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## Design and the Future of the HCI Classroom: Lessons Learned from an International Survey on HCI Education

**What:** International survey of HCI educators

**When:** 2016-2017

**Goal:** Collect baseline data about:

- Learning objectives
- Topics
- Challenges
- Evaluation approaches

**Results:** 110 survey respondents

Results from 7 of the 39 survey items are shown here.

### Which research and evaluation methods are addressed in your classes?

Answer	Bar	Response	%
Affinity Diagramming		22	42.31%
Card Sorting		26	50.00%
Cognitive and Performance Modeling		17	32.69%
Competitive Analysis		8	15.38%
Contextual Inquiry		33	63.46%
Data Mining / Processing		5	9.62%
Designing Surveys / Questionnaires		39	75.00%
Diary Studies		26	50.00%
Ethnography		36	69.23%
Experiment Analysis		19	36.54%
Eye-Tracking		8	15.38%
Focus Groups		28	53.85%
Heuristic Evaluation		33	63.46%
Interviews		42	80.77%
Lo-Fi (e.g., Sketching)		43	82.69%
Rapid Software Prototyping		30	57.69%
"Med-Fi" Interactive Prototypes		32	61.54%
Physical Prototyping		20	38.46%
Hardware Prototyping		9	17.31%
Journey Mapping		9	17.31%
Literature Review (e.g., patents, papers, pop culture)		23	44.23%
A/B testing		21	40.38%
Single and Multi Factorial Designs		11	21.15%
Observation		38	73.08%
Online Ethnography		6	11.54%
Participatory Design/Co-design		20	38.46%
Personas and Scenarios		35	67.31%
Photo Elicitation		0	0.00%
Physiological Usability Metrics		3	5.77%
Probes (e.g., Technology, Cultural)		10	19.23%
Roleplaying		5	9.62%
Sketching		37	71.15%
Statistical Analysis (Descriptive, Inferential)		12	23.08%
Storyboarding		37	71.15%
Task Analysis		27	51.92%
Think-Aloud Protocol		37	71.15%
Usability Testing		42	80.77%
Walk Throughs		24	46.15%
Web Analytics		9	17.31%
Wizard of Oz		32	61.54%

### At a high level, which topics are addressed in the HCI classes you teach?

Answer	Bar	Response	%
Content/Writing		23	34.33%
Design		57	85.07%
Ethics in HCI		26	38.81%
HCI History		27	40.30%
HCI Theory		44	65.67%
Prototyping and Software Development		57	85.07%
Research and Evaluation Methods / User Research		54	80.60%
Specific Application/ Disciplinary Areas		30	44.78%
Other high-level Topic		15	22.39%

### Which application or disciplinary areas are addressed in these classes?

Answer	Bar	Response	%
Animals		2	7.41%
Augmented and Virtual Reality		14	51.85%
Art (e.g., music, performance, digital media)		4	14.81%
Children		9	33.33%
Commerce (e.g., online retail, finance, recommender systems, currency)		3	11.11%
Crowdsourcing		9	33.33%
Education / Learning		15	55.56%
Environment / Sustainability		7	25.93%
Ergonomics / Human Factors		7	25.93%
Games / Entertainment		14	51.85%
Health (e.g., personal, health care work, community health, aging)		15	55.56%
Human Behavior / Behavioral Economics / Behavior Change		14	51.85%
Human-Robot Interaction		5	18.52%
ICT4D / HCI4D		2	7.41%
Information Visualization		11	40.74%
Libraries and Museums		5	18.52%
Mobile Computing		15	55.56%
NLP (e.g., speech, discourse, etc.)		0	0.00%
Personal Informatics		7	25.93%
Privacy and Security		7	25.93%
Social Change/ Computing for Good		6	22.22%
Social Computing (e.g., online communities)		12	44.44%
UbiComp		8	29.63%
Wearable Computing		16	59.26%
Other (specify next)		3	11.11%
Work (e.g., coordination, teams, software dev, usable IDEs)		10	37.04%

### Which design topics are addressed in these classes?

Answer	Bar	Response	%
Accessibility and Universal Design		32	57.14%
Design Theory		29	51.79%
Industrial Design		2	3.57%
Information Architecture		22	39.29%
Interaction Design		52	92.86%
Privacy and Usable Security		10	17.86%
Speculative Design		7	12.50%
User-Centered and Participatory Design/ Community-Based Participatory Research		47	83.93%
Visual Design		35	62.50%
Other (specify next)		5	8.93%
Critical Design		15	26.79%
Design Techniques/Practice		47	83.93%
Total		303	100.00%

### Which prototyping and development methods are addressed in these classes?

Answer	Bar	Response	%
Adobe Creative Suite		12	22.22%
Back-End Software Development (e.g. Java, C#)		15	27.78%
Device Drivers		2	3.70%
Embedded Systems		3	5.56%
Front-End Software Development (e.g. Javascript, HTML, CSS)		30	55.56%
Graphical UI Programming		26	48.15%
Machine Learning		5	9.26%
Microcontrollers (e.g. Arduino, Raspberry Pi)		7	12.96%
Mid-Fidelity Prototyping/Software Tools (e.g., Axure, POP, Balsamiq)		27	50.00%
Mobile Platform Development		18	33.33%
Natural Language Processing		4	7.41%
3D Modeling/Building (CAD, 3D printing)		7	12.96%
Sensor Applications		7	12.96%
Other (specify next)		5	9.26%
Low-Fidelity Prototyping		45	83.33%
Fabrication (e.g., digital, raw material, metal, circuits)		9	16.67%
Cluster Operations/ Distributed, Parallel Data Processing (e.g., Spark, Hadoop)		1	1.85%

### How do you evaluate student learning in your classes?

Answer	Bar	Response	%
Attendance		24	38.10%
Class Participation		47	74.60%
Clicker Data		4	6.35%
Data Visualizations		4	6.35%
Design Deliverables (e.g., Visual comps, Lo-Fi Prototypes)		48	76.19%
Essays		21	33.33%
Group Work		47	74.60%
Lit Reviews		14	22.22%
Other Exams		8	12.70%
Multiple Choice Exams		15	23.81%
Peer Evaluations		25	39.68%
Posters		10	15.87%
Presentations		49	77.78%
Project Reports		40	63.49%
Reading Commentaries / Critiques		11	17.46%
Reports on Experiments/Tests		12	19.05%
Requirements Documents		10	15.87%
Research Deliverables (e.g. user research reports, affinity diagrams)		25	39.68%
Research Reports		20	31.75%
Running Code		9	14.29%
Self-Evaluation		12	19.05%
Software Tests		4	6.35%
Statistics (e.g. statistical results, charts, graphs)		4	6.35%
Videos		18	28.57%
Working Software Applications		10	15.87%
Working Prototypes		38	60.32%
Written / Short Answer Exams		29	46.03%
Other (specify next)		2	3.17%
Working Hardware Applications		2	3.17%
Data Set		2	3.17%
Computational/Statistical Model		2	3.17%
Mathematical Proof		0	0.00%

### What design learning goals are addressed in these classes?

#	Answer	Bar	Response	%
1	Aesthetics		20	34.48%
2	"Big picture" thinking		28	48.28%
3	Convergent thinking		9	15.52%
4	Creativity		34	58.62%
5	Critical analysis of impact (on individual, society, culture)		17	29.31%
6	Critical Argumentation		7	12.07%
7	Divergent thinking		17	29.31%
8	Empathy / Understanding Users		36	62.07%
9	Ethics		23	39.68%
10	Experimentation		20	34.48%
11	Logic		2	3.45%
12	Low-Level Sensory Experiences		13	22.41%
13	Metaphorical Thinking		5	8.62%
14	Methods		44	75.86%
16	Synthesis		14	24.14%
18	Visual Communication		29	50.00%
19	Other		4	6.90%
20	Research Eval		37	63.79%
26	Written Communication		18	31.03%