

Consumer Products, Baby Boomers & Profit

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ABSTRACT

Corporations who transform mainstream consumer products to address the needs of the aging consumer can profit from the upcoming tidal wave of Baby Boomer discretionary spending dollars.

A significant subset of the Aging Baby Boomer generation that is not often spoken of is the ever increasing number of individuals possessing some type of functional impairment or limitation. At some point in our lives, if we live long enough, *ALL OF US* will age into or acquire a disability!

What is a functional impairment or limitation? It's a limitation in the performance or completion of a fundamental activity by an individual; such as being able to stoop/bend, stand, walk, push, climb, carry, sit, reach, or grasp. Loss of hearing makes it difficult to hear in noisy environments. Loss of vision makes it difficult to read fine or small print. It's not being able to walk up a flight of stairs, or being able to carry or lift 10 lbs.

According to the last U.S. Census, nearly 50 million Americans (1 in 5) have a disability, 30 million of which are under 65 years old. There are 35 million elderly in the U.S and over 7 million Americans have difficulty seeing words and letters in ordinary newspaper print even with glasses. Fifteen years from now over 60 million Americans will have Arthritis. Ordinary daily tasks are becoming extraordinary burdens for many people. As today's consumer products become more technologically advanced, many consumers are struggling to operate them easily.

And what does all this mean? It means mainstream consumer product companies must seek ways to make their products more usable and accessible for all generations, from children to the elderly. Some corporations have taken notice and are creating easier-to-use every day products for all of us to use. And what is the significant side benefit to companies that are making this design leap? ***Market Broadening and profits, profits and more profits!!!*** These corporations are reaping the financial rewards from designing consumer friendly mainstream commercial products.

This paper will delineate the product development process used by, and provide examples from, the University at Buffalo's Rehabilitation Engineering Research Center on Technology Transfer (T²RERC) files of successful product development partnerships with Applica Inc. (Black & Decker), White Rodgers, and the Eastman Kodak Corporation. These partnerships resulted in not only significant financial benefit for the corporation undertaking the product development project, but also in more usable and accessible consumer products being brought into the marketplace for the benefit of all of society.

The following is an excerpt from the 2004 Applica, Inc report to shareholders on the sales of the new Black & Decker Lids Off Jar Opener; a product developed utilizing the T²RERC's product development process...

“The first full year sales of our new Lids Off™ Jar Opener provided retailers with a major surprise as consumers purchased over one million units of this unique product. These products helped us increase our total sales for 2004 to \$727 million and increase our Black & Decker® branded sales to \$556 million....

In its second year, more than one million US households now have a Black & Decker® Lids Off™ Jar Opener. The combination of significant retailer support, great

giftability, and a consumer-friendly product with strong advertising support, was the winning formula for huge market success in 2004. With so little penetration in households and such a broad consumer need for this product, Applicia continues to be excited about the prospects of Lids Off™ Jar Opener and product extensions in 2005 and beyond.”

BACKGROUND

Traditionally, manufacturers of consumer products have made product design decisions without factoring in the needs, wants, and expectations of the full range of end consumers. This process leads to ineffective products in the marketplace, new product failures, and product abandonment. Failure rates for new product introductions vary by industry but range from 30% to 90%¹. In many cases, the primary cause of these failures can be traced back to a point early in the product design process where significant consumer or device user information failed to be collected and analyzed prior to the initial fabrication of the device.

The T²RERC's experience supported by product development literature, confirms that companies perform primary market research in the form of surveys or interviews with consumers regarding their device's initial concept². This primary research is effective in identifying current problems, ascertaining a need for the device, and obtaining price point and purchase intent information. However, this method does not identify the key design and functional features of the device from the consumer perspective. As a further limitation, once this primary market research is accomplished and a prototype device fabricated, companies do not go back to the survey participants to critique or refine the device.

¹ Peter, JP (2002). *Preface to Marketing Management*. New York: McGraw-Hill/Irwin.

² Blaszyk, RL (2000). *Imagining Consumers*. Baltimore, MD: The Johns Hopkins University Press.

The T²RERC took note of these deficiencies and responded by requiring the full involvement of consumers in the design and development of products. Our licensing partners, who commercialize products through this process, are impressed with the outcomes and have become converts to this approach.

The T²RERC's more recent experience includes working with larger corporate manufacturers of general consumer products (e.g., Black & Decker, White Rogers, Eastman Kodak & the Whirlpool Corporation). Their products are of interest to the T²RERC when they clearly serve the needs of people and provide a functional capability not otherwise available. These larger corporations are initially reluctant to consider outside input but eventually express a high degree of satisfaction with products designed with input from a wider range of potential customers. Here are excerpts from a Fortune 500 company's letter:

We, at White-Rodgers, Div. of Emerson Electric Co., wish to express our appreciation to the T²RERC (T²RERC) for your assistance in gathering significant data that provided useful insights into a universally designed home comfort control center . . . The initial focus groups organized by the T²RERC have provided unique market data that we plan to use in the development of future home comfort controls. Concurrently we are modifying the design of our present offering to incorporate concepts from the focus groups. Our target is to bring these future products to the prototype phase in 18 months, and then have follow-up evaluation done by the T²RERC. We are confident that our development team can meet the challenges, and future evaluation of prototypes by the T²RERC will validate our joint efforts.

In our dealings with mainstream companies, the T²RERC encountered hesitancy on the company's part to invest resources in licensing and bringing Universally Designed (UD)

products to the marketplace. The principles of UD do not specifically state that a product has to be designed for use by people of all ability levels. However, some corporations perceive a UD product is to be designed for use by all which connotes a plethora of ancillary and redundant components each adding unnecessary additional cost. This perception becomes a corporate stigma that UD products are too costly to produce, and result in higher retail prices and a lower market share for a mainstream consumer product.

Since product cost, profit, and market share are primary drivers in corporate thinking, it is important to counter the perception of UD devices held by communicating a positive business case for designing more accessible mainstream consumer products.

If we were to use the term UD in our discussions with these corporations, the cost/benefit stigma arises. Mainstream corporations design products for the mass market and are very cognizant of the 80/20 Rule (Pareto Principle). Corporations rationalize that 80% of the features their products should possess can be attained at a reasonable cost. Manufacturing a UD product incorporating the last 20% of the needed usability and accessibility features can be extremely expensive, resulting in a higher retail price their product must now carry. Companies may only wish to seek incremental improvements to their products. However, those incremental improvements may drastically add to the usability and accessibility of their products for thousands of consumers.

Companies, however, do know about the Aging Baby Boomer population increase and the tremendous amount of discretionary spending dollars associated with that generation. They very much would like to design or redesign products that would enable them to profit from the huge wave of Baby Boomers. The key question is how?

The T²RERC approaches mainstream consumer product companies with the goal of broadening the market for their products by showing them how to tap into the spending power of the Baby Boomer generation. By making incremental usability and accessibility improvements in their existing products or in new products they are about to release, these companies can significantly expand, broaden if you will, the market for their product and hence reap significant financial gains over their competitors. The T²RERC uses Participatory Development and Transgenerational Design (TD) in assisting mainstream product companies in attaining this goal³.

We define “Participatory Development” (PD), as development that incorporates the perspectives and efforts of people with functional limitations. Transgenerational Design, a term coined by James Joseph Pirkel, is a “knowledge based design strategy that produces products, packages, graphics, and environments that accommodate physical and sensory impairments associated with human aging and which limit independence.”

The T²RERC sees the new principle of Participatory Development (PD) as the logical extension of the well established principles of Participatory Action Research, particularly in the context of technology transfer and commercialization programs. Participatory Development is designed to communicate the philosophy of involving consumers in all phases of product design and development to our nation’s largest and most influential corporations – those Fortune 500 companies producing new household products for consumers. These companies are continually re-designing their products to respond to customer needs and to stay competitive in the marketplace. Our message is that they can expand their markets by considering the needs of

³Leahy JA, Lane JP, Usiak DJ (2004). Improving Accessibility of New Mainstream Consumer Products through Participatory Development. *Proceeding of the Resna '04 Annual Conference*. Arlington, Virginia

people with various levels of functional impairment, when they are designing new mainstream consumer products.

Conceptually, the Participatory Development project provides to selected Fortune 500 manufacturers, well-articulated consumer information on needed design and functional features for a product. The results are more useful, well received, and financially viable products being introduced into the marketplace. Mass-market companies still view products for people with functional limitations as niche markets that are too small to address, since they understandably need to satisfy the broadest market possible. The T²RERC has demonstrated its ability to broaden their market for new household products – by making them accessible and usable to people with functional impairments, which includes the expanding market of older Americans⁴.

PROCESS

The T²RERC targets Fortune 500 companies -- the largest and most influential sector of corporate America – to achieve the maximum impact on manufacturers of all sizes. We interject our Participatory Development project within the existing product development plans of selected corporations. In conjunction with these corporations, we select a mainstream consumer product being developed by that corporation that will most benefit from improved functional design. Consumers outline the design and functional features for the next generation of a product, while leaving the actual design and feature incorporation to the company. In effect, they are performing a type of 'Consumer Engineering' - a term coined in the early 1930's by Earnest Calkins, co-founder of the first modern advertising agency⁵.

When the T²RERC demonstrated this innovative program's potential value in a prior funding cycle by providing design and functional features required by the consumer, our

⁴ *Appliance Manufacturing*, November, 2001.

⁵ Deaf since the age of 10, Calkins defined Consumer Engineering as, "a business tool that fashions products to address more closely the tastes and needs of consumers."

program became viewed as a resource rather than a threat to the corporate design team. That design team retained the latitude to design a product that best fits the manufacturing capabilities of their company. We saw how consumers could provide the "What" in terms of functional requirements, while the corporate designers still provided the "How" in terms of implementing those requirements.

The T²RERC has found that companies which fail to account for all of the need, wants, and expectations of the full range of end consumers have a higher failure rate for new product introductions. Market broadening increases a product's market size, which increase its likelihood of success. Our work on Black & Decker's (B&D) Lids Off™ automatic jar opener had two desired outcomes: First, B&D introduced a more accessible and usable new kitchen appliance into the mainstream consumer market. Second, they immediately altered their internal protocols for conducting market research. Our work with White Rodgers on thermostat designs demonstrated that this concept and practice can be readily adopted by companies for their own internal development work on new product concepts. This groundbreaking partnership has the potential to increase the involvement of consumers with disabilities in the design of mainstream products to make them more accessible to people of all ages with all levels of functional abilities.

Methods/design process.

Step 1: Recruit companies – From the Fortune 500 list of major corporations, the T²RERC identifies and contacts companies that are in the process of developing new consumer products for the mainstream market. We offer to work with identified companies by providing free access to consumers through focus groups and surveys. We work with a manufacturer's marketing and development teams to describe our purpose, our process, and our deliverables. The manufacturer must be able to commit to an 18-36 month development and

commercialization window for any new product. We rely on the assuredly high quality internal facilities, testing protocols and quality control procedures of these companies.

Step 2: Recruit consumers - The T²RERC places a strong emphasis on consumer input. As a result, we integrate people with functional limitations into all aspects of our program, including device evaluation consumer panels, product evaluation focus groups, and consumer surveys. To ensure our market research addresses the mass-market customers for new products, the Participatory Development 500 project, also recruits people comprising a 'representative sample' of the US population. As part of our sample, we also include the correct percentage of elderly and people with disabilities in these groups. Recruitment from the general population is being done primarily through mass media advertising.

We present the needs of people with disabilities and the elderly to companies alongside the needs of the general population, as input to design and functional feature considerations. Our goal is to help companies create more accessible mainstream products.

Step 3: Procedure: Alpha Focus Groups – Report to Company

Alpha Focus Groups - Focus groups are used in research to generate hypotheses, gather information, or to compliment more quantitative analyses. Alpha focus groups are the first groups conducted for a particular product or topic, while Beta focus groups are conducted later in the process. Alpha focus groups involve consumers in defining product requirements and setting priorities for product design. Four or five Alpha focus groups, each consisting of twelve to fifteen participants, are necessary to identify product requirements. These groups use mixed rather than uniform samples, so that all participants are exposed to various relevant perspectives. The parameters of using at least fifty participants, using mixed samples, running four focus

groups, meets minimum industry standards for validity and reliability. The T²RERC follows these parameters as being optimally efficient and effective.

From our Alpha or Concept Definition Focus Groups, we provide the manufacturer with primary market research. Participants in these groups are asked to participate in an open forum discussion led by one of our experienced focus group moderators. The three primary topic areas include (1) the current status of the technology area being discussed from the participants' perspective. In other words, how do consumers currently address the need being discussed, (2) the description of what their ideal product to perform that function would be, and (3) an evaluation of product concept designs. To determine the current status and consumer satisfaction levels with their product function techniques and devices, the participants are asked to provide background information on a variety of topics involving the product. On the topic of ideal product, participants in the focus groups will be asked to provide the attributes of what they perceived to be the ideal device to perform the function.

The focus group participants undertake an evaluation of product concept models prepared in advance for the groups. A brief description of each model is read to each group. Each model is presented separately and discussed. Lastly, purchase intent and price point questions are asked of the participants for both the Conceptualized Ideal Product and for the concept models shown. Upon completion of the groups, we analyze the information gathered from the groups and formulate a report for the manufacturer. The report includes all the information that was collected in the focus groups, but centers on a listing of specific design and functional features identified by our consumer focus group participants. The manufacturer, to the best of their ability, incorporates these features into their Beta prototype, which they provide to us for further refinement.

Step 4: Procedure: Beta Focus Group - Report to Company

Beta Focus Groups – Beta focus groups primarily allow the refinement of a product's appearance through a critique of key design features of a prototype. They also provide an opportunity to rank a product's function and design features previously identified in concept definition focus groups. Beta focus group participants are a representative sample of the Alpha focus group participants. Two Beta groups of twelve participants each are usually sufficient.

Beta groups provide the ability to obtain quantitative data on the previously collected qualitative information and allows that data to be applied to the prototype being evaluated. Basically they answer the question as to whether or not a prototype addresses the top function and design features a product must have to be deemed desirable by the consumer. Beta groups provide us with the ability to score how well a prototype meets consumer expectations and gauge consumer interest in the product along with their desire or intent to purchase the product. Our Beta group participants rank, in order of importance, the previously identified function and design features of the product concept, an evaluation of how the viewed prototype met those required function and design features, a ranking of consumer preference on any additional product models shown, a ranking of consumer preference on specific design features, and provide comments regarding their usage of the beta prototype.

The Beta group activity is captured, analyzed, and relayed to the manufacturing company in a concise and timely report. In effect our Beta focus groups choose the final overall design and functionality of the device.

RESULTS

The T²RERC utilizing the above process and working in close partnership with the company's product designers has resulted in new products for mainstream and aging consumers

such as the Black and Decker™ *Lids Off Jar Opener*, the White Rodgers *90 Series Blue* thermostat and the Eastman Kodak *EASYSHARE G 600* Printer Dock . All have been recent successes resulting from our partnerships and process⁶.

For the *Lids Off Jar Opener*, Black and Decker received from the T²RERC a listing of 29 specific design and functional features required by the consumer focus group participants. Black and Decker incorporated 27 of the 29 features into their Beta prototype, which they provided to the T²RERC for further refinement.

As part of the Beta focus groups run on the Black and Decker device, participants performed a ranking by importance of previously identified function and design features of the jar opener concept; an evaluation of how the viewed prototype met those required function and design features; a ranking of consumer preference on the three additional product models shown; a ranking of consumer preference on 6 specific design features mentioned below; and provided comments regarding their usage of the beta prototype.

This was not a finished product, but the finished product would be similar in appearance to common everyday kitchen appliances. In effect, the Beta focus groups chose the final overall shape, button location, button size, button shape, type of handle, and the bottom jaws unlock activator for the device. The consumers defined the needs themselves and would therefore benefit from the design of the jar opener.

The White Rodgers *90 Series Blue* thermostat incorporated a significant number of design and functional features identified in our four consumer focus groups. Large and easy to see characters for heat and cool options, large intuitive red/blue temperature keys, a large 12 square inch touch screen display, a blue backlight display which illuminates upon touching the

⁶ Leahy JA (2005). Participatory Development: Importance of Primary Market Research in Identifying Market Trends. Proceeding of the Resna '05 Annual Conference. Arlington, Virginia

screen to improve display contrast in low lighting, audio prompting to ensure program change confirmation, ambient room temperature, set temperature, and clock are displayed separately all on the main screen, and multiple other features.

The Kodak EasyShare Photo Printer 500 and the subsequent Kodak EasyShare G600 Printer Dock also incorporated a significant number of design and functional features identified in our three consumer focus groups. The world's largest LCD screen (3 ½" or 8.9cm) for easier viewing; the ability to view, edit and print Kodak pictures from almost any digital camera, with or without a computer; wireless capabilities so you can wirelessly connect and print pictures; the ability to print from digital media cards and USB devices; a durable carrying case with handle; larger buttons (2.5 times larger than previous models); system ready to use right out of the box; intuitive controls and status lights; battery (for portability) and AC adapter for power; an easy to install cartridge and paper; faster prints than Canon, Epson, or HP compact printers, and multiple other features that were identified by our consumer focus group participants.

DISCUSSION

Working in close collaboration with Fortune 500 companies in the design of the next generation of consumer products has been an enlightening and exhilarating time for all involved. Enlightenment for the T² RERC staff's comes from exposure to the inner workings of major companies and the acquired knowledge of the monumental effort needed to bring a new product to life. And of course, exhilaration for the T² RERC's staff comes from seeing the introduction of a new, more usable and accessible consumer product in the marketplace; the fruits of our labor if you would.

Enlightenment for the company comes from their designers and marketers realization that they have to design products that are more usable and accessible for all. Of course, exhilaration

for the company comes from the successful introduction and sale of that new product. When we have completed our intense collaboration with a Fortune 500 company we see that a change has come over that company. Product Designers and Product Managers are now speaking in accessibility terms, using Transgenerational and Universal Design terminology. Those managers and designers are now seeking ways to integrate those design concepts into more of their products. They are quite aware of the aging Baby Boomer population and the positive effect it will have on sales of their new more usable and accessible products.

The T²RERC has shown that incremental usability and accessibility improvements in mainstream consumer products can be attained *now* at a reasonable cost, while technology progresses and becomes cheaper. Using the aging baby boomer population as a catalyst, the T²RERC and other organizations can work with companies to start this evolutionary process. We have shown that corporations that routinely make these improvements in their products will increase their market share and profitability. Hopefully, what we have started here may just be the beginning of an accessible product revolution in the United States.

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⁴ *Deaf since the age of 10, Calkins defined Consumer Engineering as, “a business tool that fashions products to address more closely the tastes and needs of consumers.”*

⁵ Leahy, JA, Lane JP, Usiak DJ (2004). Improving Accessibility of New Mainstream Consumer Products through Participatory Development. *Proceeding of the Resna '04 Annual Conference*. Arlington, Virginia

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ACKNOWLEDGMENTS

This is a publication of the Rehabilitation Engineering Research Center on Technology Transfer, funded by the National Institute on Disability and Rehabilitation Research of the Department of Education under grant number H133E030025. The opinions contained in this publication are those of the grantee and do not necessarily reflect those of the U.S. Department of Education.

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