Advocating a Social Media Based Comprehensive Method to Universal Design

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The Principles of Universal Design—Automobile Applications

Principle	Example
1. Equitable Design	Brands stigmatized for allegedly targeting specific audiences (e.g. Buick being perceived as a car only for elderly consumers)
2. Flexibility in Use	Customizable interior ambient lighting
3. Simple and Intuitive Use	Failure to meet this principle as a cause for the poor initial reception of the BMW iDrive system
4. Perceptible Information	Gauges with universal pictorial cues as opposed to verbal/written cues
5. Tolerance for Error	Vehicle lane change assist systems
6. Low Physical Effort	Power steering that is adaptive to road conditions
7. Size and Space for Approach and Use	Easy ingress/egress from a vehicle

The Reluctance to Adopt Universal Design

The Principal-Agent Problem

• Principals (shareholders) hire agents (management) to deliver on the principals' goals

• Principals and agents have conflicts of interest, where agents are only interested in short-term profits and not long-term growth

• Results in companies diverting time and resources to strategies that only maximize short term profit

The Caveat of Informality

• Designers often rely on intuition to reach concepts

• Management identifies the lack of proper knowledge/tools, a convincing business case, and perceived consumer need as main reasons why their companies do not pursue universal design

• Management is not keen on giving designers the time or budget to informally explore universal design concepts
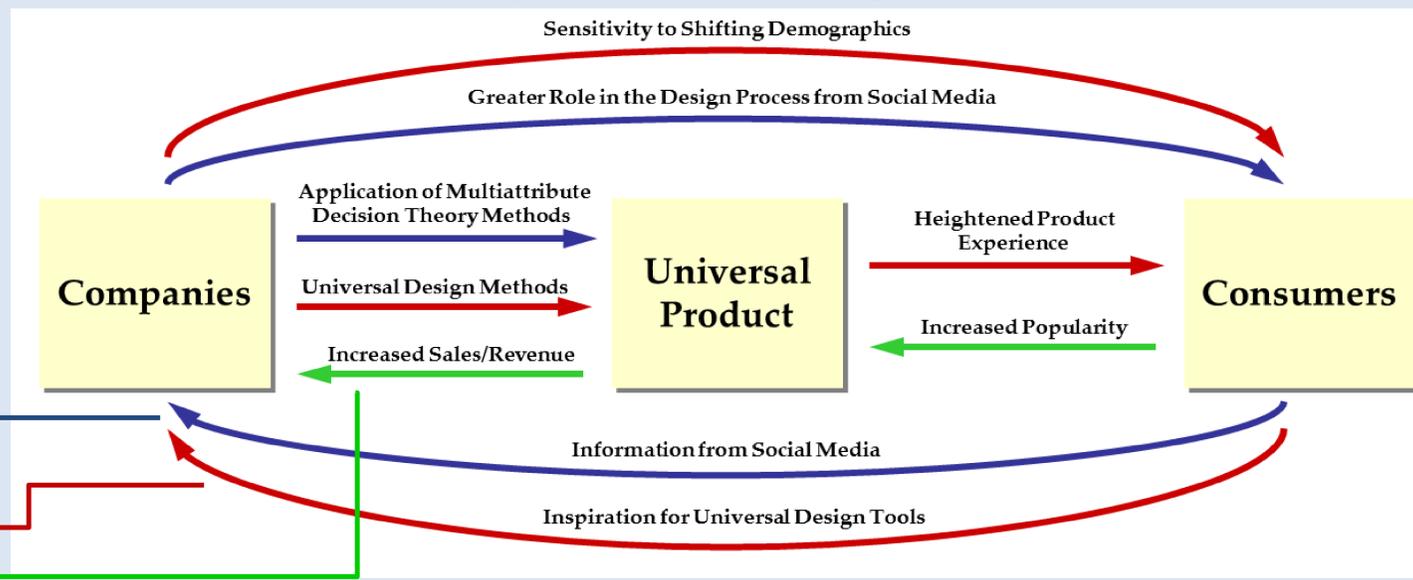
Introduction/Motivation

• Today's forces of population aging will favor increasingly high median age populations in 2030

• Designers need to consider ways to meet needs of aging populations with dignity by applying methods of universal design

• Despite imminent market forces from older populations and inherent benefits for all consumers, industry has taken few steps to incorporate methods of universal design

Blue Arrows: Outcomes of Incorporating Social Media

Red Arrows: Outcomes of the Comprehensive Method

Green Arrows: Outcomes on Business

Vision for Universal Design in 2030

Sensitivity to Shifting Demographics

Greater Role in the Design Process from Social Media

Application of Multiattribute Decision Theory Methods

Universal Design Methods

Companies → **Universal Product** → **Consumers**

Heightened Product Experience

Increased Popularity

Increased Sales/Revenue

Information from Social Media

Inspiration for Universal Design Tools

Conclusion

• Demographics of 2030 will require companies to adopt universal design practices to remain competitive

• The Caveat of Informality, coupled with the Principal-Agent Problem remain two major obstacles to the adoption of universal design

• Academia must develop a comprehensive method to universal design, giving companies proper guidance to adapt their design practices

• Part of the comprehensive method will include applying multiattribute decision making methods to gauge true consumer needs and preferences in real time

A Comprehensive Method for Universal Design

• Major goal for academia to organize universal design tools and methods into a standardized, comprehensive approach to universal design

Influences of the Comprehensive Method

• Will serve as an educational tool to designers and management alike

• Could help unify different schools of thought (i.e. Universal Design, Inclusive Design, Design for All) under one comprehensive paradigm for product design

• Integration into academic curricula can help increase awareness of the methods of universal design

Key Features

• Should resemble Pugh's Total Design, defining steps from identifying a need to the production and sales of a given product

• Emphasis on incorporating the Principles of Universal Design from the beginning of the process

• Should provide ways to quantitatively measure accessible or usable quality

• Offer ways to market goods

• Should serve as a guideline to companies, without constraining creativity

Applying Multiattribute Decision Making Methods to Extract Market Needs from Social Media

• Aim to apply the Hypothetical Equivalents and Inequivalents Method (HEIM) to demonstrated consumer preferences from social media to determine optimal weighting of product attributes considered

Comparison of the C-Pillars of a Popular Sedan and its Coupe

Identifying the Attributes

• Need to develop intelligent data mining techniques

• Example includes the development of AI software to determine what information is reliable

• Challenge of how to sample populations

Establishing Hypothetical Equivalents/Inequivalents

• Who or what represents the decision maker?

Potential Benefits

• Social media represents an abundance of unbiased consumer preferences

• Process would be automated, allowing designers to track preferences in real time