Care For Our World

STYLE AND REFERENCE GUIDE

Neil Schnepf

PREPARED FOR SUNBREAK GAMES

Goal of this Guide

This material was collected during the pre-production phase of *The Care For Our World* eBook application.

The intent was to collect stylistic and authoritative references to guide the direction of its development and to translate the beloved children's book into a fun and effective educational tool for young and developing readers.

Even in 2016, there was already a great deal of material to draw from for the basis of this document. There was a large body of scholarly material for traditional print books available, as well as several years of design references from educational and child-focused web sites to utilize.

The guide explores a variety of font options appropriate for developing readers, provides numerous UI/UX references and culminates in an overall design strategy for the project.

The final application utilizing the material referenced in this guide can be found on the App Store.

About Care for Our World

Take an interactive journey around the world, discovering diverse environments and the animals that call them home, in this animated adaptation of the award-winning children's book, Care for Our World. Additional creative activities are included, like Coloring Book pages, creating custom habitats, and even Learning facts, sounds, and photo galleries in the Animal Encyclopedia.

"Care for our world, for you and for me, for all living things from mountain to sea."

Author Karen Robbins' delightful words and illustrator Alexandra Ball's captivating images combine to inspire children to care for the earth they call home: a timely reminder of the responsibility every generation shares to nurture and respect life in all its many forms.

Contents

Typography for Early Readers

References:
Effective Use of Typography in Applications for Children
Typography for Early Readers
Best Fonts for Children's Books

One of the most important parts of a book's design is the typography. Children learning to read are only familiar with basic letter forms and are taught to read black text on white background. This is an important issue to consider when designing a book. Use the illustrations and design elements to create the desired aesthetic rather than an overly expressive typeface.

Font

Most children learn to read by going letter by letter until they are able to make sense of an entire word. Therefore, it is important to choose a typeface with well-defined contours and generous space between letters, which gives a warm and inviting feeling.

There are certain letter forms which are recommended for beginner readers. For example:

Make sure the typeface used has the correct letter forms to make it easier to read.
Sans serif fonts are more appropriate for children as they are closer to the way we learn to write therefore are easier to recognize the letters.

Many websites and applications for children—such as *Sesame Street's* website (shown below) or *PBS KIDS*—use rounded, playful, sans serif typefaces for large headlines and interactive UI elements, while using simpler, more traditional fonts for the more adult links at the bottom of the page.
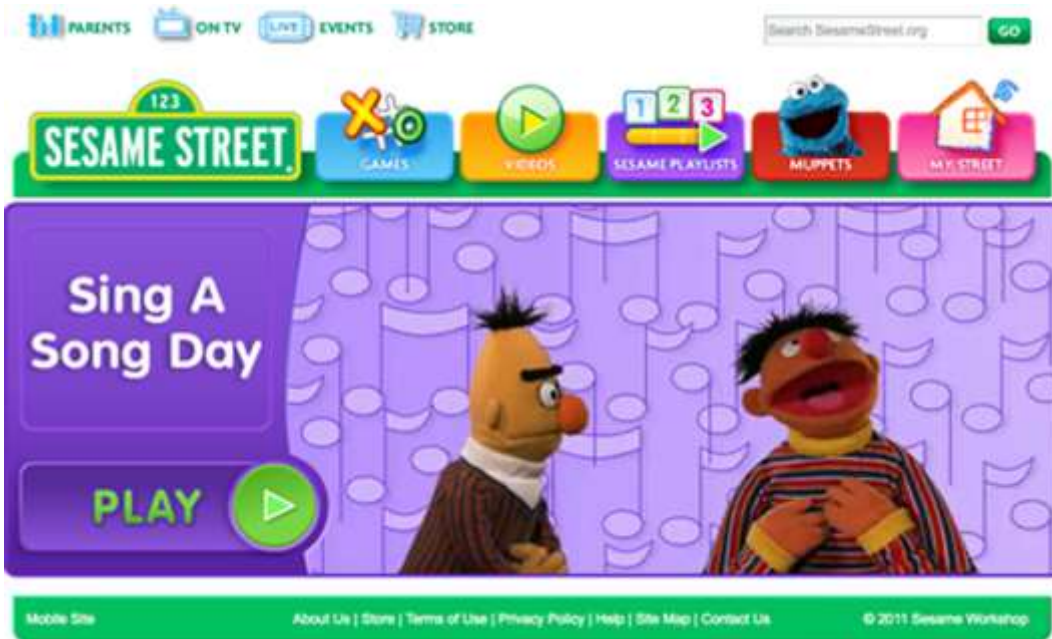
Some font types similar to those that appear on the *Sesame Street* Web site

Hess Gothic Round

Hess Gothic Round Bold

This Sans

VAG Rounded Light

Children's books have a limited amount of text and are not designed to be read a high speed therefore a serif font is not appropriate. Some other recommended fonts:

AG Schoolbook™ BQ Font Family

ABCDEFGHJJKLMN
OPQRSTUVWXYZÀÅ
abcdefghijklmnopqr
stuvwxyzàåéîõøü&1
234567890($£€.,!?)

Report School Font Family

ABCDEFGHIJKLMN
OPQRSTUVWXYZÀÅ
abcdefghijklmnopq
rstuvwxyzàåéîõøü&
1234567890($£€.,!?)

Sassoon

ABCDEFGHIJKLMN
OPQRSTUVWXYZÀÅ
abcdefghijklmnopqr
stuvwxyzàåéîõøü&1
234567890($£€.,!?)

Gil Sans Infant (formerly Schoolbook)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ
ÀÅÉÎÕabcdefghijklm
nopqrstuvwxyzàåéîõ
&1234567890($£.,!?)

Serif fonts are typically used in long blocks of text like novels and newspapers as they are designed to aid the flow of your eyes reading from left to right.

While it is it is common practice to use sans serif fonts in applications for children (mostly because of their fresh look and simplicity), there are some exceptions to this practice. For instance, applications that offer a reading experience that resembles reading a book—often with the help of a caregiver. This is in contrast to the more exploratory, quick nature of reading on the Web or in gaming experiences. Some examples include mobile applications like *Alice for the iPad* (shown below), *Toy Story Read-Along*, and *A Present for Milo*.
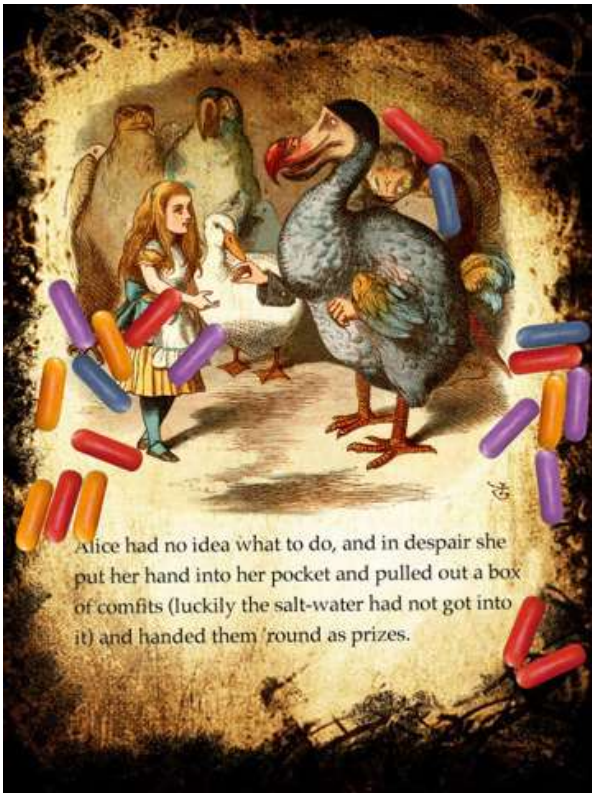
Bembo Schoolbook

ABCDEFGHIJKLM
NOPQRSTUVWX
YZÀÅÉabcdefghijkl
mnopqrstuvwxyzàåé
&1234567890($£.,!?)

Plantin Schoolbook

ABCDEFGHIJKLM
NOPQRSTUVWXY
ZÀÅÉÎÕabcdefghijkl
mnopqrstuvwxyzàåéî
&1234567890($£.,!?)

The serif fonts *Bembo Schoolbook* and *Plantin Schoolbook* were designed specifically for easy readability and teaching language to kids.

Limit the Number of Fonts

To keep a professional and consistent look, try to limit the number of fonts to 1 or 2 throughout. If too many are used, the book will tend to appear very messy and inconsistent. It is recommended to use a sans serif for the body of the story then another, more expressive font, for the title of the book. The title of the book can get away with being more expressive as it is only a few words (and also conveys the character and setting of the story); however, it must still be very legible as young readers are ultimately the target market.

Font Styling

It is important to differentiate elements that are interactive and make it clear to children when they can tap, click, or interact with something. Therefore, the text in links and labels for buttons tend to be the places were highly stylized typography are brought into play. Additionally, as noted above, titles and headings are giving broader license to break convention in support of artistic design and thematic integrity.

While it is vital to establish a visual hierarchy in expressing interactivity and, at the same time, convey a playful look and feel, designers should be cautious when using extra bold or extra thin letterforms, as well as drop shadows, italics, underlining, caps, and color. Always test to ensure that the styling *supports* the user experience rather than detracts from it—especially when working with preschoolers and beginning readers.

Many applications for children feature color, textured, patterned, or gradient backgrounds. Such backgrounds can easily decrease the legibility of letterforms—particularly when there is not enough contrast between text and its background. For this reason, it is essential to test the usability of an application with children of different ages and reading levels within the target audience. If they experience any difficulties or spend considerable time reading and understanding the text, simplify the typographic styling, the background, or both.

This becomes even more critical when children from around the world or with different levels of language skills use the product. Best practice is to provide various design alternatives for different languages. However, if this is not possible or the audience is very heterogeneous within one region, avoid using overly stylized typefaces, which can make it more difficult for kids to understand content or interact with an application. *Mattel's Hot Wheels* web site from 2011 provides an example of highly stylized typography. Almost every link and headline is in all caps, bold italics, and in color, with drop shadows, gradients, and contour lines over textured backgrounds. Since then, site designers have taken good practice to heart, revealing a cleaner, more user-friendly experience.

Hot Wheels :: 2011	Hot Wheels :: 2016

Other Things to Consider

Follow basic principles of typography. Designs for children should follow the same basic principles of typography and visual communication design as any other design project. No matter how organic and playful the look of a user interface is, its layout should still have an underlying grid structure that displays information in the best way possible, carefully balancing all graphic elements.

Use consistent layouts. In trying to make pages visually attractive to children, many designers end up with layouts that are a hodgepodge, disrupting users' visual flow. Always remember to use layout patterns that achieve a good balance between text, color, and graphics in *all* sections of the application, and use the same fonts throughout. And even with a very colorful and vibrant layout, the use of negative space is as critical as ever.

Strive for legibility. Keep in mind that most children are not going to read entire paragraphs of text unless it is critical to their experience with an application (game instructions or Help pages), it relates specifically to their areas of interest (community pages), or text is the core content of an application (digital books). Furthermore, children below 6 years of age can cope with only individual words or very short sentences.

But even with large blocks of text, it is imperative to observe the following guidelines to make sure any text content is as legible as possible:

alignment—As in any other design project, having consistent alignments between links, headlines, sentences, and paragraphs is key. It is also crucial to verify that the type of alignment used is not interfering with children's ability to read text, which usually occurs when using centered, justified, or right-aligned text.

font size—Use font sizes that correlate with children's developmental stages. For example, preschoolers and beginning readers require a larger font size than is usual for experienced readers. This is especially important for links and button labels. At the same time, it is common practice to use outsized headlines and titles to capture children's attention and divide content into sections using visual hierarchy. On this point, research studies focusing on online typography for children provide the following rule of thumb: A larger, 14-point font size is considered to be easier and quicker to read, as well as being more visually appealing.
In general, a range of font sizes between 14-18 pt is typically recommended.
In general, never go any smaller than 12pt for a children's book.

font color - Stick to black text on white background wherever possible. This is the main way we learn to read, so it is easier for a child to switch into reading mode when the text follows this color combination.

line width—When you need to include paragraphs or long sentences, be sure to use a line length that is consistent with the span of a child's focus on a screen, which can be shorter than that of an adult (which as a rule of thumb is between 50 and 75 characters, for continuous unjustified text).
For reference, Charlotte's Web is recommended for readers 9 to 11 years old and is on the low end of the scale with 55 characters per line.

You can determine what is appropriate according to the age of the child and the size of the screen—mobile phone, tablet, or desktop—as well as through usability testing. At the same time, be sure to use generous leading (**16 - 22 pt**), line heights, and good separation between sections, so kids can easily identify different letterforms and chunks of content.

Read the text as you lay it out and split the lines accordingly. Try to eliminate any orphans (one word lines).

Do not hyphenate any words, as the reading level does not necessarily understand hyphenation yet and it is also a messy way to display your text.

In sum, it is important that the type is big with lots of white space around it so the reader can easily follow the line of text they are reading and separate the letterforms and words.

Leading is the space in between the lines.

A simple rule is your leading should be wider than your word spacing.

While there is no perfect line height, a good rule of thumb is to set it at approximately 150% of the font size.

(Keep in mind that this rule of thumb sets the maximum for *adult* readers).

Further Reference:

Typographic guidelines for calculating ideal column width and line length.

Size Matters: Balancing Line Length And Font Size In Responsive Web Design

Five simple steps to better typography

no extra work—Avoid making users do extra work to read text—as is the case with animated text, where children would need to read words while trying to follow their movement on the screen—or making children use scroll bars or other interactive elements to see all of the content.

minimize distractions - Keep a lot of white space around the text. It is important that the child is able to concentrate on reading the text without being distracted by graphics or illustrations.

Appropriate Graphic Styling for Children's Color Perception

[Reference](#)
Younger children, in the range of two to three years old, generally prefer bold, primary colors and high contrasts in graphic layouts that evoke exploration and discovery.

Case Studies

Curious George

Curious George (Kids Play!) - 2011

An example of this is the Curious George section of the PBS Kids Play! Web application from 2011:

The background illustrations are generally very colorful in such layouts, which create an immersive and exploratory experience for children. However, it is still important to maintain a visual hierarchy and emphasize elements that are interactive. This can be achieved by making clickable or tappable elements bigger, adding subtle drop shadows or contour lines, or using a broader color palette than the one you've used in the background graphics. Additionally, in applications for children, audio and animation cues generally accompany such visual emphasis, prompting users to action.

In the example above, there are three types of navigation systems, and the use of graphic elements in each of them differentiates them from one another.

The navigation graphics in the park area have the same look and feel as the static graphic elements, providing a unified look. At the bottom of the page, the navigation for choosing characters uses a more elaborate 3D look, with bold white contour lines to call attention to this different area of the page. Finally, the navigation for parents or caregivers uses simple text links in the upper-right corner of the page. Most likely, younger users would ignore these.

Now, let's examine the [2016 version](#) of the site.

Curious George (Kids Play!) - 2016

The layout of the main menu is now considerably different, but still adheres in many ways to the principles of the earlier design. I imagine part of the reasoning for the refit was to drive overall consistency amongst the various sub-pages beneath the main PBS *Kids Play* site.

Here, we can still see a bright, bold color palette that echoes the color scheme of the title along with the three distinct navigation systems.

Curious George (Kids Play!) - 2016

Children's attraction to bold colors and high contrasts extends all the way to their fifth year. However, children's tolerance for broader color palettes, more complex textures, and more advanced levels of depth has increased—largely because of the now very common use of computer-animated, 3D graphics in movies and TV shows for young audiences.

This is the approach that the *Sid the Science Kid* Website takes, which is also part of PBS Kids product family.

Sid The Science Kid

Side the Science Kid, 2011/2016

When using this kind of styling, the background elements usually have as many intricate graphic details as the main navigation elements. Therefore, it is very important to keep layouts as clean as possible and maintain an effective visual hierarchy. Young users should always be able to discern where to click or tap—or at least where to start exploring an application, regardless of the style of the highly immersive graphics in a layout's background and foreground.

In this example, the main navigation elements are in the center of the page, and their size is bigger than that of interactive elements at the top and bottom of the page. Although the designers have

made use of detailed background graphics, they've also used dark shades and subtle spotlights to differentiate static elements from interactive components.

This Web site also differentiates its primary and secondary navigation through their different background colors, location, size, and general look and feel. The highly immersive, graphic navigation elements at the center of the page draw users' attention to what the page's designers want users to explore first; while the secondary navigation areas at the top and bottom edges of the page use simpler background textures and smaller sizes.

Now, let's revisit this site in its **2016** incarnation.

What's interesting is that the site is virtually unchanged.

The one subtle difference is the link bar at the top of the screen. Isolated from the rest of the page, utilizing a different font and color, the area is marked off for use by parents and caregivers.

Effectively, five years of usability studies have been conducted on the site and shown it to be an effective design. The younger audience has become sophisticated enough to recognize slightly more stylized iconography, while retaining clear, distinct hierarchies and color schemes.

Sid the Science Kid – 2016

Other Considerations

In general, the age of the target audience, the theme of your application, and the types of activities required of the users to perform should determine the look and feel of the application. However, when designing applications for mobile devices and young children, the following considerations should be kept in mind:

- **designing immersive experiences**—Because of the high-resolution rendering capabilities of devices like the iPad, both children and their parents or caregivers have learned to expect immersive experiences that include high-quality graphics and animations. This is an important point that should not be taken lightly. Furthermore, it's important to implement visually rich applications for efficient performance. Although many mobile applications for children are beautiful and fun, they may take a while to load, causing immediate frustration to young users who are eager to play.

- **designing for small screens**—The smaller screen real estate of mobile devices calls for a higher emphasis on graphics for the main navigation elements, cleaner layouts and backgrounds, and less complex conglomerations of features. Most toddlers and preschoolers want to explore and interact with apps quickly, but don't have a specific task in mind; therefore, the design should be playful and exploratory, but uncluttered and focused. Always think twice before including things like company logos, settings and other options, menus or secondary navigation elements, and graphics that are not part of the task at hand.

- **designing for autonomous use**—Unless specified otherwise, assume children will use the application without the help of an adult. Thoroughly test the usability of your mobile app with your target audience. Check that the size of interactive elements is adequate for preschoolers' fingers and motor abilities, so they don't accidentally tap buttons that would take them away from their current experience and cause frustration.

Images, Graphics, and Icons

Toddlers and preschoolers are very literal in their interpretations of the icons and images that provide calls to action in interactive applications, as well as in their expectations of what will happen when they click or tap them. For example, while young children are able to associate back and forth arrows with navigation systems,

they might not always be able to extrapolate the meaning of a home button or a floppy disk icon, ubiquitous in the adult digital world.

A close up of **Sid the Science Kid's** menu choices shows a mixture of style sophistication levels that might mean that younger readers would need to view the site with the assistance of a parent or teacher. In particular, the association of the 'paper and crayon' icon with printing something first before coloring, might not be obvious to very small children. That being said, the fact that these images have remained unchanged in 5 years points to a successful overall user experience. Again, it's a matter of the target audience for the application: *Sid* has a much broader range of ages than other, more targeted sites, so some balance needed to be struck in order to appeal to different reading levels; older readers would be able to navigate the site unattended, but less experienced ones might occasionally need the assistance of a gatekeeper to guide interaction.

The [Nick Jr](#) website uses a similar navigation bar, but with some subtle differences in the icons' graphics. An interesting idea is the use of a gaming console controller graphic to represent the Games section, which might be more in tune with digital natives' mental models. However, users younger than four years old might not be able to understand the metaphor.

The same situation occurs with the use of a Home icon. Although this a common reference on most Web sites, it might not provide a clear literal reference that matches children's mental models. This is especially true when we are dealing with very young kids who are just getting started with digital technology or children who have experienced other forms of navigation through game consoles, virtual worlds, or mobile apps. However, as noted below, the 2016 edition of the **Nick Jr** website has an interesting way of handling this issue.

Nick Jr - 2011

Both of the previous examples (*Sid the Science Kid* and *Nick Jr*) combine labels and icons in their navigation bars. This is a good practice to accommodate different developmental stages: very young children (ages three years of age and below) are not interested in text labels and navigate through an application almost exclusively by using icons. However, as kids approach their fifth year, they become more interested in reading and writing words and welcome the opportunity of matching the meaning of a word with its corresponding image. It is important however, to keep your use of language simple. If possible, try to reduce labels to only one descriptive word.

As we can see from the 2016 version of the *Nick Jr* site below, developers have continued the alignment with mobile devices, with a stronger reliance on image carousels and in general, less of a skeuomorphic adherence to 3D. In particular, some of the interface elements of the *Nick Jr* site had been displaced, re-arranged and de-emphasized.

The main menu has been pared down to just *'games'* and *'videos'*, there is no 'home' icon, a new *link* 'GROWNUPS' has been added, and the 'friends' character icons and available activities have been given a more prominent placement (increased size, and brighter, bolder use of color to attract young readers' attention).

The main menu also teaches a valuable usability experience: associating function and form. Both the *'Games'* and *'Video'* icons are visually associated in the carousel with their respective types (reinforcing the mental model of the user that links the effect (playing either a game or a video) with the image (icon-linked picture). Additionally, there is the pairing of the single-word text label with the icon for older readers.

Nick Jr - **2016**
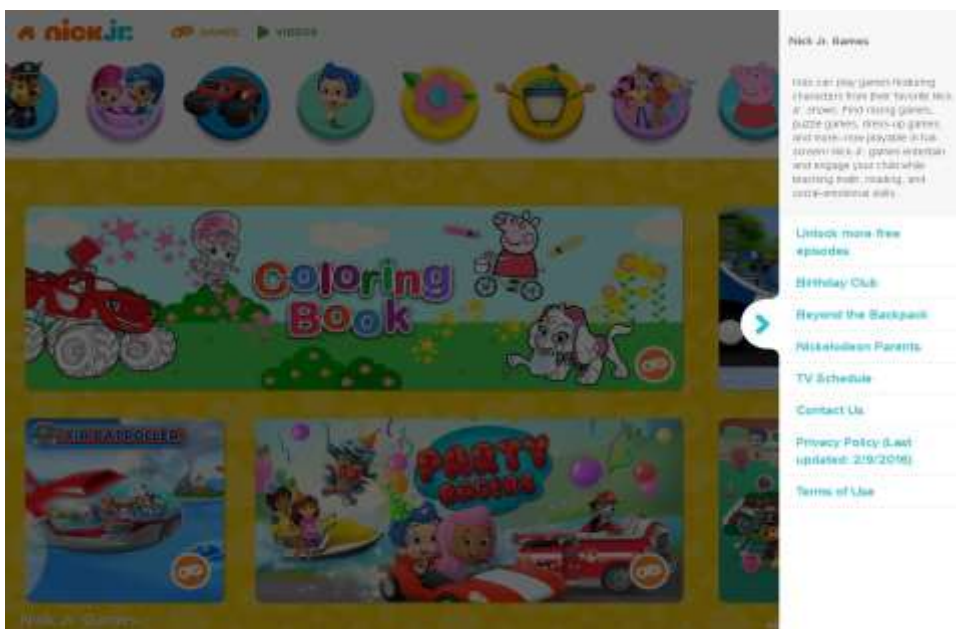
Clicking on the '*GROWNUPS*' link produces a rollout with information relevant only to adult caretakers (in-app purchases, contact information, tv schedule, etc.).

The fact that it is presented as a link, in a smaller font, with a subdued color and disassociated with anything resembling a button, means that younger readers are less likely to take notice of it.

Nick Jr 'Parents' sidebar - 2016

There are some interesting things to note on the other pages as well.

Once a child selects a game from the main menu, they are brought to a very similar screen, with a few subtle differences:

1. All of the images in the carousel are games, and
2. There now is a 'home' icon that's part of the *Nick Jr.* logo

Nick Jr. Games' screen - 2016

Maintaining a similar layout to the menu reinforces the familiar and builds confidence in the reader. Continued pairing of the images and game icon in the carousel strengthens this association, and grouping the 'home' icon with the *Nick Jr.* logo (which they have seen on the main screen) begins to develop a linking between that image and the action of returning to a place where they had started.

Clicking on a particular game brings up a new screen which has its own objectives for the UI/UX.

The left caret at the top of the screen suggests moving backwards (an action that is familiar to readers in other contexts), but here, it moves back to the previous screen (game menu).

Additionally, the vertical carousel of games allows the user to access other activities without leaving the page (achieving the UI goal of reducing actions, but also building a sense of the familiar to younger readers), while also introducing a variant of the horizontal carousel. Inexperienced readers learn that the same effect (scrolling through images) can appear in slightly different forms.

Barney and Friends

In contrast, let's look at a poor historical example from 2011.

The *Barney and Friends* Website navigation uses labels and highly colorful graphics as well, but displays the graphics in a way that might cause confusion to children.

The visual hierarchy is unclear, and the background elements could easily be confused with interactive components.

Plus, only the musical notes graphic is a clear match with the label Music. All of the other labels seem disconnected from their graphics.

Also, kids-only activities are not clearly separated from gated activities like 'Events' and other information for parents.

Fortunately, these shortcomings were taken to heart, and the site in 2016 now looks considerably different.

Here, *Barney and Friends* adopts the same iconography for 'games' and 'videos' as *Nick Jr.*, but it also now hides the non-reader related information behind the 'parents' button. The overall effect is a much less cluttered and truer (in the sense of providing an activity area for children) UI/UX.

However, the circular button should have been removed around the *'parents'* icon, making it less likely for a younger reviewer to take notice of.

In the end, it's vital that the icons be chosen with the target audience in mind to ensure that the correct meanings come across clearly.

Some common practices in the use of icons in applications for preschoolers include the following:

- Conventional graphics such as ***pencils, books,*** *and* ***arrows that go back and forth*** are well understood by children on both the Web and mobile devices. Arrows can be somewhat abstracted, as in the triangular shapes in the ***'Nick Jr.'*** example.

- Common media icons such as ***Play***, ***Pause***, and ***Stop*** buttons are also generally understood by children, mostly because of their familiarity with media players and their widespread use of media websites like YouTube.

- Short action words like ***Play*** and ***Go*** are also generally understood by younger users.

Some More Good Fonts for Children's Books

Titles

Titles are what catch people's eye. Fonts like Georgia, Papyrus or Comic Sans MS will get no one's attention.

RALEWAY

Raleway, is a great alternative font; it's perfect for titles, looking very neat and tidy. It's smooth and very straight forward. A wise choice for more mature readers.

```
A  B  C  D  E  F  G  H  I  J  K  L  M
N  O  P  Q  R  S  T  U  V  W  X  Y  Z

a  b  c  d  e  f  g  h  i  j  k  l  m
n  o  p  q  r  s  t  u  v  w  x  y  z

0  1  2  3  4  5  6  7  8  9

.  ,  ;  :  @  #  '  !  "  /  ?  <  >
%  &  *  (  )     $
```

Age Recommendation:

Usually recommended for use in books for ages 7+ because its more mature design makes it multipurpose - it's also good for 9- to 12-year old's.

[Download for Free at The League of Moveable Type](#)

Subtitles

Subtitles, such as the chapter title, or on the cover the author/illustrator's name, etc. Subtitles are less important than titles/body text, but still play an important role.

HERO & HERO LIGHT

Hero & its sister font, Hero Light, can be a good fit for a title/subtitle. They are wide and multipurpose. Hero also comes in a thin version.

Age Recommendation: About 4+.

[Download for Free at FontFabric](#)

Body Text

Body text is the text that is used throughout the whole book (for every chapter, page, etc.)

CANDIDA BT

Used in Annie Barrow and Sophie Blackall's *Ivy and Bean Series,* it looks good in any size and is easy for kids to read. Candida BT is modern style with a few bits of classic woven in.

Age Recommendation Recommend for use in books for children ages 6 to 10. It's a pretty clear font, although not the best for five years old and under.

[Download for Free at Font Palace](#)

SEGOE UI

Segoe UI is a simple, unique font suitable for a broad range of applications. This font looks best in smaller sizes, typically between 10 pt and 20 pt. After 20 pt, it's best as subtitles.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvqxyx1234567890!@#$%^&.,|

Age Recommendation: Every age. It's easy for young children to read, but not too simplistic for older children or adults.

Download for Free at Fonts for Web

Fonts in CFOW

Font List from CFOW print edition (including playset)

Futura-2	Futura No. 2
FuturBoo	Futura Book
MrsEavRom	MrsEavesRoman
P22 Garamouche	P22 Garamouche
Times.dfont	Times

Font from Buddy & Me, appropriate for young audience:

Teen (Regular and Bold)

Font Reference

Futura No. 2

Futura

Mrs Eaves Roman

P22 Garamouche

Teen

Alternatives to Existing Fonts

Fonts similar to Mrs Eaves

Baskerville

Paciencia

Baskerville

Paciencia

Fonts similar to Futura No. 2

Architype Renner

Gotham

Architype Renner

Gotham

Other Fonts to Consider

ALS Dereza™	$$
Candida	$$
Filmotype Major	$$
Galano Grotesque	$$
AG Schoolbook	$$
Report School	$$
Frutiger	$$

Candida

ABCDEFGHIJKLM
NOPQRSTUVWXY
ZÀÅabcdefghijklm
nopqrstuvwxyzàå&
1234567890($£.,!?)

Filmotype Major (similar to Dr. Seuss)

ABCDEFGHIJKLMNO
PQRSTUVWXYZÀÅÉ
abcdefghijklmnopq
rstuvwxyzàåéî&123
4567890($£€.,!?)

Galano Grotesque

ABCDEFGHIJKLMN
OPQRSTUVWXYZÀÅ
abcdefghijklmnopq
rstuvwxyzàåéîõøü&
1234567890($£€.,!?)

AG Schoolbook

ABCDEFGHIJKLMN
OPQRSTUVWXYZÀÅ
abcdefghijklmnopq
rstuvwxyzàåéîõøü&
1234567890($£€.,!?)

Report School

ABCDEFGHIJKLMN
OPQRSTUVWXYZÀÅ
abcdefghijklmnopq
rstuvwxyzàåéîõøü&
1234567890($£€.,!?)

Frutiger

ABCDEFGHIJKLMNO
PQRSTUVWXYZÀÅÉÎ
abcdefghijklmnopq
rstuvwxyzàåéîõøü&
1234567890($£.,!?)

Dereza

ABCDEFGHIJKLMNOPQRSTUVQXYZ
abcdefgklmnopqrstuvwxyz
0123456789

More Fonts to Consider (similar to Sesame Street font)

Hess Gothic Round NF
Hess Gothic Round Bold
This Sans
VAG Rounded Light

Hess Gothic Round NF

ABCDEFGHIJKLMNO
PQRSTUVWXYZÀÅÉ
abcdefghijklmnopq
rstuvwxyzàåéîõø&
1234567890($£€.!?)

Hess Gothic Round Bold

ABCDEFGHIJKLMNO
PQRSTUVWXYZÀÅÉÎ
abcdefghijklmnopq
rstuvwxyzàåéîõø&1
234567890($£€.,!?)

This Sans   **VAG Rounded Light**

ABCDEFGHIJKLMNOP
QRSTUVWXYZÀÅÉÎÕ
abcdefghijklmnopqrst
uvwxyzàå&12345678
9012345678go($£€.,!?)
42

ABCDEFGHIJKLMNO
PQRSTUVWXYZÀÅÉÎ
abcdefghijklmnopq
rstuvwxyzàåéîõøü&
1234567890($£.,!?)
52

Design Strategies

Reference:

Challenging assumptions

Relying on color to communicate is problematic not only for the colorblind, but for users in different cultures. Using green for "go" and "red" for stop might not be relevant to a child in rural Africa who doesn't see many traffic lights. Left and right might not be understood as forward and back when not all languages are read from left to right.

Many of these learners have never used a computer system before, so how easy will a button need to be to click? How do you select imagery relevant to the learners and their environment?

Affordances and signifiers

An ***affordance*** is something about an object that allows it to be used for a certain action. So, a knob affords twisting and a cord affords pulling. Chat rooms afford fast, live social interaction, whereas forums afford longer-term, considered discussion.

In the digital world, we talk a lot about affordances, but we really mean perceived affordances. After all, no matter what we do on a computer, we're performing the same set of physical actions every time (clicking a mouse or moving a finger), so perceived affordances are aspects of the design of things like buttons, links, and interactions that communicate their purpose to the user.

The notion of affordances was originally proposed by psychologist James Gibson in the 1970s, and Don Norman helped to popularize the concept with modern designers. Norman has since acknowledged that the term has met with much confusion in the virtual world. As such, he has suggested the term signifier as a replacement. In the 2013 revision, *The Design of Everyday Things*, Norman explains,

"Affordances define what actions are possible. Signifiers specify how people discover those possibilities: signifiers are signs, perceptible signals of what can be done. Signifiers are of far more importance to designers than are affordances." Certainly, this is most obviously true in virtual design.

Desirable difficulty and errors

Poor interface design can get in the way of learning by slowing it down, imposing hurdles, and using up precious cognitive load. However, things like slowness, hurdles, and challenge are essential for many kinds of learning. Educators employ tactics like deliberate slowness, appropriate challenge, desirable difficulty, and in some cases, even productive failure to improve learning every day. The difference is that, in these cases, the challenge is relevant and supports learning. Desirable difficulty is usually designed into the learning activity by a learning designer, and not by the interface designer. But in some cases, the interface

designer will get involved. For example, if an interaction design creates obstacles, that might be OK if those obstacles are placed deliberately to support the learning in some well-considered way, such as to support reflection. The result should not distract the user from the learning experience.

Similarly, failure is also an option. Dimitri van der Linden and Sabine Sonnentag separate errors into three categories: *positive consequence, negative consequence, and neutral consequence*. Errors with a positive consequence are actions that do not give the desired result, but provide the learner with

information to help them achieve an overall goal. Some educational researchers suggest providing insurmountable challenges to students because there is much to be learned from failing the first time around. However, this productive failure is a feature of the instructional design, rather than the interface design.

With regard to error, the learning interface designer should

- Ensure that any obstacles are there to support the learning activity and are not simply the result of poor interface design.
- Create forgiving designs.
- Provide rich feedback.

Extraneous cognitive load

Steve Krug's "*Don't make me think*" mantra helps link learnability with interface design for learning. Why shouldn't an interface grab the user's attention? Because if the user is thinking about how to use the website, they're distracted from the task at hand. For many websites, that task is finding information,

making purchasing decisions, connecting with people, or meeting some other goal. In eLearning, the overarching goals are learning outcomes. To put it simply, the more thought the user has to give to the interface, the less attention can be given to learning. Ideally, the amount of learning should be maximized. This might not always be feasible (the user may engage in multitasking or seek

performance support on the job, for example). While you can't design your learner's context and environmental distractions, you can design your interface to stay out of the way.

In educational psychology, the amount of information a human brain is attempting to process at once is referred to as cognitive load. Unsurprisingly, there's a limit. Of course, cognitive effort directed at learning is a good thing. However, attention that must be paid to things unrelated to the learning activity (like operating the interface) can be considered extraneous. It's the learning interface designer's responsibility to reduce extraneous cognitive load.

Intrinsic complexity

Just as difficulty can be desirable when it aids learning, complexity can be essential. Avoiding interface complexity is about reducing extraneous cognitive load. In the same way, it's important to separate the notion of extraneous complexity, the "bad" (avoidable) complexity associated with the interface or instructional methods, from intrinsic complexity, the complexity that's part of what is being learned. Some learning interfaces will be necessarily complex because, for example, they involve high-fidelity simulation, like aircraft simulators, or because a large number of features and functions must be made available for authentic practice. In both cases, the interface complexity is essential to the learning experience.

Learnability

It's important to clarify the difference between learnability and learning interface design. ***Learnability*** is "the capability of a software product to enable the user to learn its application." In other words, learnability is strictly about easily mastering the software without instruction, not about learning the content presented.

Learnability has a lot of overlap with usability, in that it also benefits from familiar conventions, consistency, intuitive design, and [usability heuristics](#) (*Consistency and standards; Error prevention; Recognition rather than recall; Flexibility and efficiency of use; Aesthetic and minimalist design; Help users recognize, diagnose, and recover from errors; Help and documentation*).

Learnability is especially important for software and systems in which the user must overcome a learning curve before they can make full use of them. In contrast, interface design for learning looks at how interfaces can support learning in general, whether it's learning how to use software, or how climate change affects the earth. It's about designing interfaces for digital learning that support the cognitive and affective (emotional) aspects of learning (the user experience).

Mental models

Jakob Nielsen's definition:
"*A mental model is what the user believes about the system at hand.*"

1. ***A mental model is based on belief, not facts***: that is, it's a model of what users know (or think they know) about a system such as your website.
2. ***Individual users each have their own mental model.*** A mental model is internal to each user's brain, and different users might construct different mental models of the same user interface.

It's the complex abstraction of the user's understanding about how a digital environment is shaped, how it works, what it will do, and what you can do with it.

Mental models don't necessarily have anything to do with reality, and that's what can cause so much user strife. Why isn't this working? Why won't it let me do this? Why isn't this information here? All of these are examples of user frustrations that result from an inaccurate mental model. The user believes that the system should work in such a way, should allow her to take a certain action, or that information should appear in this location. But it doesn't.

When there's a mismatch between what a user thinks the system should do (mental model) and the system reality, there are a few options:

1. Redesign the system to conform to the user's understanding,

2. Redesign the interface to better communicate the nature of the system in order to correct the user's mental model, or

3. When all else fails, as with a very innovative interface, educate users.

There's also considerable **inertia** in users' mental models: ***stuff that people know well tends to stick, even when it's not helpful***. So, be careful when coming up with new interaction styles; the intrinsic value has to be immediately superior and easy to grasp in order to convince the user to abandon what is familiar.

Paradox of choice

It is a natural tendency to confuse an abundance of choices with freedom; it is essential that a designer strikes a careful balance between learnability and usability.

On the flip side, carefully designed choices can improve learning by giving beginners the guidance they need and experts the freedom they can handle. This is sometimes referred to as ***choice architecture***.

Principles of Choice Architecture

Reference 1 and **Reference 2:**

1. **Incentives**

   Choices with outcomes that manifest in the future will be influenced by several biases. For example, individuals tend to be myopic, preferring positive outcomes in the present often at the expense of future outcomes.

   So, when someone is presented with a choice, they will need some form of incentive to encourage them to make the correct / desired choice.

2. **Mappings**

   Effective mapping is all about making it easy for the user to understand what they are going to experience when they interact with a given aspect of the interface design.

   It's all about making sure that the user's mental model of the interaction is the correct one.

3. **Defaults**

   People take the action that requires the least amount of effort.

   As such, all things being equal, users are more likely to choose options that are presented as a default.

   For example, individuals may interpret defaults as policymaker recommendations, cognitive biases related to loss aversion like the status quo bias or endowment effect might be at work, or consumers may fail to opt out of the default due to associated effort.[14] It is important to note that these mechanisms are not mutually exclusive and their relative influence will likely differ across decision contexts.

4. **Feedback**

   The best way to improve a task's performance is to receive feedback. A website that does not provide feedback when an action is taken can lead to a negative user experience.

5. **Error Handling**

   Designers should expect their users to make mistakes. Whether it is clicking on the wrong link or misunderstanding a complicated idea, the application should be fault tolerant. Above it all, the design should strive to minimize and/or mitigate these issues.

6. **Structure Complex Ideas**

   When faced with a small number of choices, users are pretty good at reviewing each option and then making a choice based on their own preferences.

   However, the comparison process is not as easy when there are lots of complex options.

   Amos Tversky, a cognitive psychologist, described the process of dealing with a complex set of choices as 'elimination by aspects.'

The process Tversky described involves a person deciding on the most important features of the available options and then setting a minimum requirement to make a decision.

Partitioning options and attributes

The ways in which options and attributes are grouped influence the choices that are made.

The number and type of these categories is important because individuals have a tendency to allocate scarce resources equally across them.

> **Ex**: People tend to divide investments over the options listed in 401K plans favoring equal allocation of resources and costs across individuals (all else being equal), and are biased to assign equal probabilities to all events that could occur.

As a result, aggregate consumption can be influenced by the number and types of categorizations.

> **Ex**: Car buyers can be nudged toward more responsible purchases by itemizing practical attributes (gas mileage, safety, warranty, etc.) and aggregating less practical attributes (grouping speed, accessories and design under "stylishness")

Avoiding Attribute Overload

Consumers would optimally consider all of a product's attributes when deciding between options. However, *due to cognitive constraints, consumers may face similar challenges in weighing many attributes (of a single product) to those of evaluating many choices (different products).*

As a result, choice architects may choose to limit the number of attributes, weighing the cognitive effort required to consider multiple attributes against the value of improved information.

This may present challenges if consumers care about different attributes.

One example of minimizing cognitive effort would be the use of online forms that allow consumers to sort by different attributes to evaluate many options without losing choice.

Translating Attributes

The manner in which information about attributes is presented can also reduce the cognitive effort associated with processing and reduce errors. This can generally be accomplished by increasing evaluability and comparability of attributes.

One way is to convert commonly used metrics into those that consumers can be assumed to care about.

For example, choice architects might translate non-linear metrics (including monthly credit payments or miles per gallon) into relevant linear metrics (in this case the payback period associated with a credit payment or the gallons per 100 miles).

Choice architects can also influence decisions by adding evaluative labels (e.g. good versus bad or high versus low) to numerical metrics, explicitly calculating consequences (for instance translating energy consumption into greenhouse gas emissions), or by changing the scale of a metric (for instance listing monthly cost versus yearly cost).

In the case of design hierarchies, critical navigational choices (pertaining to story flow and task achievement), should be pre-sorted and prioritized for the user (e.g. moving secondary functionality off of the main menu or behind links) so that the user can focus on the essentials, and the UI/UX can become more intuitive to use (something critical for younger users)
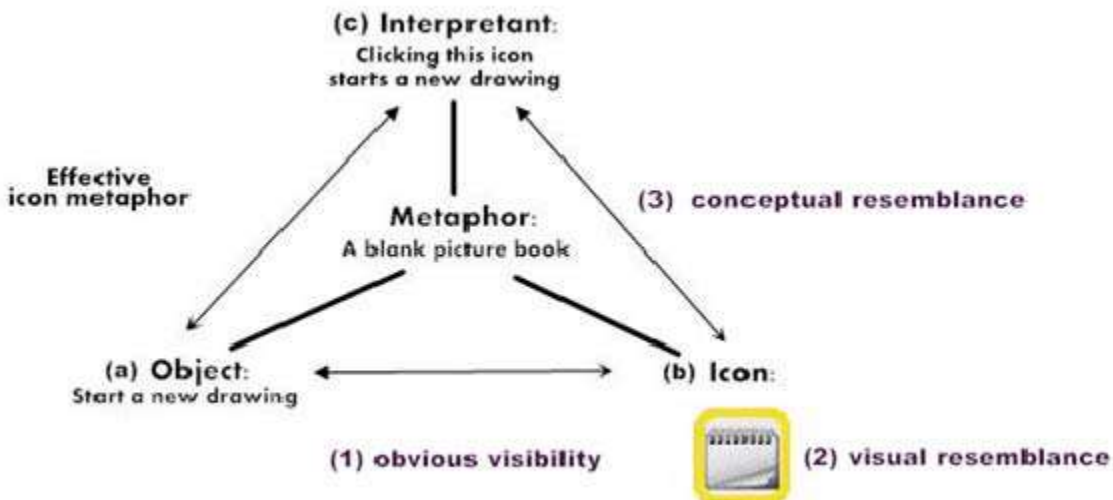
GUI

Theory

Reference: Analysis and design of the GUI for *MyStory*
https://www.researchgate.net/publication/257717871_Icon_Design_Principles_for_Preschoolers_Implications_Derived_From_Child_Development

A 2012 study by the authors suggests three icon design principles: the principle of obvious visibility, the principle of visual resemblance, and the principle of conceptual resemblance. These principles had also been applied to icon designs for the self-made story-authoring software, *MyStory*. With this application, the readability of the designed icons is investigated. Icon designs violating any proposed principles result in low readability. Five reasons for lower readability are proposed: unrealistic decorative designs, distorted written styles, experience void, overgeneralized association, and infrequently visible.

Peirce's triadic model is useful for comparing design intentions with perceived meanings. According to the Peircean triad, the interpretation of an icon metaphor involves three components: (a) **an object**, which is the abstract task; (b) **the icon**, which is the pictorial symbol used to stand for an object; and (c)**the interpretant**, which is the interpretation made by the users. Based on this model, *an icon is effective only when the interpretant of the user matches the object that the designer had intended with the icon.* In line with the Peircean triad, the object and the interpretant shown in Figure 1 should agree. To reach such agreement, a proper icon design may be crucial. A good icon metaphor can bridge the two sides of the Peircean triad (e.g., a-b and b-c), so that the users can properly associate icons with meanings given by the designers. For the purpose of reinforcing connections of a-b and b-c, this study proposes a set of icon design principles: the principle of obvious visibility, the principle of visual semblance, and the principle of conceptual resemblance.

Principle of obvious visibility

Unlike adults who are able to pay attention to relevant information on the interface while inhibiting irrelevant information, children between the ages of 3 and 8
are unable to do so. For young children, out of sight usually means out of mind. Hence, it is not surprising to observe that school-aged children who are surfing the internet mainly interact with what is visible "above the fold," suggesting that designers should make icons look clickable with visual rollovers to serve as cues. This study tries to suggest that icon design for child users should be compatible with the principle of obvious visibility in order to attract attention and to assist recall for young children.

Principle of visual resemblance

For users that receive both visual and conceptual cues via icons, these cues must be
helpful in the retrieval of storage memories for recognition and understanding. After the
user receives visual cues provided by the icon; the icon's visual representation will preserve perceptual resemblance of what it represents to reactivate the neural network that represents the image. As a result, in Figure 1, the users can associate the icon with "a blank picture book". However, using a concrete object as a metaphor does not guarantee the graphical image resembles the object. The graphical image of an icon must meet the principle of visual resemblance to be recognized.

Principle of conceptual resemblance

After the user recognizes the icon metaphor, they can then proceed with reading the conceptual cues provided. Similarly, a metaphor should be able to convey concepts and attributes resembling the object to reactivate the neural network that represents the concept. As in Figure 1, the drawing action associated with a blank picture must resemble the action of starting a new drawing, so that the long-term memory of the users can be activated to interpret messages delivered by the icons. Child users will be able to have b-c agree easily by being introduced to picture books in advance. That is, the prior experiences of a user can help to store images and build up conceptual neural networks in the brain. The principle of conceptual resemblance is also in accord with the norms for meaningfulness and familiarity proposed in prior studies.

In summary, these principles emphasize that icons should be visually conspicuous to attract the attention of preschool users and resemble the visual features of metaphors, so that preschoolers can recognize them immediately. These tips also note that icons should also resemble the conceptual and functional features of the metaphors to simulate the appropriate association within preschoolers. To demonstrate the feasibility of the proposed three principles in explaining children's interpretations of icons, this study applies them to discuss the readability testing results for icons of a story-authoring software, *MyStory*. *MyStory* is briefly described in the following section.

Unrealistic decorative designs

In *MyStory*, a TV was used as a metaphor for a user support video. Children could click on the TV button to watch a tutorial video. Seventeen percent of the participating children could not recognize the graphic as a TV because it had two extra "horns" (in the children's words) on its top surface. This indicated that a decoration inconsistent with the children's real-life experience might hinder recognition. After removing the unnecessary decorations which had no resemblance to the children's life experiences, it became easier (90%) for the participating children to choose the button when they were asked to seek a tutorial video clip.

Distorted Written Styles

In *MyStory*, stories made earlier by the participants were placed on the personal bookshelf interface. Children could click on the number underneath to browse through the multiple bookshelves. Fourteen participants were not able to recognize the symbols as numbers. Preschoolers first learning the numerical system may have a much more rigid scheme for its representation, and distorted numbers may hinder the assimilation process. After switching to a classic, style, the recognition ration reached 90%.

Experience Voice

A previous experience void of conducting certain behaviors might hinder children from associating the metaphors with the real objects. For example, a triangle is used in the prototype to indicate "play," because it is an often-seen icon on audio or video tools. However, 14% of the participating children expressed that they could not associate it with "play." The triangle metaphor could not be recognized by children because of their previous experience void of using audio or video tools. After modification, a concrete image of eyes was used to be associated with "look" or "play."

Overgeneralized Association

The designers overgeneralized the experience of adults regarding association as being the same for children might hinder children from associating the icons with the real object. The prototype used a pencil as a metaphor for the "edit" command, but children had trouble associating this icon with editing. 11% of the children could not associate the metaphor with a real pencil because they said the shape of the pencil should be thinner and longer; some 23% expressed that the pencil should be used for drawing but not for writing or editing. This may imply that the important features of how children perceive objects could be very critical in whether or not they could associate the metaphor precisely with real objects. Often times, adults overgeneralize their experiences and assume that theirs and that of the children's world regarding association are comparable.

Infrequently visible

After modifications, in the completed program, a highlight would appear when children
rolled over to the completed book (story) on the bookshelves. Children could simply click on the
book to initiate the editing process. However, the recognition ratio was still low (.65). The
possible cause may be derived from the children's responses such as "Oh! I forgot!" This
response may indicate that some participants failed to roll the cursor over the completed
books, so they did not spot the yellow highlight which served as a hint for initiating the editing
process. Also, in the personal interface, to make the interface simple, the play icon "eyes"
appears only when the cursor is rolled over to a specific book. Its recognition ratio (.75) is lower
than that of locating stationary on the photo-selecting interface (.90).