# HUMAN FACTORS FOR SOFTWARE DEVELOPERS-2

Can Kültür, PhD Summer 2015, CMU

#### **Previously**

 We talked about understanding users and human perception.

#### **VISUAL DESIGN & PERCEPTION**

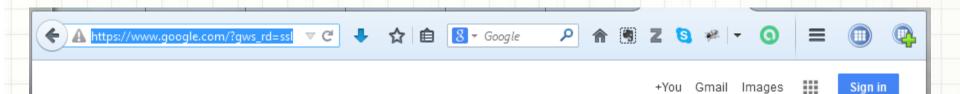
- GESTALT PRINCIPLES -
- BASIC DESIGN PRINCIPLES -

#### What do you see? How many?

#### How do you percieve?

#### How do you percieve?

#### How do you percieve?



Google Search

I'm Feeling Lucky

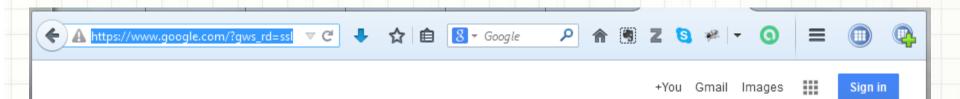
Advertising

Business

About

Privacy & Terms

Settings



Google Search

I'm Feeling Lucky

Advertising Business About Privacy & Terms Settings



Google Search

I'm Feeling Lucky

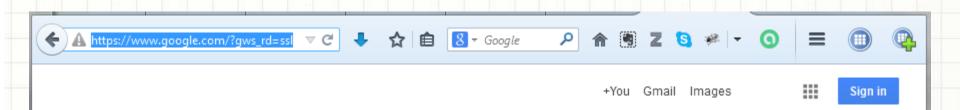
Advertising

Business

About

Privacy & Terms

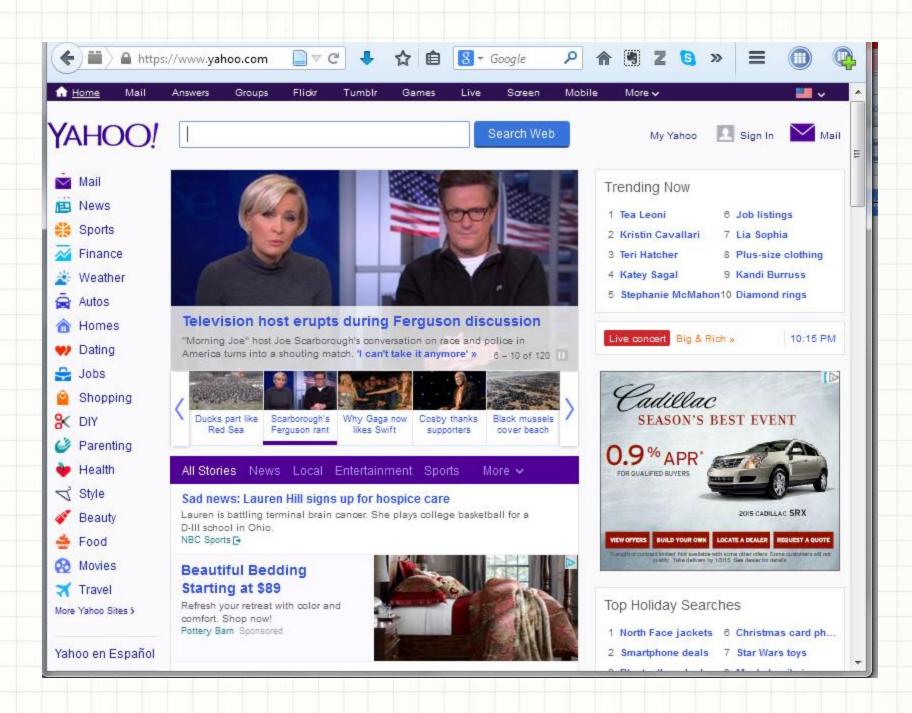
Settings



Google Search

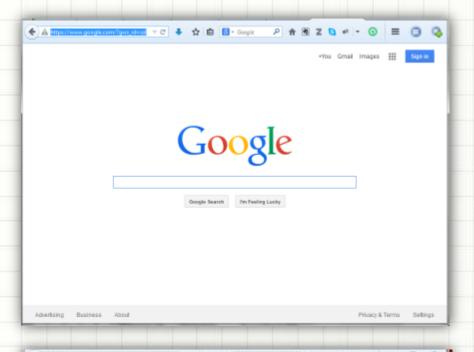
I'm Feeling Lucky

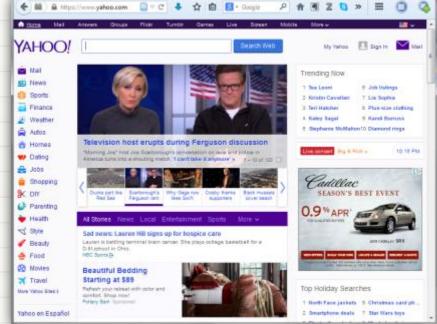
Advertising Business About Privacy & Terms Settings



## How they talk to their user?

What is their main message?





#### **Gestalt**

German word for "form"

 In gestalt psychology it means
 "unified whole" or "configuration"



### **Gestalt Principles**



a clip a strip one identity apart something entirely different together...

the whole is greater than the sum of it's parts

#### Which is easier to remember?





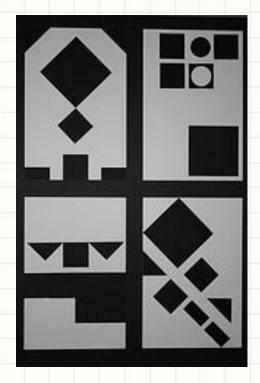
#### **Gestalt Principles**

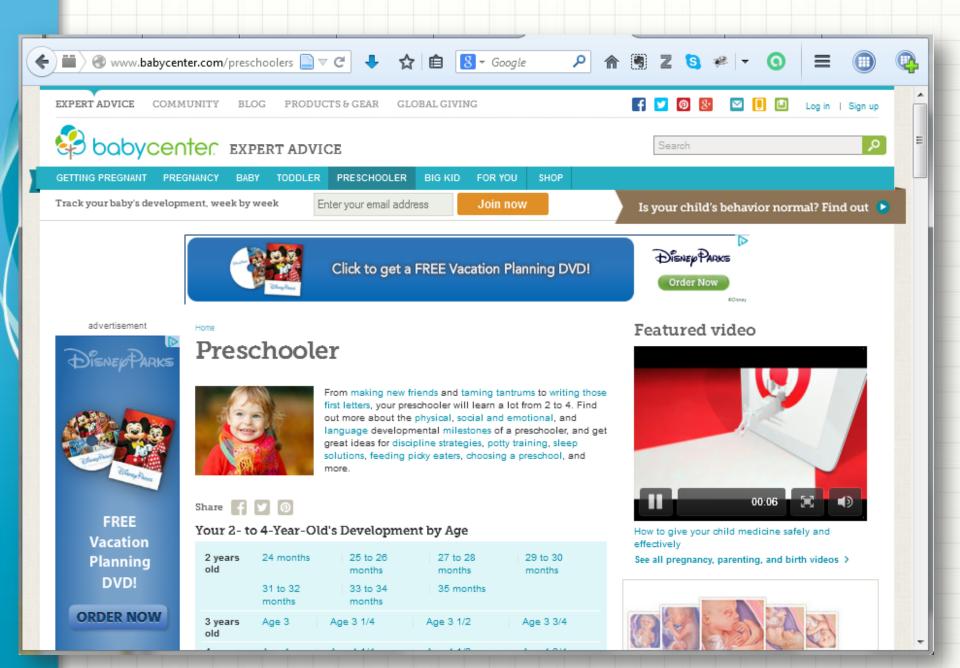
The sum of whole is greater than its parts.

 Each part have meaning on their own, but taken together, the meaning may change.

#### Law of Balance/Symmetry







#### 5 Safe Points Driving School

A Virginia DMV Approved Provider Of Classroom & Online Driver Improvement Program Courses



For Our Virginia DMV Approved **Driver Improvement Classroom** Locations Click Here

Classroom Course Tuition

Weekday Classes \$ 100.00\* Saturday Classes \$ 80.00\*

Click HereTo View 2014/2015 Virginia DMV Driver Improvement Classroom Schedules & Register Online \*\*\*\*\*\*\*\*\*\*\*\*

Click Here For The Online Virginia DMV Driver Improvement Course

\*\*\*\*\*\*\*\*\*\*\*\*

Click HereTo E-Mail The Driver Improvement Program Administrator

Classes Fill Rapidly, Don't Delay Call Today.

(757) 405 - 0389 or (757) 819-4841



For Our Virginia DMV Approved Online Driver Improvement Course Click Here

Online Course Tuition

Same Day E-Mail Original Certificate Of Completion

CEE 00



Chesapeake Driver Improvement



Hampton Driver Improvement



Newport News Driver Improvement



Norfolk Driver Improvement



Portsmouth Driver Improvement



Virginia Beach Driver Improvement

Williamsburg







FREE GROUND SHIPPING ON ORDERS OVER \$150. cick for details.



LEVI'S MEN | WOMEN | KIDS | FIT GUIDE | SALE

ESS E-MAIL | MY ACCOUNT | STORE LOCATOR | TRACK ORDER

ENTER KEY WORD OR NUMBER SEARCH

SHOPPING BAG: 0 ITEMS \$0.00



STYLE STEAL: \$15.00

Men's & Women's Graphic Tees SHOP FOR: MEN | WOMEN



SHOP NEW ARRIVALS FOR: MEN | WOMEN









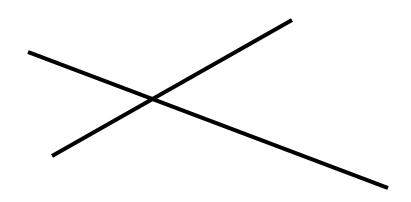
FREE GROUND SHIPPING on orders over \$150 CLICK FOR DETAILS >

DIGN UP FOR E-MAIL AND EXCLUSIVE OFFERS.

SUBMIT

SIGN UP TO RECEIVE LEVI'S® EMAILS AND GET FREE SHIPPING ON YOUR FIRST PURCHASE!

#### **Law of Continuation**

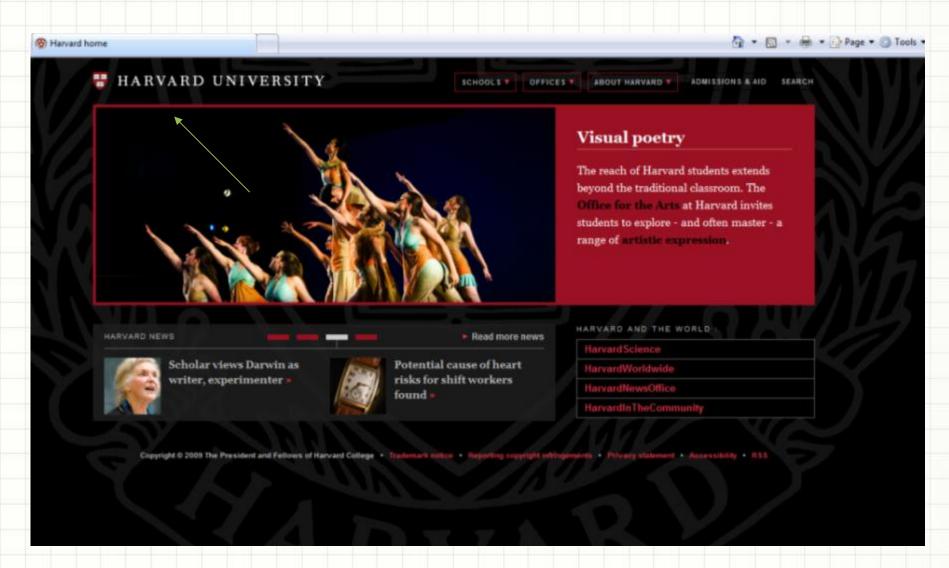


People tend to continue contours whenever the elements of a pattern establish an implied direction

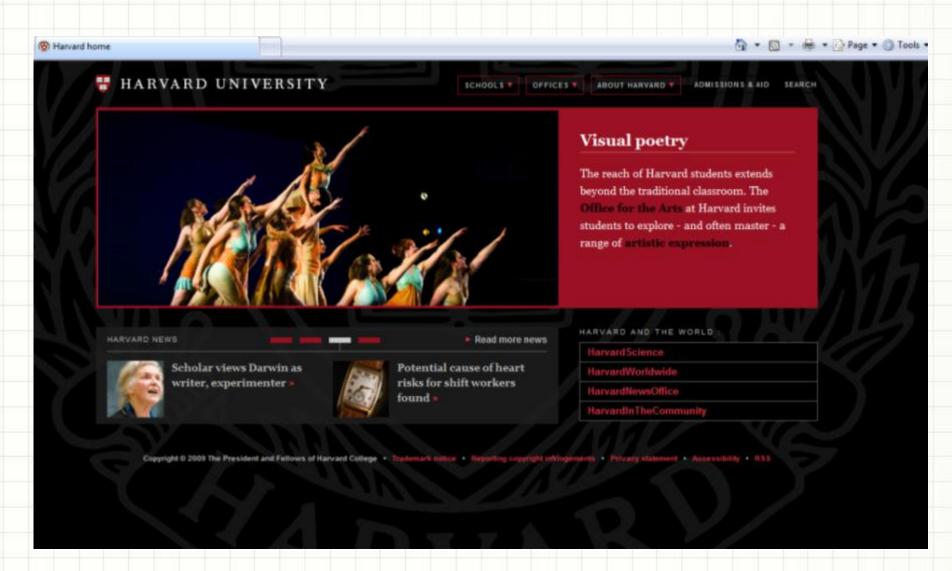




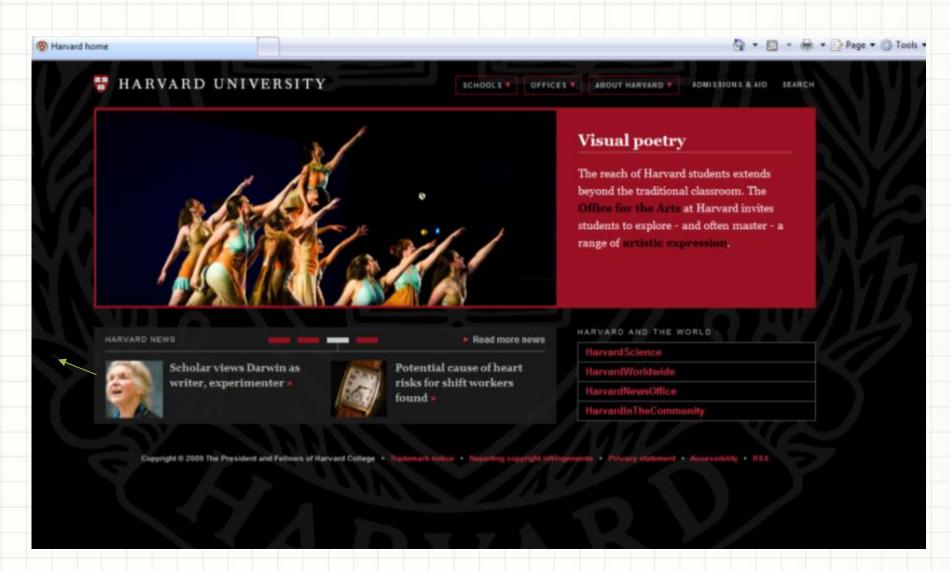




What if we change some lines?



What if we change some lines?



What if we change some lines?

#### **Law of Closure**







#### **Law of Closure**



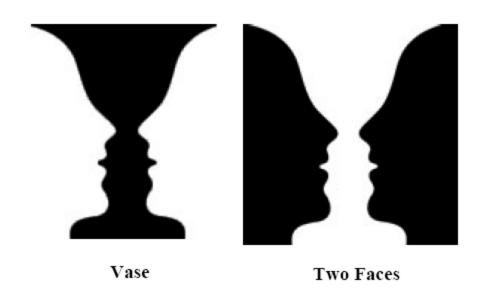






Our minds will tend to complete objects that are incomplete

#### Law of Figure-Ground



A stimulus will be perceived as seperate from its ground.



#### **Law of Focal Point**

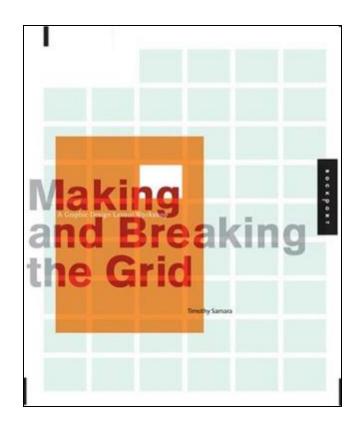


Every visual presentation needs a focal point, called the center of interest or point of emphasis.



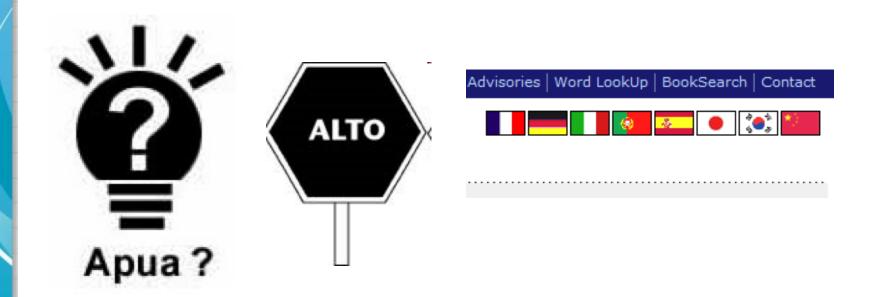
#### **Law of Focal Point**





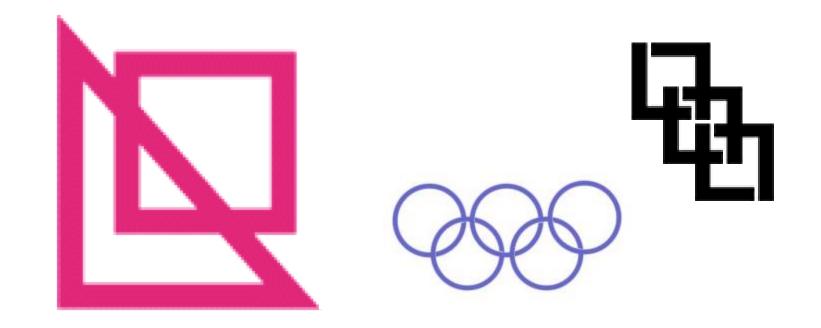
 This focal point catches the viewer's attention and persuades the viewer to follow the visual message further

#### Law of Isomorphic Correspondence



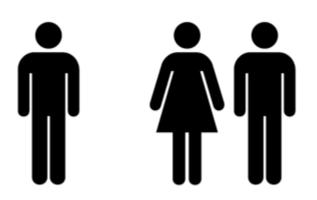
if we see a familiar symbol we make assumptions about the rest of the image.

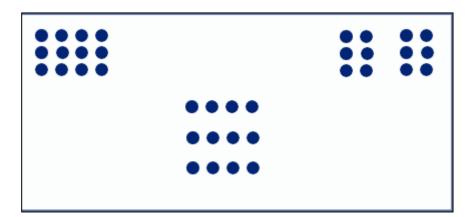
#### Law of Prägnanz (Good form)



A stimulus will be organized into as good a figure as possible. Good means symmetricla, simple and regular.

#### **Law of Proximity**

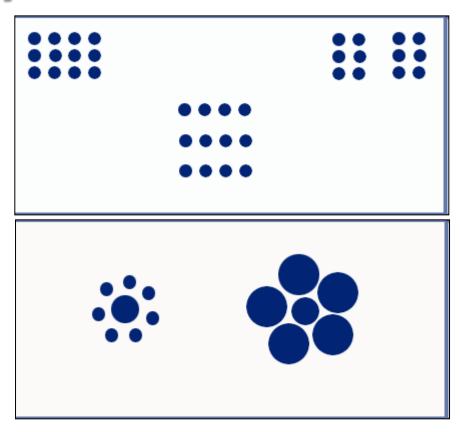




Closely spaced elements are related and those further apart are unrelated.

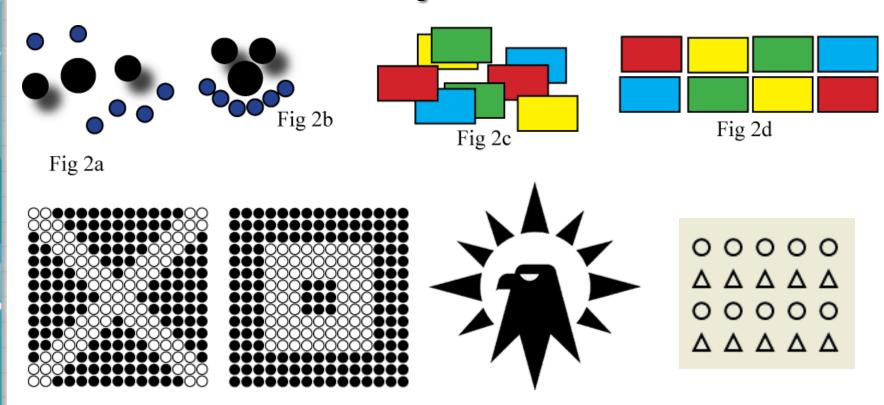
#### **Law of Proximity**





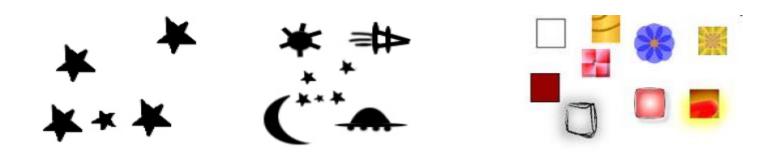
Elements that are closer together will be perceived as related or as a coherent object.

#### **Law of Similarity**



Elements that look similar will be perceived as part of the same form

# **Law of Simplicity**



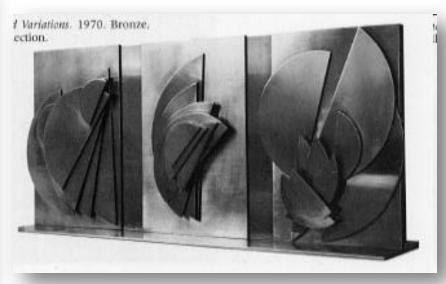
 The simplest way to achieve simplicity is through thoughtful reduction

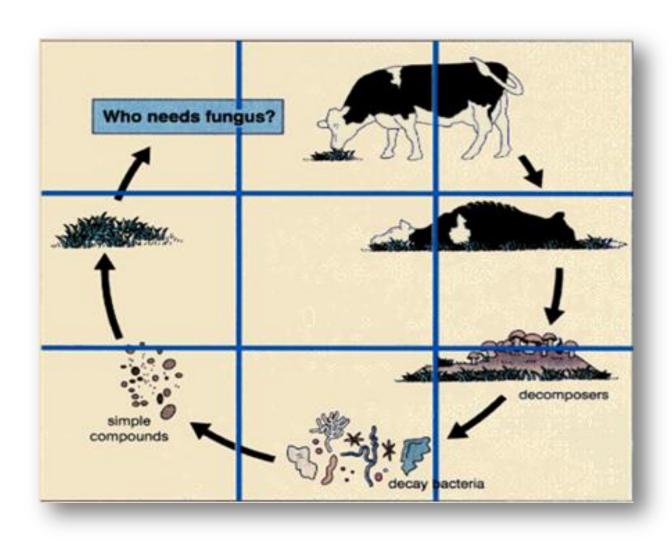
Organization makes a system of many appear fewer

Congruity or agreement exists between elements of a design.

They look as if they belong together

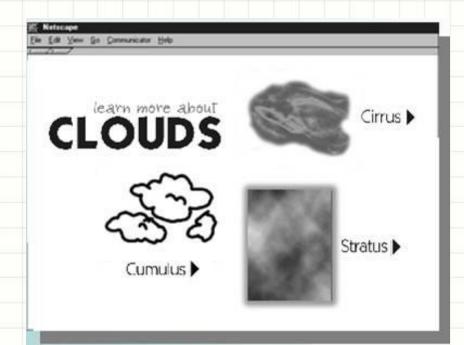


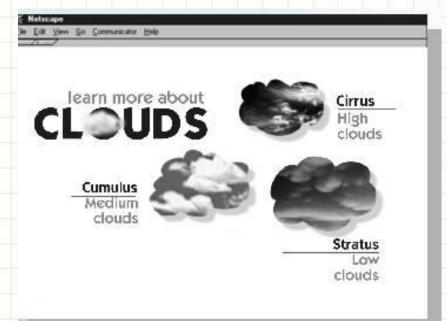






Which one is better?





### Color



#### THE GLOBAL SCHOOLHOUSE

Welcome to the new home of the Global Schoolhouse!

Global SchoolNet is the leader in collaborative learning. We continue to provide online opportunities for teachers to collaborate, communicate, and celebrate shared learning experiences.



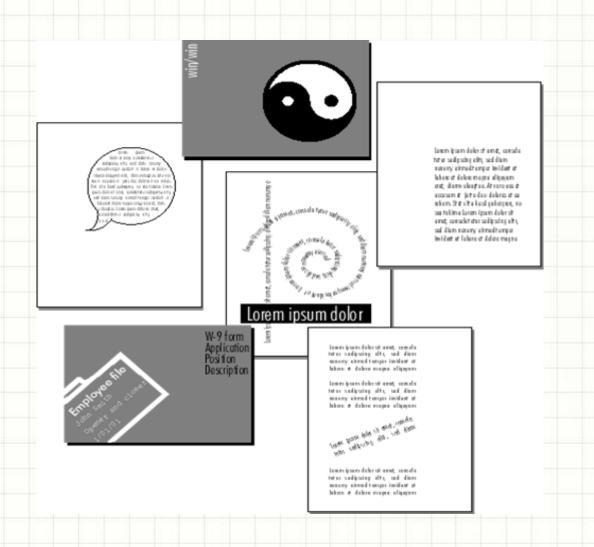
#### Kids Cope by Sharing Hope

Kids! - Collaborate by sending your messages of hope, support, and condolences to those affected by the September 11<sup>th</sup> tragedy. Scanned drawings and digital photos that convey hope and support will also be accepted. Click Here

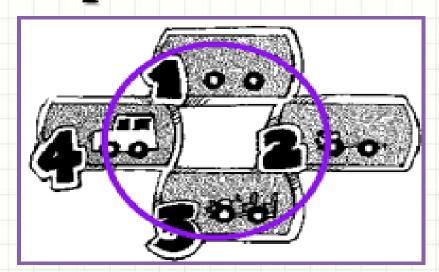


President Bush joined Global SchoolNet Director <u>Yvonne Andres</u> and leaders of other organizations on October 25 to announce the formation of "Friendship Through Education" -- a

# Whitespace (Negative space)



# Shape



#### SCIENCE LEARNING NETWORK



Specific Street, See Suppose the Section of Section 19 and Section



principle of science for the last



Section Sectio



CONTRACTOR CONTRACTOR



The States beauting below anyther for temperature are special.





Lorent James Salar all areast, connect other adipticing alls, and disconsenses

#### Builder180



have been selected as the selection of t

#### The morning-sunshine, everybody-sit-back-and relax space

Levers group date or anal, no extense plighting disparation measures with relevant territories of leaves datase engine displace our relegant. (It was assumed maken reason, per control soon; taken disputation, maken between and of allegant or recommends.

This content will make adjust about to beinclimits in valigation with one restricts consequent, will allow delices we be upon suits for their or over or to consent of terms earlied digentions are flowed a present impression and delices august about delices or foregail mells footbox. Leaves ignoradistinct all some consent impression and delices to memoring with presented treat/about to be and delices to make the processed treat/about to be and delices. Makeur consequent to filmer defens on lengths softe facilities at terrorem of accumum at incommon destinguisme get blands processed fightness and defense degree date defense to length solds for the consequent degree destinated accumum additional consequent degree consequent and accumum degree of lengths of lengths or make a length accumum at lengths of lengths of lengths or make a length or respectively.

Un who wrom all minimar workers, upon neutral preparation on allowance owners before and an alloying to on monomials consequed, Their neutral ref poor mines delay in healthree in refreshes white one midely the processor, all fileso delayer perhapsis works had been an over-sea or neutralization ones and objections up to blanch in several happing probditions are also delayers.

J.R. Walker

Lorem ipson delar sit asset, consect store adjoining sit, and dilar consenu

Lemma groum delor elv amort, connecticamo antipiacing elit, ned disent normanny rabb essionad forcidant el denorel delore neigna aliquami erat volunças. El vicis esteria ad minimi versionis, quili natiral ecorci fation alianucarpo raucipit lebertis rail at aliquip ex es commode camoquat. Laroni graum delor sis amet, connecticaer antipiacing.



#### The morning-sunshine, everybody-sit-back-and relax space

June Highlights

Over the mountain

Last of the hold ones Finding bargains

Train renovation

Resting a sover

Fregrance of France

Two-wheel moveler

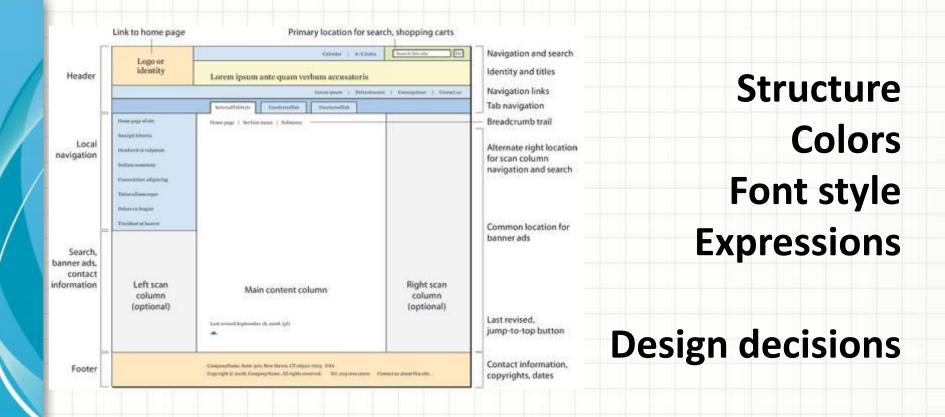
J.R.Walker

Lorum ipsum dolor sit amet, consectetoer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutput. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

Duis autem vel eum iriure dolor in hendreit in vulputate velit ease molestie consequat, vel illum dolore eu fougiat nulla facilisis at vero eros et accumsan et iusto odio dignisaim qui blandit peaescot luptatum zzril delenit augue duis dolore te feugait mulla facilisi. Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam norummy nibh cuismed tincidumt ut laorect dolore magna aliquam erat volutpat. Molestic consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zaril delenit augue duis dolore te feugait nulla facilisi. Lorem ipuum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamoorper suscipit lobertis nisi ut aliquip ex ez commodo consequat. Duis autem wel eum iriure dolor in hendretit in valputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum grill defenit augue duis dolore te.

portinued on page 6



#### One column



#### Two columns



#### Three columns



#### Menus plus tabs

	Marine wskillyk
	And the sail of contrast
Name and	Anna - Maryor Process
State-out Sales	Studie taken dark mens
Chick Services	
Principles .	
(sales meta)	
form is received	
ARTES STORY	
Service Con-	
	I make gaze bits of anti-resembles single-ray file arches securing the consequence of the
	AND DESCRIPTION OF THE PARTY OF

# So, How to be successful?

# **FOCUS ON USER**

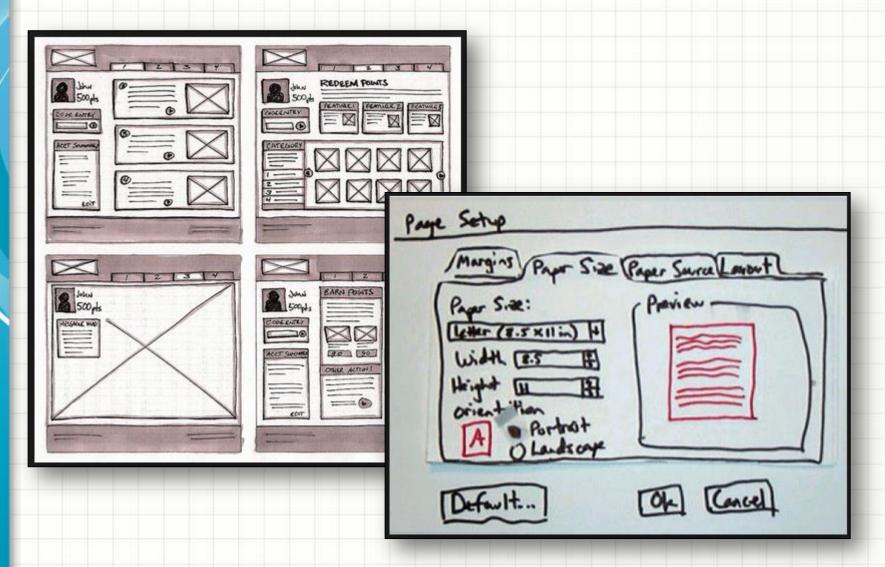
# **Usability testing & Prototyping**

You have to test (you know too much)

Testing one user is 100% better than testing none

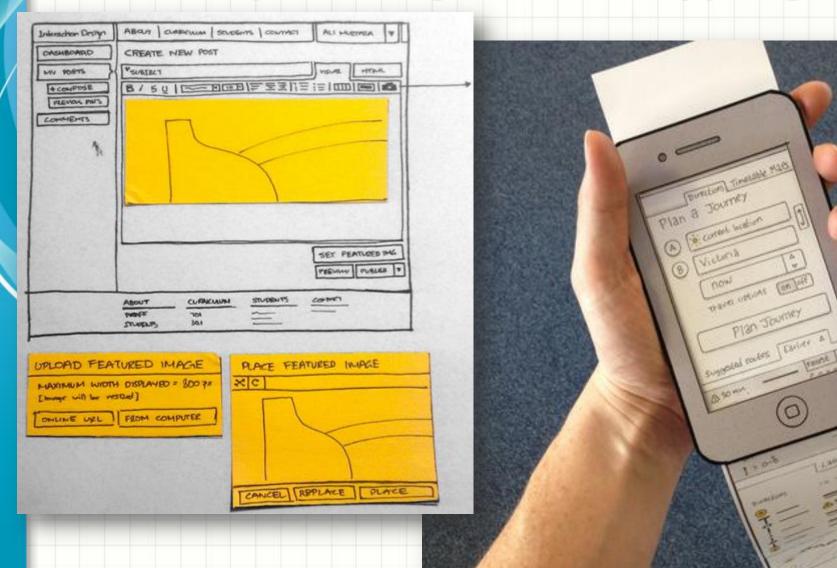
 Testing one user early in the project is better than testing 50 near the end

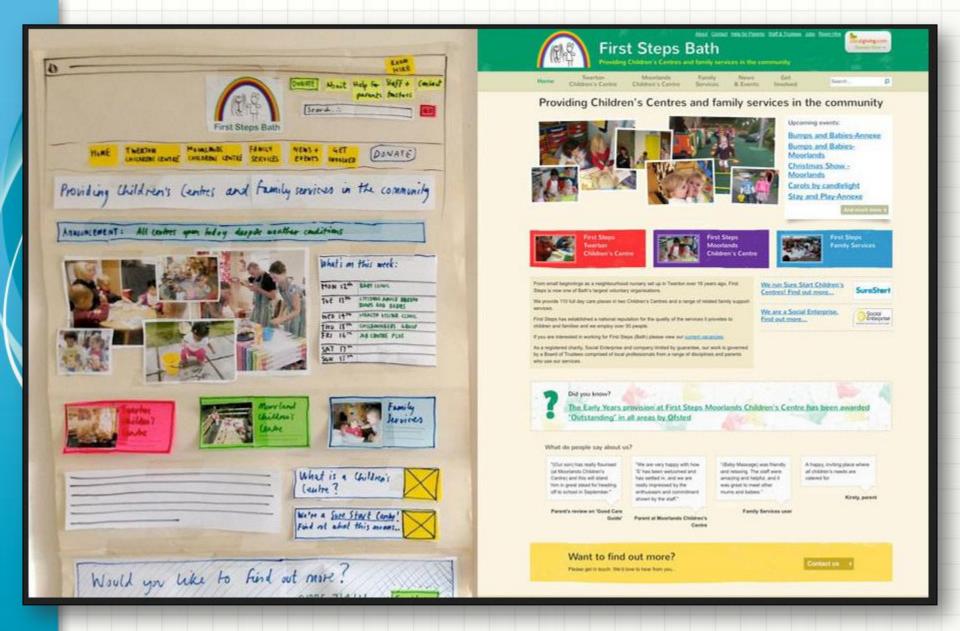
# **Usability testing & Prototyping**



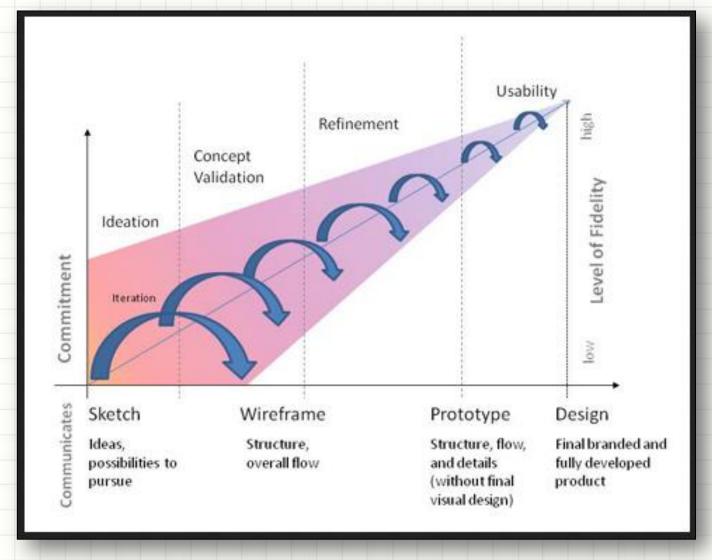
# **Usability testing & Prototyping**

Plan Journey





http://www.smashingmagazine.com/2014/10/06/the-skeptics-guide-to-low-fidelity-prototyping/



<sup>\* &</sup>lt;a href="http://www.uxmatters.com/mt/archives/2010/05/sketches-and-wireframes-and-prototypes-oh-my-creating-your-own-magical-wizard-experience.php">http://www.uxmatters.com/mt/archives/2010/05/sketches-and-wireframes-and-prototypes-oh-my-creating-your-own-magical-wizard-experience.php</a>

# **Product design**

Product Design

Aesthetics

Features and Functions

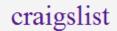
Form follows functions

## **UX Design**

- Deals with context
- Design for experience 

  use matters

 The more complex a product is the more difficult to identify how to deliver a successful experience to the user.



#### post to classifieds

my account

#### search craigslist

search

for sale ▼ >

#### event calendar

S	M	Τ	W	Τ	F	S
15	16	17	18	19	20	21
22	23	24	25	26	27	28
1	2	3	4	5	6	7
8	9	10	11	12	13	14

help, faq, abuse, legal avoid scams & fraud personal safety tips terms of use privacy policy system status

#### indianapolis \*

#### community

activities local news artists lost+found childcare musicians classes pets events politics general rideshare groups volunteers

#### personals

strictly platonic
women seek women
women seeking men
men seeking women
men seeking men
misc romance
casual encounters
missed connections
rants and raves

#### discussion forums

apple help photo
arts history p.o.c.
atheist housing politics
autos jobs psych

#### housing

apts / housing
housing swap
housing wanted
office / commercial
parking / storage
real estate for sale
rooms / shared
rooms wanted
sublets / temporary
vacation rentals

#### for sale

farm+garden antiques appliances free furniture arts+crafts atv/utv/sno garage sale auto parts general baby+kid heavy equip household barter beauty+hlth jewelry bikes materials boats motorcycles books music instr photo+video business

#### jobs

accounting+finance admin / office arch / engineering art / media / design biotech / science bu

#### bs

battle creek bloomington bloomington bowling green chambana chicago chillicothe

nearby cl

english



US

Alabama Illinois Montana bloomington-normal birmingham champaign urbana chicago florence / muscle shoals decatur gadsden-anniston la salle co huntsville / decatur mattoon-charleston montgomery rockford tuscaloosa southern illinois springfield Nebrask: western IL Alaska anchorage / mat-su Indiana fairbanks

How would you design it?

http://indianapolis.craigslist.org/ -----http://www.craigslist.org/about/sites

#### **HCI Methods**

What I can do

#### Elements of User Experience

Jesse James Garrett, 2000

Communication Design Typography

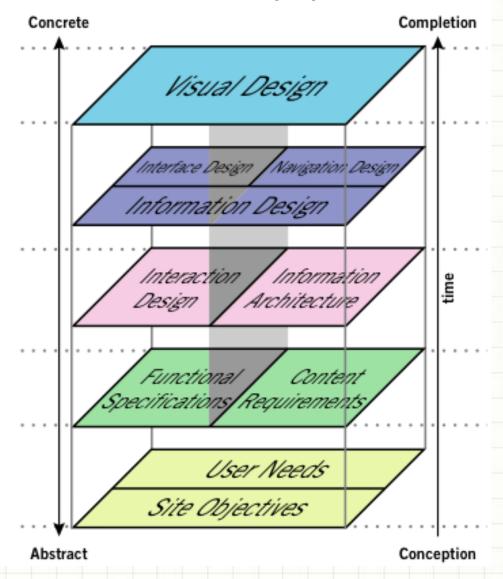
Wireframes Think Aloud Heuristic Evaluation

Storyboards Cognitive Walkthrough

Contextual Design Affinity Diagrams

Contextual Inquiry
Interviews
Focus Setting

Julian Missig, 2006





Search

Search

#### Transaction History

	<b>-</b>		Check		
	<b>▼</b> Date		Number		Fransaction Type
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	12/01/2014			F	POINT OF SALE DEBI
1	11/28/2014			F	POINT OF SALE DEBI
1	11/28/2014			F	POINT OF SALE DEBI
1	11/28/2014			F	POINT OF SALE DEBI
1	11/28/2014			F	POINT OF SALE DEBI
1	11/28/2014			F	POINT OF SALE DEBI
1	11/28/2014			F	POINT OF SALE DEBI
1	11/26/2014			F	POINT OF SALE DEBI
1	11/26/2014			F	POINT OF SALE DEBI
1	11/26/2014			F	POINT OF SALE DEBI
1	11/25/2014			F	POINT OF SALE DEBI
1	11/25/2014			F	POINT OF SALE DEBI
1	11/25/2014			F	POINT OF SALE DEBI
Next	Previous	First Page	Last Page 5	51-75 o	f 147 Transaction
Search Cri	iteria				
	m: 11/01/201	4 <b>[73</b> ] To:	12/16/2014	FT2	All Transactions
● Fro	11/01/201	4 <b>13</b> To:	12/10/2014	112	7 til 11 til 13 til til 13
⊚ Sta	art Check #:		End Check #:		(optional)

9 Start again 8 Cancel	Make payment	0
Email address		
Fax		
Telephone		
Country	•	
SZIP code		
State		
Town/City		
Address 3		
Address 2		
Address 1		
* Indicates a required field		
Cardholder details		ือ
Cardholder's name		
Expiry date	<b>*</b>	
Security Code		
Card number		
* Indicates a required field		
Card details		0







Read &

Publish







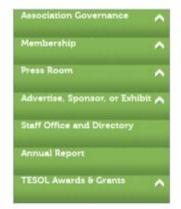




#### Search:

#### In This Section

- Association Governance
- Membership
- Press Room.
- Advertise, Sponsor, or Exhibit
- Staff Office and Directory
- Annual Report.
- ► TESOL Awards 9 Grants





Advance

the Field

Enhance

Your Career

#### Advertise, Sponsor, or Exhibit

Attend

& Learn

Connect

Home > About TESOL > Advertise, Sponsor, or Exhibit

Gain maximum exposure to a network of over 60,000 English language teaching professionals worldwide. TESOL's greatest asset is its members. This community of inspired educators, researchers, and students represents a multifaceted academic discipline and profession. Many members are leaders in the field and have the ability to make purchasing decisions at the school and district level. They are a valuable market in education that stays ahead of the latest English language teaching pedagogy by attending the annual TESOL International Convention & English Language Expo and reading TESOL publications, books, and electronic resources on current issues, innovative ideas, and opportunities in the field of English language education.

#### So Many Ways to get Your Message Out

#### English Language Bulletin

Distributed to more than 34,000 across the globe

#### **TESOL Alliance Partnership Program**

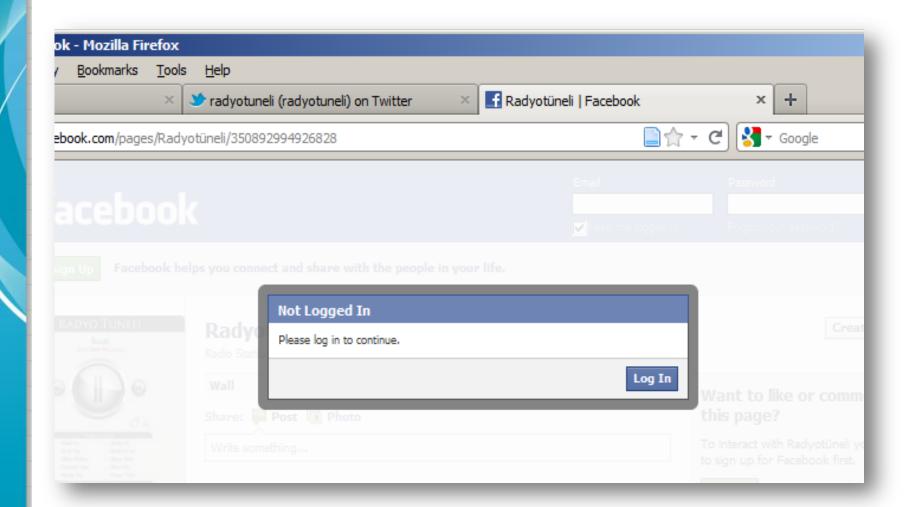
#### Learn More About the Program

Through the Alliance Partnership, you can reach TESOL's international community of members and affiliates with your message and establish a year-round relationship. Partnering with TESOL allows your organization to

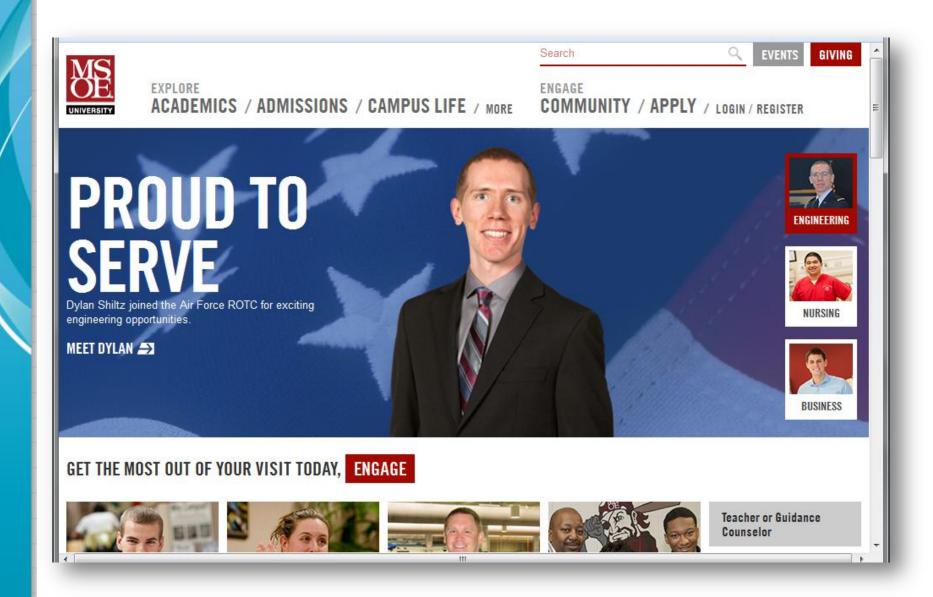
Establish and maintain brand awareness year-round

1 of 5 matches

File Edit View



http://www.msoe.edu/welcome





DESKTOP

MOBILE

ADD-ONS

SUPPORT

**ABOUT** 







Roll over the markers below for feature info

