the content inside."
- Test participants commented that the name (資源庫) was too general and broad. It was hard to let users know it contained different levels of education resources. As a result, most users went to *Learning Center* (學習大樓) or (大同學習村) when they were looking for past test paper or other subject's information. *Learning center* (學習大樓) and (大同學習村) carried similar meaning about learning and were easy to be confused.
- ✗ There were a total of eighteen of the thirty test participants who failed to finish the task according to the unclear categorization. Many of the other test participants claimed that they found the information in (資源庫) just by luck.

- ◆ One test participant suggested that (課程與學習資源) was better than (資源庫)
- Six of fifteen test participants considered (純文字索引) as a search function. One participant commented that the word (索引) is quite misleading. It was directly associated to the meaning of search and they clicked on it to find out it was a site map but not search link.
- ◆ One test participant suggested that (純文字索引) should changed to (網頁指南)
- Six of the ten student test participants went to (共享居) to find student's creation or education resources because it seemed to be a place where people would share their resource with others. They were disappointed to find that inside all links were to i-house member's websites.
- ◆ One participant suggested that (共享網頁區) was much clearer than (共享居)
- Many test participants misunderstood the term (資源查詢). They were expecting there would be a search function inside so they immediately went to that page for help but were disappointed to find that it could not give them the answer automatically.
- ✕ Twelve of the fifteen test participants went to *Feedback* (意見調查) to give opinion to the website. However, they found that it was a questionnaire survey rather than a contact point for information. There were a total of four out of fifteen test participants fail to finish the task.
- ◆ Some student participants commented that the title *Cultural Centre* (文化部屋) was too broad. One test participant suggested that (娛樂資訊屋) would be more attractive and direct to students.
- * Test facilitator's comment: Categories need to be immediately differentiated from each other. The category names should be sufficiently descriptive so that users can correctly choose which one leads to their goal. HKedCity should carry out a card-sorting exercise. In card sorting, users are given a pile of slips of paper, each with the name of one piece of information written on it. The user sorts the items into groups and then names each group. After a certain number of target users complete this exercise it will suggest the common patterns and guides for classification.

3.6 Language

- ✕ Some test participants didn't know how to type Chinese so they chose the English version but were surprised to find that only the homepage will change to English. The inside pages were still displayed in Chinese.
- ◇ One parent commented that if the English information is not yet ready, it should not provide any choice for the English version or Simple Chinese version.
- Since all the inside pages were displayed in Chinese, many test participants showed concerns that if they do not know how to type Chinese, they would not do the registration, post a question or use the search box.
- * Test facilitator's comment: It would be better to display just Chinese when the other language content is not ready. Don't let users think that there are mistakes in the website. It is recommended to give hints to users to tell them that the website accepts both English and Chinese input and query.

3.7 Content

- ✓ Most test participants highly appreciated that the site covered a wide range of educational information and resource.
- ✓ Twelve of thirty test participants claimed that they would re-visit the site again because there was useful information for them. For example, six parents found that there were fruitful learning resource for their children, like the *Little Campus*. They highly appreciated the *School Directory*, which gave information of Hong Kong schools. Four teachers thought that it was helpful to offer teaching aid references like power point, exercise, and websites. Two students like to re-visit the site again when they need to find academic reference.

3.7a Limited resource in deeper level

- When parents test participants were told to find Mandarin video program for their kids, they could not find the items for Kindergarten, P.1, P.6 or F.3 students. When teachers wanted to find teaching resource for chemistry, geography, bible, P.E. theory, art and economy, the resource, which they found, was quite limited.

- Some parent test participants found that information in the school directory was not complete. Some schools had many headlines that do not fill in any information. Many schools have not got their school photos or logos. Some of them did not have English address.
- ✕ One teacher test participant said that she would not visit the website again because there was not very many resources focusing on class activity. The variety was also insufficient. One parent failed to finish the task because she could not find the famous international Yew Chung International School in Hong Kong.

3.7b Content Quality

- Some teachers had concern about the quality of the teaching information provided. One mathematics teacher would prefer going to other sites like Ask Dr. Maths because he found the site was managed by professionals and all information was guaranteed, in high quality, more in-depth and more focused. Some other teacher test participants shared the same concern. They preferred going to websites, which focused on particular subjects.
- ✕ One teacher commented that the English grammar for secondary level did not fit the HKCEE syllabus. Another teacher found one of the geography power points was very boring and did not appealed to students. One chemistry teacher found that the test paper was not very up to date. This is one of reason why the teachers only visit the website once and never go back again. They said that they could prepare teaching aids from publisher's CD-Rom, school library or other websites more easily and with better material.
- * Test facilitator's comment: The content in each of the titles should be reviewed and updated regularly. The monitoring team should be reinforced to guarantee the quality of the content. If there is insufficient information in a particular area HKedCity may suggest users to find the required information from the linked sites. It is necessary to conduct more promotions to encourage more teachers to share their teaching aids online.

3.7c Content suits users' need

- ◇ Most teacher test participants wanted to have an examination questions database (試題庫) as the main resource in the resource center. It would be very useful for them to prepare their examination papers. One teacher expected it to include updated economic information collected from news and magazines.

- ◆ One teacher test participant suggested the content under (拉闊生活) should be wider with more information about how to do activities to relax and enjoy life. One teacher suggested that there could have shopping tips for teacher to buy little gift for students.
- Three of five teacher participants were not interested in the content in (師人分享). They thought that there were too many words in one page and no one would have time and the patience to read them all.
- ◆ Some parents expected to see more information like the past HKCEE results and university entry records, registered date and requirement for new students and graduates information. Information should be kept up to date. One parent suggested having *Ask Homework by parent* with a professional answer.
- ◆ Six out of ten students preferred having more educational games, competitions and entertaining news for relaxation. Some of them commented that the information in the cultural centre was not updated and focused enough. They would go to mov3.com or boxup.com for movie and music information because they were very update and had free downloads. Other than entertainment, five out of ten student test participants wanted to gain access to the mock examination papers or exercises.

3.8 Upload

- ✓ In uploading teacher's work in (資源庫), most teacher test participants were satisfied with the upload file process. They said it was quite simple and easy.
- Two out of three test participants found the upload file box in (資源庫) was quite difficult to see because it was at the bottom of the page.
- In uploading the teachers' article, two out of three teachers test participants found that it was inconvenient, as they could not directly upload the file from their desktop. Another teacher commented that the upload icon was sometimes positioned at the top and sometimes at the bottom in (師人分享). See Appendix B, figure 9a,b,c.
- ✓ Most student test participants were satisfied with uploading a file in (創作天地). They said it was convenient and simple.

- ◆ One student test participant suggested that after uploading a file there should have feedback telling when the article would be published. However such a message had been written at the top of the upload table but was not noticed because the blue color of the words was too subtle. See Appendix B, figure 10.
- * Test facilitator's comment: Uploading file in (資源庫) (師人分享) and (創作天地) are quite smooth. The process is very simple and straightforward. It would be better if the instruction text in (創作天地) can be more visible. Some test participants took longer time to complete the task, as it was difficult for them to find where to carry out the upload.

3.9 Download

- ✓ Ten of the fifteen test participants found that the download video and file process was simple and easy. Some test participants appreciated that there was different speed of choice in video download.
- However, most test participants found it was difficult to find the exact location to download a Mandarin video. One student test participant who had used the website for one year, went to *Radio Station* (教城電台) to find the Mandarin Programme.
- ✗ Four of fifteen test participants failed to finish the task because they could not find the programme.
- Six of thirty test participants commented the page loading was too slow. Five of them pointed out the loading directory page time on homepage search was quite long.
- During the test, there was at least two days that page-loading time was very long. It took more than 20 sec to load one page. This made test participants very impatient and want to give up the task.
- * Test facilitator's comment: The download process is quite simple. The selection buttons are clear and eye catching. Download process will be shorten if search & navigation are improved. It is always recommended to keep the website's page size down to avoid slow running of the site.

3.10 Post a question

- ✓ All test participants were satisfied with the process of posting a question in their community. Parents like the expression icons in (親子信箱). See Appendix B, figure 11.
- ◆ One parent pointed out “*I want to write a letter*” (我要寫信) in (親子信箱) was not straight forward enough. He suggested “My question”(我的問題) or “Ask advisor questions”(問專家意見) would be clearer. One student test participant suggested that it would be better if users could preview the draft first before posting the topic. See Appendix B, figure 12.
- * Test facilitator’s comment: It is suggested that the link (我要寫信) in (親子信箱) could be more outstanding , for example, in the form of a button. It should be located in a more dominant position on the page. Mouse down color for (我要寫信) should be more visible as white on pink is difficult to see.

3.11 Feedback and Response

- ✓ Nine out of the fifteen test participants managed to go to *information centre* (行政大樓) to find out *Contact Us* (聯絡我們) .
- ✗ Ten out of fifteen test participants firstly went to *feedback* (意見調查) to send their opinion about the website. When they discovered it was a questionnaire, they had no interest to fill in. Four out of fifteen test participants gave up the task after clicking on every icon and still could not find *Contact Us*.
- ◆ All test participants commented that *Contact Us* should be put right in front of the homepage. One test participant suggested that it could be presented in the form of a mailbox icon to match with the homepage graphics.
- ◆ Most of the parents considered that receiving the feedback from the social worker in one week’s time was too long. They suggested that three-days time was more acceptable. One parent suggested that there should also be able to be contacted in urgent cases.
- * Test facilitator’s comment: It is very important a site can provide a way for users to discover contact information for the company – mailing address, telephone number, fax number, and email address. We recommend HKedCity include a contact link on the homepage and use the direct word “Contact Us” (聯絡我們).

APPENDIX A. Usability Test Script

Before Test

Clear computer cache and cookie list.

Start browser – go to www.hkedcity.net

Test facilitator:

Test facilitator is neutral – I haven't participated in the development of this website. Please give as many comments as you can.

Test on the website only – This is a test to find out which part of this website need to be improved. We are not testing you. If you cannot finish the task, it is not your problem. You can do nothing wrong during this test.

I will not tell you how – I will observe what you do and drop down all comments from you. I will not answer your questions for how to finish the task but you can ask other questions so that I can understand what you are thinking.

Speak for your mind – During the test, I can only see your expression but cannot read your mind. So, please tell me what you are thinking and give as many comments as you like. (both positive and negative)

Test task for all subjects

All subjects will be asked to explore the site for few minutes and then ask the following questions:

A. 你睇到香港教育城有乜嘢內容?

(To see the test participant's brief concept on hkedcity.)

B. 你認為香港教育城係為邊啲人而設嘅呢?

(To understand the role of hkedcity in the test participants' mind.)

C. 呢個站有冇你想要或者需要嘅嘢?

(To investigate whether the test participants find the site useful to them.)

Test tasks for teachers – group A (search test)

1. 你正要準備小三/中二班，(空氣污染)嘅課程教材，請從網站中搵出有關資料。
(*Test the key word search function in home page*)
2. 你準備為你所教嘅科目做教材，你想搵出有關嘅簡報做參考。
(*Open-ended test for the search function*)
3. 假設你現正教小一數學，你想搵出有關試卷參考。
(*Test of inside page search function*)
4. 你想搵一個普通話節目給學生看 (適合你所教的班別)。
(*Open-ended test for search function in other area*)

Test tasks for teachers – group B (overall test)

- a. 你想準備關於空氣污染嘅教材 (高中程度)，請試搵出有關嘅簡報，然後下載到電腦。
(*Test of download information*)
- b. 你最近嘅工作壓力好大，你想睇吓呢個網站有冇啲教師減壓嘅方法提供。
(*Test of navigation and information categorization*)
3. 你寫了一篇關於如何令學生專心上課嘅文章，想同其他老師分享，請上載到適當的位置。
(*Test of upload and registration*) (file name : “TestA” on desktop)
4. 你想同其他學校嘅老師, 討論一下非典型肺炎所引起嘅問題。
(*Test of post a question or feedback*)
5. 你對呢個網站有啲意見，請將你嘅建議告知有關部門。
(*Test of feedback & response function*)

Test tasks for students – group A (search test)

1. 你嘅同學 steven 寫咗一篇叫「快樂」嘅文章，放咗上網，請你試搵出嚟。
(*Test of keyword search in student center*)
2. 你最希望入讀本港邊一間學校？請試搵呢間學校嘅資料出嚟睇吓。
(*Open-ended test for the search function.*)
3. 你要準備一個關於空氣污染嘅簡報，請你搵出有關資料。
(*Test of search in information centre*)
4. 你想搵出啱你程度嘅數學試卷參考。
(*Test of search in information centre*)

Test tasks for students – group B (overall usability test)

1. 你想睇吓呢個網有冇電影「無間道」嘅影評。
(*Test of search function and information categorization*)
2. 你想同其他學校嘅同學，討論一下非典型肺炎所引起嘅問題，請將「非典型肺炎」這個標題放上網站適當嘅地方。(*Test of post information*)
3. 你寫了一篇詩詞，想同其他人分享，請上載到適當嘅位置。(file name : “TestB” on desktop)
(*Test of upload and registration*)
4. 你想搵一個普通話節目收看及下載(適合你所讀嘅班別)。
(*Test of video download*)
5. 你對呢個網站有啲意見，請將你嘅建議告知有關部門。
(*Test of feedback & response function*)

Test tasks for parents – group A (search test)

1. 聽講有間林護紀念學校幾好，請試搵呢間學校嘅資料出嚟睇吓。
(*Test the key word search function.*)
2. 你最希望你個子女入讀本港邊一間學校？請試搵呢間學校嘅資料出嚟睇吓。
(*open-ended Test for the search function.*)
5. 假設你個子女現正就讀小一，你想搵啱佢程度嘅數學試卷幫佢溫習。
(*Test for search function in other area*)
4. 你想搵一個啱你個小朋友程度睇嘅普通話節目收看。請你現在試搵出來。
(*open-ended Test for search function in other area*)

Test tasks for parents – group B (overall test)

1. 你想搵一個啱你個小朋友程度睇嘅普通話節目收看及下載。
(*Test of video download*)
2. 你想幫你個子女搵一啲啱佢程度嘅網上讀物。
(*Test of information categorization*)
3. 聽講呢個網站有個解答子女問題嘅地方，請你搵出嚟，然後喺入面問一條問題。
或者你可以問呢條問題：“請問如何解決兒童不專心讀書？”
(*Test of registration and posting information.*)
4. 你對呢個網站有啲意見，請將你嘅建議告知有關部門。
(*Test of feedback & response function*)

Questionnaire

For interview after solving tasks

1. 你因乜嘢少去呢個網站呢？

2. 你認為香港教育城呢個網站有乜嘢缺少嘅地方？

3. 你認為香港教育城呢個網站易唔易用？

4. 你對呢個網嘅搜尋功能有何意見？

5. 你對呢個網嘅設計有乜意見，例如：字體大細，顏色，圖象等？

6. 睇呢個網入面，如果要你揀出三樣最值得讚嘅地方，你會揀乜呢？

7. 睇呢個網入面，如果要你揀出三樣做得最唔好嘅地方，你會揀乜呢？

8. 你認為呢個網嘅內容，有乜嘢改善嘅地方？

9. 你會唔會去其他嘅網站找尋類似嘅教育資料？試舉例及比較一下。

10. 將來你自己會唔會上香港教育城呢個網呢？

Questionnaire

香港教育城網頁的可用性設計調查 (請在適當的地方圈出你的答案)

非常不同意

非常同意

- | | | | | | |
|------------------|---|---|---|---|---|
| 1. 這個網站完全符合我的需要 | 1 | 2 | 3 | 4 | 5 |
| 2. 我很快便找到想找的東西 | 1 | 2 | 3 | 4 | 5 |
| 3. 這個網站的指示清楚有邏輯 | 1 | 2 | 3 | 4 | 5 |
| 4. 我滿意這個網站的運作速度 | 1 | 2 | 3 | 4 | 5 |
| 5. 這個網站很容易瀏覽資料 | 1 | 2 | 3 | 4 | 5 |
| 6. 我很滿意這個網站的搜尋功能 | 1 | 2 | 3 | 4 | 5 |
| 7. 我很容易便把影片/資料下載 | 1 | 2 | 3 | 4 | 5 |
| 8. 我很容易便把資料上載 | 1 | 2 | 3 | 4 | 5 |
| 9. 我喜歡使用這個網站 | 1 | 2 | 3 | 4 | 5 |
| 10. 我喜歡這個網站的整體設計 | 1 | 2 | 3 | 4 | 5 |

Test Recording Form

Classification

1. Good. This is recommendable.
2. Good suggestion from participants.
3. Cosmetic problem. Caused test participants to hesitate for a few seconds.
4. Serious problem. Delayed test participants for 1 to 5 minutes, but can continue.
5. Critical problem. Test participants cannot solve a task.

Task/Duration	Classification/ Breakdown / What they think	Facial Expression

APPENDIX B. www.HKedCity.net Screenshots

The screenshots below show some of the key pages from www.HKedCity.net



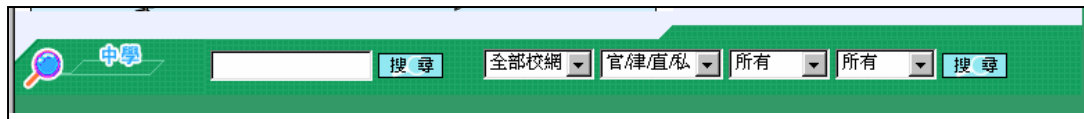
Figure 1 : Homepage. The search button was difficult to be seen among the moving news navigation bar and colorful graphics. The HKedCity logo and hyperlink text was placed at the bottom of the page.



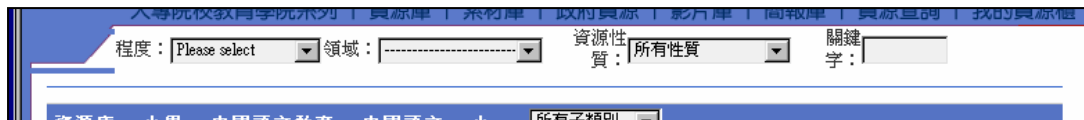
Figure 2 : The pull-down search menu was blocked by update news graphics which stopped users to use the text box to search.



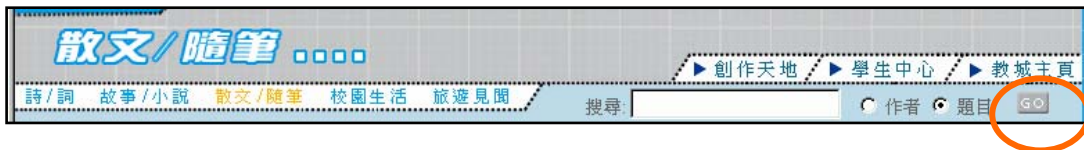
Figure 3: Test participants misunderstood the search boxes. They thought it could search article and members at the same time.



a.



b.



c.

Figure 4a, b, c : Different search box layouts in 校園區, 資源庫 and 創作天地. In 資源庫(4b) there was no search button to activate a search. In 創作天地, the search button was too fast away and quite subtle. The inconsistency makes users confuse.



Figure 5: If user didn't know the school name, search by using the selection bars was an option. But if you selected English & Chinese school + Boy school, it would show No findings. It seemed the school list was quite limited or the search function did not work well.







Figure 6: If the computer was set to a resolution of 800 X 600, the hyperlink text was hidden in some monitors. Users found it difficult to know the whole picture of all titles.



Figure 7: The navigation menu bar let users go to other subtitles easily but it only appeared in limited titles and pages.



Figure 8: The back to homepage icon and text was not outstanding enough. The inconsistent use of terms and colors also made users difficult to recognize it easily.

	共有 2121 個資源	4 預防傳染病必聽一甲、戊型肝炎
	特殊教育 共有 899 個資源	5 預防傳染病必聽一菌仔反擊戰
	分享你的資源 歡迎教師提供資源放在資源庫和大家分享。 上載資源	6 預防傳染病必聽一小心飯食、慎防霍亂
	免責聲明 倘若本資源庫內的教材可能觸犯閣下的版權，敬請電郵往 resources@hkedcity.net 與我們聯絡。我們會儘快跟進。	7 預防傳染病必聽一麻疹、流行性腮腺炎及德國麻疹疫苗
		8 預防傳染病必聽一免疫接種不容忽視
		9 預防傳染病必聽一麻疹常識
		10 預防傳染病必聽一肺

a.

b.

c.

Figure 9a, b, c: The upload icon in *資源庫* was placed at the bottom of the page. The upload icon in *師人分享* appeared in different places, sometimes at top and sometimes at the bottom. This made users confuse.

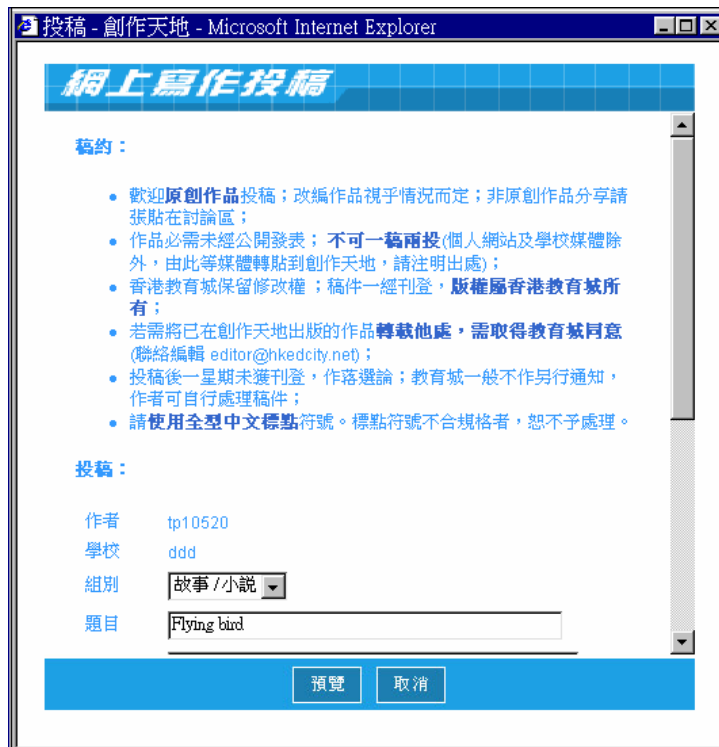


Figure 10: The upload instruction in *Students' Corner* was difficult to be read. The blue color words on white background make it less important than the black copy.



Figure 11: Parents test participants like the icons in 親子信箱. They were fun and functional.



Figure 12: The link(我要寫信) was a bit subtle under the pink color background after clicking. It would be more outstanding if it appeared in form of a button and placed in more dominant position. E.g. the upper-left top white space.

APPENDIX C. Test Task Results

The chart below lists all test tasks and all test participants. Each entry indicates how successful the test participant was in solving that particular task.

- ✓ Solved without problems.
- ◉ Solved with minor problems.
- Solved, but serious problems arose which delayed the test participant significantly.
- ✗ The test participant could not solve the task or reached a result which was significantly different from the desired result.

Search test for parent	Search a school info.	Search a school info. (open)	Search Mathematics Test paper	Search a Mandarin Program
Participant 1	◉	◉	●	●
Participant 2	✗	✓	●	✓
Participant 3	◉	✗	◉	◉
Participant 4	●	✗	✓	●
Participant 5	✗	✗	✗	●
Search test for teacher	Search Subject info.	Search a Subject Power point (open)	Search Mathematics Test paper	Search a Mandarin Program
Participant 6	✗	◉	◉	✗
Participant 7	◉	●	✓	✓
Participant 8	●	◉	✗	✓
Participant 9	◉	●	✗	●
Participant 10	✗	◉	◉	◉
Search test for student	Search a student's poem	Search a school Info. (open)	Search a subject power point	Search a Mathematics Test paper
Participant 11	●	◉	●	✗
Participant 12	✓	✓	◉	✓
Participant 13	●	●	✗	✗
Participant 14	◉	✓	●	✗
Participant 15	✗	●	✗	✗

Overall test for parent	Download a Mandarin Program	Find a subject info. (open)	Nil	Post a question in your community	Test of feedback & response
Participant 16	✗	●		●	●
Participant 17	✗	✗		✓	✗
Participant 18	●	✓		●	●
Participant 19	✗	✗		✓	●
Participant 20	●	●		●	●
Overall test for teacher	Find a teacher info.	Download a power point	Upload an article	Post a question in your community	Test of feedback & response
Participant 21	●	●	●	✗	✗
Participant 22	●	●	✗	●	●
Participant 23	●	✓	✓	✓	●
Participant 24	●	✓	●	✓	✓
Participant 25	✓	✓	✓	●	●
Overall test for student	Find a movie info. (open)	Download a Mandarin Program	Upload an article Upload an article	Post a question in your community	Test of feedback & response
Participant 26	✓	✓	✓	●	✗
Participant 27	✓	●	●	✓	●
Participant 28	●	✓	✓	✓	●
Participant 29	●	●	✓	✓	✗
Participant 30	✓	✗	●	✓	●

References

Jakob Nielsen & Marie Tahir, 2002, *HOMEPAGE Usablity*, New Riders Publishing

This book examines the effectiveness of 50 homepages. It provides homepage usability guidelines, comments and recommendations.

Jakob Nielsen, Carolyn Snyder, Rolf Molich, Susan Farrell, 2000, *Category Pages*, Nielsen Norman Group

This report gives guidelines to organizes and prioritize a site's offerings. It also shows important findings about what works and doesn't work on category pages.

Jakob Nielsen, Carolyn Snyder, Rolf Molich, Susan Farrell, 2000, *Search*, Nielsen Norman Group

This report examined the site's search tool. It gave guideline and recommendations to improve search visibility, search expression and search result interpretation.

Jakob Nielsen, Carolyn Snyder, Rolf Molich, Susan Farrell, 2000, *Methodology*, Nielsen Norman Group

This report details how the Nielsen Norman Group conducted their studies, including a summary of user demographics, how they briefed and interacted with users, and a summary of all the tasks.