

---

# Understanding Cool in Computing for African-American Youth

**D. Scott McCrickard**

Department of Computer Science  
Virginia Tech  
Blacksburg VA 24060 USA  
mccricks@cs.vt.edu

**Felicia Doswell**

Department of Computer Science  
Norfolk State University  
Norfolk VA 23504  
fdoswell@nsu.edu

**Jeremy Barksdale**

Department of Computer Science  
Virginia Tech  
Blacksburg VA 24060 USA  
jtottonb@cs.vt.edu

**Dominique Piggott**

Department of Computer Science  
Norfolk State University  
Norfolk VA 23504  
d.piggott@spartans.nsu.edu

**Abstract**

This paper examines challenges and opportunities in designing for “cool” as a goal for user interface design for African American youth. The categories of cool as a design metric were adopted from the definition from Read et al. (2011), including categories highlighted by terms like rebellious, anti-social, retro, authentic, rich, and innovative. We present initial results from discussions with designers who created interfaces for African-American youth, highlighting the cool categories but also exploring terms unique to the target population. We speculate on how “cool” could be used as a critical parameter in user interface design processes.

**Author Keywords**

cool, human-computer interaction, user interface design, design methods, design capture and reuse, minority populations.

**ACM Classification Keywords**

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## Introduction

The notion of “cool” as a goal for the design of user interfaces is important challenge—particularly for certain segments of the population. Prior work has explored the teenage population, for whom cool is particularly important and is influential in making purchasing and usage decisions [5]. This paper extends that work by examining the African American teen population, seeking to highlight relative levels of concern among the key categories of cool.

The categories of cool as a design metric were adopted from the definition from Read et al. (2011). This paper provides data from two interventions: an email inquiry with *experienced designers* (more senior students with research and/or industrial experience designing interfaces for African American youth) and a classroom discussion with *domain experts* (undergraduate freshmen computer science majors with technology experience with personal familiarity with the desires of teens). We asked them to rate facets of cool on a Likert scale, then we encouraged speculation and follow-up thoughts regarding what’s cool and who’s cool in computing and technology. We provide ratings data and extended feedback from each group.

The final section of this paper speculates on how “cool” could be used as a critical parameter in user interface design processes. Building on the notion of critical parameter as introduced by William Newman [4] and explored by our prior work [1,2,3,6], we examine how the establishment of critical parameters for cool could influence design and enable comparison and evaluation.

## Defining and understanding cool for the African-American youth population

A 2011 CHI work-in-progress paper by Read et al. [5] identified six categories of cool, summarized here, with results in Table 1: rebellious (REB, socially or morally unacceptable), anti-social (AS, encouraging anti-social behavior), retro (RET, clearly from a previous era), authentic (AUT, brands/trends), monetarily expensive (RIC, reflecting the owner has money), innovative (INN, original and unusual).

We provided these categories to the two groups defined in the introduction—experienced designers and domain experts—and asked them to rate the importance of each on a Likert scale ranging from 1 (not important) to 5 (very important). We encouraged rationale for the decisions and thoughts regarding other aspects of cool. The next two sections provide feedback from the two groups, summarized in Table 1. (A full reporting of the data, including demographic breakdowns, is available upon request.)

## Cool reflections from design experts

The design experts independently came to agreement (+/-1) on most categories. Most highly rated was “authentic”, noting frequent changes when what’s cool “shifts to another brand”, and acknowledging “knock offs that look authentic” are acceptable. The experts differed most on “innovative”; one rating it as a 2, with trends and popularity noted as “more socially acceptable” while the other rated it 5, noting a desire among teens to be “trendsetters”.

It was interesting that the “older” of the experts (in his early 30s) did not view himself as a “good gauge on what’s ‘cool’ among teens”, citing his own personality

and noting that he's "so far removed from that population". It is important to remember that designers' confidence and ability to judge an age demographic can fade rapidly!

### Cool reflections from user experts

There were 26 undergraduates who took part in the group activity to reflect on aspects of cool. Most were under 20 years of age, and all but 5 self-reported as moderately experienced, highly experienced, or expert with technology. The domain experts agreed with the experienced designers in their top three cool factors: authentic, rich, and innovative, with innovative rating most highly for the experienced designers. Despite the fact that innovative had the highest average rating, the largest number of people (11) gave authentic their highest rating (with innovative second with 9 ratings of 5). Anti-social (13) and rebellious (7) received the most votes as unimportant to cool. The domain experts listed numerous cool technologies and people that influenced their decisions, particularly focusing on people and products from Apple (Steve Jobs, iPhone, iPad, etc.) They also listed social media, with companies like Facebook and Google discussed.

Likert averages	REB	AS	RET	AUT	RIC	INN
Experienced designers (2)	3.5	2.5	2.5	4.5	4.0	3.5
Domain experts (26)	2.6	2.1	2.5	3.7	3.2	4.0

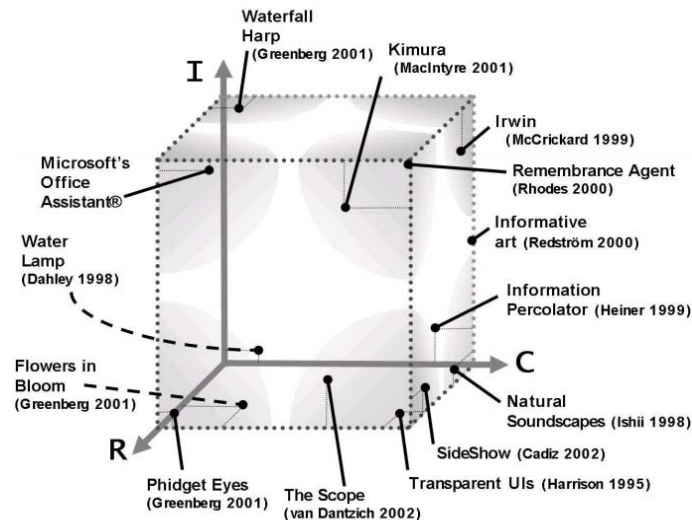
**Table 1.** Perceived cool importance (1=not, 5=very) for youth.

### Thoughts on a design model for "cool"

Consideration for "cool" as a factor in harkens to the Newman [4] debate regarding the use in design of *critical parameters*, figures of merit that transcend specific applications to focus on the broader purpose of technology. Newman implies that well-selected critical parameters can function as benchmarks—"providing a direct and manageable measure of the design's ability to serve its purpose"—to indicate the units of measure for analytic methods that predict design success.

We undertook the challenge of identifying critical parameters that would be measurable and manageable during the design process [3]). Specifically, we identified interruption (I), reaction (R), and comprehension (C), as important for systems used in dual-task situations where human attention is at a premium. The definition of these IRC parameters and their ratings on a 0 (not supported) to 1 (well-supported) scale enabled us to categorize design knowledge—thus enabling future design and evaluation.

One challenge to our creation of critical parameters came from reviewers of a Communications of the ACM article, who noted that the IRC categorization did not account for the inherent feelings of the user with regard to the design of notification systems. In response, we introduced a "satisfaction" critical parameter to capture the overall enhancement and approval of the general computing experience [1]. To measure the parameter, we suggested metrics related to reducing stress, emoting humor, cultivating enjoyment, augmenting meaning or presence, and increasing feelings of security—all of which fall outside of the original IRC parameters but are essential to the view of utility for certain user populations.



**Figure 1.** Ranking of notification interfaces along three critical parameters of interruption (I), reaction (R), and comprehension (C), thus enabling system comparison and future hypotheses by designers and evaluators. One or more critical parameters for “cool” could be defined similarly.

We see a vision where “cool” can be viewed as a next step beyond our “satisfaction” critical parameter—capturing not only the core human emotions of satisfaction but looking at even more visceral reactions that are common to the important user group of teens. The cool categorizations provided in [5] highlight important and potentially measurable aspects of cool—ones which could be posited by experts or measured through usability studies. Collecting a “cool” rating (or a collection of ratings) would allow systems or interface techniques to be tabulated, plotted on a graph, or positioned in a figure (e.g., see Figure 1, from [2]),

thus enabling design activities like understanding how target users think [2], identifying relationships among pieces of design knowledge [6], evaluating existing designs [2], and establishing avenues for creative idea sharing [3]. Exploring these ideas toward establishing “cool engineering” will encourage a focus on an oft-ignored aspect of design.

### Acknowledgements

Thanks to the NSU freshmen undergraduate computer science students who participated in discussions about cool categories and aspects of cool.

### References

- [1] McCrickard, D. S. and Chewar, C. M. Attuning notification design to user goals and attention costs. *Communications of the ACM* 46, 3 (2003), 67-72.
- [2] McCrickard, D. S., Chewar, C. M., Somervell, J. P., and Ndiwalana, A. A model for notification systems evaluation—Assessing user goals for multitasking activity. *ACM TOCHI* 10,2 (2003), 312-338.
- [3] McCrickard, D. S., Wahid, S., Branham, S. M., Harrison, S. Achieving both creativity and rationale: Reuse in design with images and claims. *Human Technology* 7, 2 (2011), 109-122.
- [4] Newman, W. M. Better or just different? On the benefits of designing interactive systems in terms of critical parameters. In *Proc. DIS (1997)*, 239-246.
- [5] Read, J. C., Fitton, D., Cowan, B. R., Beale, R., Guo, Y., and Horton, M. Understanding and designing cool technologies for teenagers. In *Conf. Companion for CHI (2011)*, 1567-1572.
- [6] Wahid, S., Allgood, C. F., Chewar, C. M., and McCrickard, D. S. Entering the heart of design: Relationships for tracing claim evolution. In *Proc. SEKE (2004)*, 167-172.