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A study of emerging opportunities for digital print production of user-generated content

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A Study of Emerging Opportunities for Digital Print Production of User-Generated Content

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Abstract

Changes in information consumption habits have been especially rapid and deep in the last five years. As examples, Facebook, with more than 90 millions users at the time of this writing, was launched on 2004, and YouTube, a new model that has revolutionized the way the users are getting content, as well as the content itself, started in 2005. These rapid changes are threatening the printing industry. What will be the motivation and environment for consumers to print? What content will consumers prefer to print? What values will consumers appreciate in the print product versus the digital? What will be the role of the printing industry in this new environment?

This research is focused exclusively on personal printed products that are created by the current US college-aged population, and offers a prediction for the research questions based mainly on the analysis of 21 interviews conducted with experts in the printing industry and on a wide literature review.

The main conclusions obtained in this study are:

The current college-aged US population has a very limited interest for printed personal products at their current stage of life, but this interest will grow substantially in the next years. They will print many more personal products than the previous generation did, very often through a social networking environment.

The content of these new products will be more visual and more personal, covering all kinds of daily events. Users will use mostly their own content, but they will be able to blend it with professionally created content in a broad gamut

of products. Personal printed products will extend to other products and substrates, such as textiles.

Printed products are perceived less as a useful or convenient and more as a sensorial and fixed products, something that has value itself. The value of the printed products is precisely that they cannot be used for a purpose other than the purpose of the author. They cannot be reprinted.

The industry has to make the process extremely easy for the user, to remove knowledge needed, to be accessible from everywhere at any time, and to make the whole process easy, fast, and fun. The new professionals will need to understand the whole workflow as a manufacturing process, to improve communication skills, to pay more attention to customer service, and to understand how databases interact with content to customize any printed product.

Chapter 1

Introduction and Statement of the Problem

The developments of the Web and the IT technologies related to the Web have changed the communication habits of users. These changes have been especially rapid and global in the last few years; the first iPod was sold in 2001, Facebook appeared in 2004, and YouTube came on the scene in 2005. In April 2008, Apple had sold more than 140 millions iPods, Facebook had more than 69 million active users, and YouTube had hosted around 84 million videos. The big success of these products came as a result of those companies being able to identify what users wanted to do, then offering them the tools to do that.

Statement of the Problem

Current college-aged students were born and have grown up in an Internet environment. In the last few years, there have been rapid and deep changes in the way users access and use communication media. These changes are threatening big industries, such as the music, television, and news industries. There is always a resistance to change, to abandon the “status quo” (Fiorina, 2007) in all industries. However, the main problem for industry is not just starting the change, but finding the direction to follow in a rapidly changing environment. How will these changes in communication habits affect the printing industry?

What will be the role of the printing industry in this new environment? What products will users consume in a print form versus a digital form? These are the questions that this research attempts to answer.

The print industry is incredibly broad, and the industry and the users of its printing products are diverse; therefore, it is necessary to narrow the study to a very specific population and products. This research studies only personal printed products to be created by the end-user in the next ten years. In this research, end-users are current US college students, between 18 and 24 years old; personal products are products that are created for the purpose of entertainment, information, and personal expression, not for business purposes. The research is based mainly on interviews done with a select panel of experts.

This population was chosen because current US college-aged students have grown up in an environment where the Internet has always been present. They represent a new and unique generation regarding communication habits. All the interviews were done in the US; many of them were done with professors who are dealing daily with this population. For non-academic experts, this is a relative familiar population.

As it has been said, the printing industry is huge, with an incredible variety of substrates, applications, goals, technologies used, markets, and other variables. User-generated content has grown significantly in other communication venues, such as blogs, social-networking sites, and entertainment sites. The segment chosen, personal printed products, is very

small and with few variables, but at the same time, with a big potential for growth (Cost, 2007).

Appendix A lists the members of the panel of experts who were interviewed. Appendix B lists the questions asked to the panel of experts. Appendix C lists the characteristics related to the Web and to print, as used in one of the interview questions.

Background

To understand the state of the art and trends within the print business model, it is important to see the big picture. The emergence of the Internet has generated some irreversible changes. The increasing importance of the person over the institution has been one of these important changes. Before the Internet era, the company or the institution was the one that created the product, and the individual person merely chose between the different products offered. The Internet has given voice, and therefore power, to every single person with Internet access.

Now, consumers are the ones who say what, how, and when they want any product, and companies selling through internet pursue these consumers, trying to offer them what they want. Moreover, the consumers are sometimes the ones who are creating the product, and companies are merely providing the tool to create it or to purchase the product. The important issues are people and

relationships, not products. Therefore, it is convenient to see briefly how customers' behaviors have changed in other similar businesses.

Present Significance

Information Technology (IT) has become more and more involved in the digital printing production (Dolinskiy, 2006), and the Internet has become the customer interface for many printing companies (Birkenshaw, 2000b). Therefore, the changes in IT and Web users' habits are having rapid and deep repercussions within the printing industry.

There are current business models in the printing industry defined under the umbrella of Web-to-print: self-publishing (Lulu, Blurb), photo books (iPhoto, Picaboo), and print-on-demand (Lightning Source). These business models are growing and represent a first approach to the new business models that Researcher is looking for in this study. These models are closer to the user, and these models are using the Web in a more dynamic way. Following the taxonomy used with the development of the Web, Hewlett Packard has called the Web-to-print business model "Print 2.0." The model that this Thesis looks for would be the next step: printing generated by current trends in user communication habits. This model could be characterized by the concept of social printing, printing that occurs as a consequence of a social networking experience.

Reasons for Interest in the Study

This new printing model would be driven by the users' habits, more than by new technology. The potential market for these new models is huge; in addition, it is a new market, not a piece of the old market. There has been a huge boom in on-line social activity. There are millions of users in different social-networking sites (MySpace, Facebook, Bebo, LinkedIn, etc). One of the features most demanded by users has been the capability for sharing photos. Just in Facebook, more than 24 million photos are uploaded daily (Facebook, 2008). However, most of these pictures are seen only on-line. If this new printing business model were able to redirect some of these pictures and information into a print product, it would represent a big market. The new Web communication environment will also promote self-publishing, photo books, and print-on-demand.

This research focuses on print products that are used for the purposes of communication only and not on products that have other functional uses, such as packaging.

The results of this study could be interesting in different ways for academic institutions, printers, advertising companies, and hardware and software suppliers and developers. Having a better understanding of the role that the print industry will play in a new business model will allow academic institutions to provide better preparation for their students. For printers, knowing what the users will demand will allow them to structure their companies to

provide better service and to furnish their employees with appropriate knowledge and training. Advertising companies will benefit from knowing what values the user will appreciate in the printed product. Hardware and software suppliers and developers will be able to anticipate what features will help printers satisfy their customers' demands.

The researcher started to be interested in this topic while doing a summary report about the state-of-the-art of the web-to print industry in November 2007. In that study, the researched mentioned that Web to Print it is not just a different way for moving data; it is a different business model: different content, different publisher, different purpose, and different way of print. At the same time, this business model is a relatively new, with big potential to work on it.

Chapter 2

Literature Review

"The Perfect Storm"

In *Wikinomics: How Mass Collaboration Changes Everything*, Don Tapscott and Anthony D. Williams discuss a great change in the way users communicate and collaborate (Singer, 2007). They say that this change is taking place now because of the conjunction of these four elements that create what they called "the perfect storm". In an interview conducted by Steve Singer (2007), Tapscott described the following four elements:

- The new Web - the old Web was just a publishing site; the new one is a platform
- A demographic revolution
- A social revolution - with the eruption of social sites
- An economic revolution - originated by dropping collaboration cost allowed by the Web

There are other authors who talk about "the collaborative Web" as a dramatic change that would change organizations in the same way that the first Web did (William, 2006).

This new environment that is driving rapid change in users' habits and business models also affects the publishing and printing industries, like any other industry. John M. Lacagnina, Founder and President & CEO of ColorCentric Corporation, a digital book manufacturer, uses the same term, "a perfect storm," to describe the sum of factors that are driving the growth of print-on-demand.

One by One, Customer by Customer, Item by Item

In this new environment, small groups (or even the individual person) has much more importance than ever before. This is because, on one hand, it is much easier for individuals to get to the company and tell it what they want through the Web; users are more used to dealing with the Web, and it is increasingly accessible from everywhere through wireless technology (also known as Wi-Fi) devices. The Internet connection is faster and faster, and the interface is friendlier. On the other hand, IT technology has improved dramatically, allowing companies to deal with all that information; Management information System (MIS,) Customer Relationship Management (CRM,) and Enterprise Resource Planning (ERP) Systems are providing the tools that companies need to work at the individual or the item level. In the bestseller, *The Long Tail,* Chris Anderson (2006) remarks on this idea of how customers' distribution is changing because there are more and more small customers. In *Small is the New Big*, Seth Godin (2006) develops the idea that, not only are the

customers becoming more and smaller, but also smaller companies have big advantages in providing better service in this environment.

A good example of this change of business model is the music industry. In his MacWorld 2008 keynote, Steve Jobs said that iTunes has sold 4 billion songs since iTunes was launched in 2003. By March of 2008, Apple had sold 140 million iPods (MySchizoBuddy, 2008). It is important to realize that the first iPod was presented in 2001, just six years before. These numbers are cited because the music industry is an industry with some similarities to the publishing industry. With a very traditional workflow and distribution structure, it is a big industry that was threatened by the digital era. There was a pessimistic environment, and the argument was made that people were not willing to pay for what they can get free. However, in this environment, some companies have been very successful. The successes of iTunes and iPod consist in offering the customers what they want and creating the infrastructure to be able to sell music song-by-song, customer-by-customer. Customers are willing to pay only for what they really want, meaning only the songs that they like and not the entire CD. They also want to use their iPods wherever and whenever they want; that means ultra-portability. Other important factors for understanding the success of iTunes and the iPod are the "make-it easy philosophy," as well as the product design.

In the publishing industry, the best example of how to get to the end-user is Amazon, and in the printing industry, a good example is Lightning Source.

According to their website, Lightning Source is printing more than 1 million books monthly, with a print run average of 1.8 copies.

The Web Evolution

It is clear that the evolution of the Web is the main factor that is driving changes in user habits. It is, therefore, important to study how this evolution is taking place. Looking at Web evolution will provide an insight into users' habits: what users are demanding, how they access information, which environments are more accepted, etc. This importance is even bigger for the printing industry because the Internet will be the way to communicate with their customers for many printing companies (Birkenshaw, 2000b).

Following the taxonomy more frequently used in the literature, these three characteristics have been distinguished in the Web evolution: Web 1.0 is a one-way provider of information, Web 2.0 is understood as a platform where the user generates and shares content, and Web 2.5 is related to the social networking phenomenon. (Lai, 2007)

Web 1.0: Information Provider

The Web started as a one-way source of information. Users were passive users who went to the Web just to get what others (companies, institutions, or gurus) had already uploaded. As the amount of information accessible on the Internet grew, the importance of search engines became critical. Search engines

not only provide searchers with much information, but also collect a huge amount of information about them. This is why Battelle (2005) uses the term, “database of intention,” to describe the search engines. The search engines can use this information to provide more accurate and relevant information to the user. The paradigm of this model is Google. Google succeeded because it just worked; users easily found what they were looking for. That is the main point, but in addition to that, Google took care of the design, and they introduced the concept of gratuitousness. In the other search engines, the business model was “Ok, I will give you the information that you are looking for, but in exchange, you will have to see twenty banners, and I will get money from that.” Google's way of operating was radically different. “Just use it. I am not going to charge you, I am not going to ask you anything in exchange.” It is free of charge for the end-user (O’Reilly, 2005). This idea of free services, or gratuitousness, will be very important in the process of distinguishing the Web from the print product. In a personal conversation with Frank Cost (2007) talking about the inherent values in the print product, he said that “one value of print is the value of print.” One value of print may be that is not free, as is the Internet. Related to this topic, Godin (2006) wrote that Google lost a good opportunity when launching Gmail. He said that by charging one dollar a year for a Gmail account and asking for real data from Gmail account owners, this account would be more reliable, and therefore have more added value than others. However, this idea is against the concept of “free” that it is deeply rooted in the habits of Internet users.

Web 2.0: User-Created Content

The main characteristic of what has been called Web 2.0 is that the user creates content. Web 2.0 companies are interactive companies (Bulik, 2006). A good example would be YouTube. In YouTube, the company just provides the tool, but users generate all the content. But now the content is different. The content does not have to please a huge mass of people; it is enough if the content is relevant for one user, because the users, one by one, are the ones who are creating the content.

The term, Web 2.0, was coined to name a conference in October 2004 produced by O'Reilly Media, Inc. and MediaLive International. In *What is Web 2.0?,* Tim O'Reilly (2005) uses the example of BitTorrent, a pioneer in Peer-to-Peer (P2P) technology, as an example of a new model of a company. A very important feature of this new philosophy is the architecture of participation, which allows the users to co-develop the product by harnessing collective intelligence (O'Reilly, 2005). Other good examples of this new model are Wikipedia and other Wiki companies.

Web 2.5: Social Networking

In *The Next Web*, a speech given at the Ontario Center for Excellence in October 2007, Albert Lai characterized Web 2.5 as an intermediate stage between 2.0 and 3.0. He defined Web 2.5 as a programmable network, like Facebook or MySpace. In this model, the user not only creates the content for

the Web, but also develops the Web itself and uses the Web as the place to interact with other users to create social networking (Lai, 2007). Traffic in the Internet is going nowadays to the social sites (Catharine, 2007). The social networking phenomenon is growing so rapidly that it is worthwhile to study it in a different section, but at the same time, it does not represent sufficient technological improvement to call it 3.0. The change is in how users want to use the Web, as well as the social and the networking issues.

Social Sites. Second Life is a social site where users create an identity and meet people on the Web. In this Web site, there are virtual shops to buy virtual clothes for the virtual characters. Recently, American Apparel opened a shop in Second Life where users can buy, not only virtual items, but also real ones (Singer, 2006). In an interview for Harvard Business School, Hemp said that shopping is a social event and that social sites are allowing shopping online in a social way (Singer, 2006).

The social effect also creates a more reliable, confident environment where users feel more comfortable. At *Social Networking 3*.0, a conference hosted at Stanford in 2007, the exert panel composed of people from the more important social networking sites, forecasted a new marketing income, precisely by creating a more reliable environment where people will sell and buy products easily because they trust in the people of that network (Perkins, 2007). This is the main idea that supports the website, Prosper.com. Prosper is a People-to-People Lending Marketplace. Chris Larsen, founder of Prosper.com, said that the

core value of this company is that when there is a personal relationship, the person who borrows money, not only will feel more responsible to pay it back, but he or she will spread the word to friends and that viral marketing will help the business (Breyer, 2006). Social sites have the power of engagement. The communication is word-to-mouth in many cases. Mike Murphy, Chief Revenue Officer of Facebook states that "the impressions created virally have a higher worth because the impression is created by friends" (Catharine, 2007).

Social sites are also used to communicate in a different, friendlier, and less intrusive way. Users want to socialize. These sites are just providing the tool (Mckenzie, 2007). Social rules replace academic rules. In Flickr, users define ways to tag and define images; a “folksonomy” replaces the traditional taxonomy (O’Reilly, 2005). Another way of creating new social sites is by blogging. Blogging is all about creating relationships by interacting with readers (Chow 2007).

Networking. In an interview with Jim Breyer (2005,) Mark Zuckerberg, founder of Facebook, said that he started Facebook because Harvard needed it. Facebook started just as a networking site for college students. Actually, at the time of this interview, profiles were accessible only by people in the same school.

In the professional sphere, LinkedIn provides added value to the users’ network (Faber, 2007). Networking is being used, not only to get in touch with people in a social or professional way, but also as a new medium of

collaboration, offering a new way of resolving problems through collective wisdom (Singer, 2007).

Sloan and Thompson published a fictional flash video in 2004, titled *EPIC*. In that video, the authors pretend to be in 2015, telling in a retrospective way how newspapers had disappeared and how the citizens present news and are compensated according to the acceptance of users (Thompson, 2005). Kluster.com is a Web-based collaboration and decision-making platform launched in 2008 that is doing precisely that -- allowing everybody to work on a project and to get money according to the acceptance of his or her contribution (Tedeschi, 2008).

New social networking environments will appear in the next years. There will not be another big site, such as MySpace or Facebook; new social networking sites will be smaller, but more targeted (Perkins, 2007).

The Printing Evolution

Following the same structure, it is possible to talk about Print 1.0 and 2.0, where 1.0 would be the traditional printing model and 2.0 would be Web-to-print.

Print 1.0 would be the old model, where the printer was just the last step in the supply chain, a passive element that printed what customers asked them to print. Print 2.0 would be the Web-to-print model, where a direct communication between the final user and the printer is established, and therefore, the user is the one who defines the content. Web-to-print is now possible because the

customer is used to buying on-line. A survey done in 2005 by PEW International showed that 72 % overall and 84% of people 19-29 years old use the Internet in a regular way (Julie, 2006). The Web-to-print model is focused on these four main business activities: print procurement, marketing/brand management, document management, and workflow automation (Katherine, 2008). Workflow automation tries to automate the process to reduce time and waste (Julie, 2007).

According to Sarah McKibben and Julie Shaffer, co-authors of *Web To Print Primer*, “the decision to get into Web-to-Print shouldn’t be a decision, it should be a given.” (Katherine, 2008) The direct communication through the Web between the printer or the publisher and the end-user, has facilitated the emergence of self-publishing, and with that, the appearance of many more authors. In this new environment, with much more titles published, the goal of the publisher is to put in contact the writer with the reader (Zaid, 2003). ColorCentric and Lighting source are good examples of this kind of company. The printing technical issues have been resolved. The more important technological accomplishment in these companies is the management of the digital information, not the printing itself.

The Web-to-print model also reinforces the relationship between the print and the Web editions of the same product. A paradigmatic example is the magazine *Vogue*. *Vogue* developed a big and well-structured Website, and announced that all the products appearing in the magazine would also be available for purchasing through the Web. The first effect was that they increased

advertising by100 pages in the following issue. Many more companies than in previous editions wanted to appear in the print edition, since in that way, they would appear also in the Web edition.

Access to Information

The way users are accessing and collecting information is also changing to a more automatic, on-line way. The amount of information available is growing exponentially; so different kinds of automation are appearing.

In the news market, Google news selects which news to show in an automatic way, using algorithms to rank the news in a way similar to how sites are ranked by the search engine. However, in that model, the user does not choose what news will be displayed. Real Simple Syndication (RSS) technology has spread quickly as an automatic way to get news from preferred sites. RSS and trackbacks have allowed communication between blogs in a very dynamic way, making blogs more interesting and user-friendly (O'Reilly, 2005). Blogging is about forming relationships, not about PageRank (Chow 2007).

Another way to get information is through "viral marketing." (Smith, Coyle, Lightfoot, & Scott, 2007) This information is much more effective because it comes from friends, therefore having a higher worth and credibility (Catharine, 2007). Web 2.0 companies rely mostly on viral marketing. Actually, according to O'Reilly, this is one of the characteristics that identifies Web 2.0 companies (O'Reilly, 2005).

Another important issue related to the information is how it is stored. The Web has been used increasingly to store information. Pictures are stored in Flickr or Picasa, e-mails are stored in Gmail, and videos are posted on YouTube. All these data are hosted and managed free of charge to the user.

But it is not only data which is moving from the desktop to the Web. Applications are also following this way. Buzzword.com is an on-line free word processor (Ubiquity, 2008) ; it allows users to use it without any installation on the their computers, and it stores text documents on-line (LaMonica, 2007). Adobe has just launched Photoshop Express, a free Website with some Photoshop tools to retouch images and to post images on social sites (Biersdorfer, 2008). Adobe also launched AIR, a software development system to create applications that merge the Internet and PC applications (Markoff, 2008).

In this new scenario, with all the data and the software on-line, the computer only needs a fast Internet connection; the rest of the elements will be on-line. This is the idea behind Intel's "Netbooks," low-cost wireless computers that Intel expects to build with a new processor announced recently (Flynn, 2008).

These trends are helping users to access or to create new content from anywhere, not just from specific locations at home or at work.

The Do-It-Yourself Philosophy

This Web model allows the "Do-It-Yourself" philosophy that uses the collective wisdom and strength of users to involve them in the product. This philosophy also allows new ways of collaboration (Godin, 2006). According to this model, companies provide the tools and templates, and users create the product. Clear examples of this model are photo book software packages, such as Blurb or iPhoto. The simpler and more intuitive the software, the bigger the market for it will be. The availability of this type of software would expand the market from a few Photoshop and InDesign experts to a huge number of digital camera owners.

There are also products done entirely by users. *JPG Magazine* is a photography magazine where the content is submitted entirely by users. Users provide the photographs and vote for their favorite ones. This method provides the magazine, not only with almost free good photographs, but with an automatic and free information about users' preferences, which is much more valuable for marketing companies.

In the printing industry, this philosophy is related to the Web-to-Print model that allows the company to reach many more customers. An example is VistaPrint, boasting 6 million customers in 120 countries, with more than 12,000 orders coming daily from 16 different websites (Julie, 2006).

Technology Developments

There have been important technological developments that have allowed all of this improvement in the functioning and usability of the Internet: increasing broadband penetration, the proliferation of Wifi, and the dramatically decreasing price of flash memory.

There have been also important new developments in mobile and e-reader devices. According to Albert Lie, the slogan of the past technology was "The network is the computer," and the slogan of the new technology will be "The network is the phone." (Lai, 2007)

The Content Evolution

Content is becoming much more visual. When asked about trends in searching, Marisa Mayer, Vice President of Search Products and User Experience at Google, described a more visual search through images and videos (Mayer, 2006). In Facebook, 24 million pictures are uploaded daily (Facebook, 2008). The ability to upload pictures was one of the first and more important features in Facebook (Breyer, 2005). Google bought YouTube for $1.6 billion, and "hasn't figured out how to make profit from YouTube." (Yi-Wyn, 2008) Google is planning to sell ads in videos (Helft, 2008) and tracking information about where videos are being watched (Chan, 2008). This feature has a significant marketing value because it provides information from millions of users.

The first reason given by users for going to social networking sites is to see pictures (Clifford, 2008).

Sociological Issues

To understand the big picture of trends in users' habits, it is necessary to take into account sociological issues. Current freshmen were born after the birth of the Internet. By the time they learned to write, Yahoo! was already there. They started searching in Google for doing their homework most of the times. This is a generation that has grown up surrounded by technology, playing with videogames, and looking for the icon to double-click on.

Nowadays, most of users are looking for news on the Web. In an interview with Dennis R. Floss, (February 18, 2008) Creative Director of *The Rochester Democrat & Chronicle* (D&C), he said that the measured time of usage on-line is 37 minutes per day versus 17 minutes per day for the printed newspaper, and that D&C forecasts an increase of time spent on-line up to 60 minutes daily by the average reader.

Social factors are also key elements in current business model trends. *Wikipedia* is not only getting content from the users, but also the money required to run it. It is the biggest encyclopedia in the world, and it has no single ad. This is the generation of the open source where "all rights reserved" has changed to "some rights reserved" (O'Reilly, 2005).

The idea of privacy is also changing. On one hand, there is a bigger concern for the possibility of accessing and deleting the user's data provided to Web applications (Aspan, 2008). On the other hand, users are uploading all kinds of pictures in Flickr available to everybody, or are publishing a very detailed profile on Facebook to more than 300 friends or to everybody.

The Forecast for the Printing Industry

Back in 1964, Marshal McLuhan coined the expression, "the medium is the message," meaning that the medium used to give a message creates an environment that is as important as the message itself (McLuhan, 1964).

Since the appearance of radio, other media have constantly threatened the printing industry. However, the amount of paper produced has constantly increased, and more growth is forecasted (Birkenshaw, 2000b).

Encyclopedias and reference books are decreasing (Birkenshaw, 2000a), but at the same time, other products (like magazines) are growing, and new printed products are being born. Some of these products originate on the Web with an absolutely different model. Unlike the old model products, these products are easy to produce, are easy to publish, and can cover a brief event (Cost, 2007).

The self-publishing model has created much more titles by new authors (Creator to Consumer, 2001). Therefore, new marketing strategies are needed to connect readers with authors using the latest IT tools (New Markets, 2002).

The digital age will also allow smaller publishers to be more focused and closer to their audiences (Creator to Consumer, 2001). At the same time, print production will become “a black box” (Birkenshaw, 2000b); therefore, printers will need to devote less attention to the printing process and more attention to other aspects, such as distribution (Creator to Consumer, 2001). IT will be more and more involved in digital printing production (Dolinskiy, 2006), changing the conventional skills needed by printers.

The future of electronics books is promising (Howard, 2007). There will be a combination of print editions with digital editions that will bring new challenges and copyright issues (Creator to Consumer, 2001).

Chapter 3

Research Questions

This Thesis is based on a low-constrained study of habits and trends (Graziano & Raulin, 2007), supported by an extensive panel of experts, trying to define permanent added value in the printed product. It is an exploratory research; therefore, it does not contain a hypothesis to be accepted or rejected using statistical analysis. Instead, this research poses some questions to be answered by literature review, and interviews conducted with panel of experts. This research attempts to provide a qualitative answer for these four main questions:

- What will be motivation and environment for creating printed products by the college-aged population?
- What will be the content of these new products?
- What will be the value appreciated in printing vs. electronic by the end-user?
- What will be the role of the print industry in this new environment?

This researcher does not provide any “a priori” answers to any of these questions. On the contrary, he has tried to remain as open as possible to any kind of answer.

Chapter 4

Methodology

This research is based on an observation of current business models and trends, as well as on interviews with a panel of experts. The interviews used an open list of questions for guiding the conversation, but in a low-constraint environment, allowing the experts to express themselves freely regarding the topics studied. Therefore, a qualitative approach has been used to evaluate the results. The answers from the interviews, in combination with the secondary research, are used to provide qualitative answers to the research questions.

Secondary Research

The literature review includes not only scholarly analysis of the topic, but also the study of several business models and tools. The study of these tools and models provides information on what current technologies are allowing users to do at the present time.

The literature review also includes a more in-depth study of six companies' business models that are on the leading edge of the technology and, at the same time, have great acceptance by users. These companies are:

- Google – a global company and a bigger repository providing content management
- Apple – the maker of device interfaces
- Facebook – a social networking site
- Amazon – the biggest on-line book retailer which is also entering in the e-reader market
- Lulu – a customer-oriented printing company which focuses on the relationship with customers, allowing everybody to print
- ColorCentric – a printing-oriented company, which has an automatic work-flow in pre-press, press, and distribution

This study focuses on what users are demanding of digital media and which models are successful in providing solutions for these demands.

Interviews with the Panel of Experts

The list of interviews questions was built as a result of the findings in the literature review in order to find qualified answers for the research questions. The list of questions was checked by four experts (Patricia Albanese, David Pankow, Myrtle Jones, and Patricia Sorce,) in addition to the Thesis Advisor; their suggestions were incorporated into the final list. Apendix B lists the questions used in the interviews.

A panel of experts was defined, trying to cover the widest possible range of perspectives on the function and value of print products. The opinion of the

end-users was analyzed through people in the industry who are in direct contact with end-user requests. Appendix A lists the members of the panel of experts who were interviewed.

Prior to the interview, the questions to be asked were provided through an e-mail. In that e-mail, the researcher specified that these questions were just a guide for the conversation, but that the experts could freely express their opinion about these or any other topics. One of the interviews was conducted over the phone. Another expert sent back written answers to the questions. The rest of interviews were face-to-face interviews. All of the face-to-face interviews were recorded with the consent of the person interviewed. That content was transcribed with the sole purpose of studying and analyzing the answers, not with the aim of publishing them. In order to publish these interviews, it would have necessitated a literal transcription of all of them, plus a check and authorization by each expert. That exceeded the purpose of this research; therefore, the transcripts of the interviews are not included in this thesis document.

All the answers were analyzed and grouped. Chapter V shows the results of these interviews. In this chapter the names of the experts that agree with any idea are cited. This chapter does not show a word-by-word description of the experts but only general ideas, many times shared by several experts with different words. A few times direct quotes are used. In these cases, those quotes are always between quotation marks.

Chapter 5

Results

The researcher conducted 21 interviews with experts, using the questions shown in Appendix B. One interview was done by phone, and another expert sent the answers to the questions by e-mail. The rest of the interviews were face-to-face interviews.

This chapter shows the data obtained in the interviews. This researcher has merely ordered all the information gathered in the interviews, without adding any personal considerations. The opinions of this researcher are detailed in Chapter 6: Summary and Conclusions.

The structure of this chapter follows the sequence of the questions shown in Appendix B. Those questions are grouped in four thematic sets, and these sets correspond with the hypothesis questions that this research has attempted to answer. Results and conclusions follow the same structure and order.

Motivation to Create Personalized Printed Products

The first set of questions attempts to identify what motivation and environment will generate the creation of personalized printed products by the college-aged

population. The questionnaire uses three questions in this set asking for interest in printed products, reasons for printing, and role in social networking sites.

- Do you think that this generation of college-aged young people is interested in printed forms of personal communications, such as photo books and personalized greeting cards? How do you think this interest will evolve in their futures? Will it increase or decrease?
- What do you think would be the reason why college-aged people will print personal products? To keep a record? To use and recycle? To print for others as a gift?
- Do you think that there is an opportunity for print to play a role in Internet-based social networking sites such as Facebook and MySpace? How?

Interest in Printed Products

Do you think that this generation of college-aged young people is interested in printed forms of personal communications, such as photo books and personalized greeting cards? How do you think this interest will evolve in their futures? Will it increase or decrease?

There is a general agreement among the experts that this population, at their current stage of life, has a limited interest in printed forms of communications. Most of the experts think that the interest will increase in the following years when this population matures and changes their environment and

circumstances. There is not a clear opinion whether this generation will print more or less than the previous one did at their later stage of life. There are also some experts who believe that this generation not only is not interested in printed forms of communication now, but will never be.

The main reasons given by college-aged people for not being interested now in personal printed documents are that they are used to and like to communicate electronically (T.J. Cummings, personal communication, May 20, 2008, F. Frey, personal communication, June 9, 2008, B. Garno, personal communication, June 18, 2008); they communicate in a much faster way, (J. Eldridge, personal communication, May 21, 2008, J. Conley, personal communication, July 1, 2008, M. Jones, personal communication, July 3, 2008) mainly through the phone; they have constant and instant access; and they prefer instant gratification (Eldridge, H. Vogl, personal communication, May 19, 2008, D. Clar, personal communication, August 26, 2008). The way that this generation likes to communicate is through small pieces of information, by SMS (Short Message Service) (Conley), allowing feedback and interaction (Conley, Jones). They have huge degree of personalization on the Web (T. Hanningan, personal communication, June 26, 2008). In this environment, “the value of print is relative; the value is the content, the moment” (M. Riordan, personal communication, July 2, 2008). They are used to and engage with personal devices. Another obstacle to being interested in print at this stage of life is that they are focused on many things (P. Albanese, personal communication, May 20,

2008) and are inundated with information (Hanningan). There are also so many ways to access content in a digital format that they do not need to print (Eldridge, F. Sigg, personal communication, May 20, 2008).

Current students are worried about the accumulation of paper because they tend to move often (Vogl). Right now, they do not care at all about the permanence of content (Frey). One expert said that “you need to have more life behind you to want to have a personal expression” (Albanese).

Some experts said that this population will be much more interested in print later on. Appreciation for the printed document will come with maturity, when they do not have to change residences so often (J.F. Naveda, personal communication, June 28, 2008). We are also just starting this personalized side of print (Riordan, R. Chung, personal communication, August 12, 2008). Another reason provided is that digital files and assets-sharing habits are providing much more digital content, and much of this content will end print-out in a broad variety of formats (L. Moses, personal communication, May 22, 2008). They will understand the technology and will be aware of products that they can create (Albanese, A. Cooney, personal communication, July 10, 2008). There is always a desire of having a permanent record (Sigg, Vogl), of having a organic, tangible object (D. Pankow, personal communication, June 24, 2008, Riordan; Cooney). Another important reason for an interest growth a few years from now is that they will realize that they have lost information, friends, or data; they need to lose it to appreciate it (Frey, P. Sorce, personal communication, May 16, 2008, Riordan).

They will also be exposed to more things, they will take more pictures, and they will end up printing them out. Ultimately, the preservation of those images would become important (Cooney). Some experts also noticed that they are going back in some aspects (Frey), “people like to go retro for a while” (Hanningan) and then, printing out different products would be a cool process. One expert showed the growth of Web-to-print business as a sign of the interest of new generations in personal products (Pankow).

There were also a few experts who assert that this generation will never be interested in personal printed products, and that they will not change their interest for print when their circumstances change, since it is a behavioral change (Garno). They will not change unless there was someone directing them to the value of doing it (Cummings).

Other interesting ideas emerged when discussing this topic. One expert remarked that this generation is losing skills of communicating, of organizing their thoughts, and of expressing themselves; these skills are needed for any kind of communication, whether on-screen or over a print product. Even with purely pictorial content, it is necessary to put them into context and to ad captions. That is why the alphabet was created -- as an evolution from pure images for expressing more elaborate thoughts (N. Barzelay, personal communication, August 6, 2008). Regarding these skills that are being lost, one expert said that there is prostitution in the communication process so horrible that there is a complete inability to communicate with people (Conley).

It is important to pay attention to how the whole Internet evolves, and for how long it will be possible to store images for free. If this generation has to pay for storing pictures on-line, they will print more (Frey).

Reasons for Printing

What do you think would be the reason why college-aged people will print personal products? To keep a record? To use and recycle? To print for others as a gift?

Even though the question suggested some reasons as examples, the reasons given most often were a set of ideas that could be cataloged under the umbrella of “self-expression”. Among the ideas provided in the question, the one chosen most often was “print for others as a gift”. This idea was frequently related to the older generation, considered to be less technological savvy. Some of the experts chose the idea of “keep a record” as the main reason for print, and few of them forecast “use and recycle” as the main reason that would move this generation to print.

Related to the use of printing as a way of expressing themselves, many experts talked about the print product as a hard copy, a material object that users can hold or hang on the wall (Eldridge, Barzelay, Cooney, Riordan, Conley, Clar). Print can be customized for printing personal experiences in a way that it was not able to before (Albanese). Users want to show what they are doing and their personal interest; it is much more convenient to show that in a print format

than on a digital one (Hanningan, Conley, Riordan, Clar). The print product is a useful media to convey ideas (Chung). Another expert said that this generation will print to create something, to have fun, and to use as a personal expression; these products created will also depend on the programs available (Frey).

Among the experts who pointed out “print for others as a gift” as a main reason for printing, they say that a printed product has more emotional and personal value than a digital file, (Naveda) that users have the knowledge and awareness of the many different products that can be created as gifts (Cummings). Several experts related print as a gift to their parents or members of the older generation as receivers of that gift (M.R. Peres, personal communication, June 12, 2008), as a sign of respect (Vogl), as giving something more valuable, or just because the older generation does not have the skills or knowledge to do create it (Conley).

Relating to “print as a record,” several experts pointed out that this generation will use a digital file more than a print version as a permanent record (Cummings, Moses, Garno, Naveda), that “the mentality of printing and putting it in a book or in a box has gone” (Eldridge). However, other experts found a big advantage in the print product as a way to preserve information. In this way, printing will become a effective filter, in that users will print only the data really important for them (Pankow, Cooney). Print product is also, by its own nature, a content-organized product, and the user is the one who establishes the order

(Albanese). Another expert said that “this generation is pretty narcissistic” and that they would like to print for keeping a record for posterity (Sorce).

A few experts mentioned print as “use and recycle.” They underscored the idea that this generation is not at all attached to print products. They use the print product for what they need at the time that they need it and then recycle it (Cummings, Jones, Eldridge). In fact, one of these experts called them the “throw-away generation” (Eldridge).

Some experts mentioned the concept of environmental sensitivity as a factor that will reduce the amount of personal printed products (Garno, Cummings).

Role in Social Networking Sites

Do you think that there is an opportunity for print to play a role in Internet-based social networking sites such as Facebook and MySpace? How?

Most of the experts can see a role for the print industry in these Internet-based social networking sites, although some of them do not visualize a clear product (Jones). “Social networking is about personal expression, connecting differently, and at the end of this chain, you can express yourself in a different format” (Albanese) by printing.

Some experts said that users will start to print from these sites as soon as they start to lose information located only on-line. “They have to lose something to appreciate the value of holding something” (Sorce); the problem according to

one of the experts is that there is a time lag of approximately 10 to 20 years between the time users take the picture and the time users actually want to use it (Frey).

Some experts said that this social networking phenomenon is going to be there for many years and that there may be different products, but the same way of communication (Eldridge). Related to this, one of them said that the role of print in this environment will make more sense in five or ten years, when the current users turn 25 or 30 years old. At that time, they will keep using these sites, and they will develop a mechanism for print (Cooney).

Some experts pointed out that products printed from these social sites need to be not for communicating, but for creating and devouring (Garno), a form of instant gratification (Eldridge). Users will like to hold something tangible, printed at a quality level; they will print only some of the pictures that they have, for instance, and not all of them (Peres). "Users do not realize that having thousands of pictures is as good as having none because they are not going to find what they are looking for" (Frey).

"The print document may supplement social networking, because a printed document makes a physical connection" (C. Bigelow, personal communication, July 1, 2008). "There is a level of formatting you can do on a print document that you cannot do on the Web -- choosing the right paper, binding, font, etc" (Riordan). The printed document can also fix in time one specific event created through a social network (Naveda). This is an important

characteristic of print products; once the document is printed, it is fixed, unlike digital documents, which always can be altered (Naveda, Barzelay). One expert also said that he can see a big opportunity in Second Life, a three-dimensional Internet world, from where one can print products (Clar). There could be interaction in both directions, from websites to print and from print to websites, closing the circle (Albanese, Hanningan).

There are some experts who do not see this relationship between printing and social networking sites; they cannot see any kind of application, at least in its current stage (Vogl). Users are sending all the information electronically; the entire environment is digital and done for immediate access (Cummings, Moses). Social-networking phenomena are built for mobile devices, not for books, not even for desktop computers (Conley). Other experts said that these kinds of sites are too transitory; they are merely a cultural mode (Vogl, Chung).

An important question raised by some experts is, “For how long will these social networking sites be working?” Will there be a Facebook version 50 years for now? One expert said that she just cannot imagine that all these on-line sites are going to keep all these stuff for free for twenty years. It is just not going to happen. It is just not sustainable. (Frey).

The Content of Personalized Print

The second set of questions looks at the content of the personalized printed product. There are four questions in this set asking about; new products,

personal content vs. professional content, personal experience, and viability for printed products.

- What kinds of new products incorporating personalized printed graphics do you think will be available through the Internet in the future?
- User-generated content has less quality than content professionally created but, potentially, has more value for the end-user (for example, YouTube). What do you think will be the mix of user-generated content and professionally produced content on personalized print products in the future?
- Have you ever purchased any kind of personalized printed product such as a photo book or greeting card from an Internet site? Are you a regular user of such services? What was the last product you printed for personal use? (photo, map, greeting card, etc.)
- Fifty years from now, where do you think print will still be viable in user-generated products?

New Products

What kinds of new products incorporating personalized printed graphics do you think will be available through the Internet in the future?

The answers were dispersed. There was not a single product chosen frequently for many experts. Some experts described specific products, and others, just characteristics that those products would have.

Having more print-on-demand products was the most frequently pointed-out option, with those products coming in a larger variety of sizes and formats, and new products, such as books for kids done by kids themselves (Jones). This generation will feel comfortable with personalized greeting cards and photo-books (Frey, Conley). Discussing these “instant books,” one expert characterized this generation as an “about-me” generation (Conley), so they will create books about themselves and their activities for the sole purpose of showing them to others. Another interesting observation about these books made by this expert is that these books will not be ISBN books; that means that the price will not be the retail price, but whatever it is worth to the author.

Self-publishing was another model pointed out by some experts as the model that will grow faster. Users feel power with this technology because they can publish their creative content without anybody watching over it (Garno). This model will also enable social networks of people to publish without a big company supporting their work. This will be more accepted among the young people who are more interested in the content than in the printing quality, similar to YouTube for books (Naveda).

Variable data, something designed specifically for the end-user (Moses) sending by e-mail and printed by the user (Barzelay).

Other products mentioned by the experts included personalized clothing or other fabrics (Cummings, Frey), posters using ink-jet wide-format for decorate their apartments or houses (Eldridge, Cummings), documenting memories in

different ways (Pankow), printing again old cards that they enjoyed in their youth, like Pokémon (Frey), and yearbooks or memory books printed from Facebook (Clar). Regarding this concept of printing from websites, some experts noticed the problem of image resolution; on the Web, images are in low resolution, but printing requires high resolution (Clar, Riordan).

One expert noted that there will not be more products, but that the same products will be printed more often; the photo book will go down from the wedding to the prom, and from the prom to a birthday party or a trip (Sorce).

Several experts did not describe specific products, but they pointed out characteristics that these new products should have. It would be simpler for these products to look good; in addition, the products will allow customization and connection, and communicate our uniqueness (Albanese). These objects will be done specifically for one person, allowing one-to-one communication (Vogl), and they can be ordered from the Internet “as-you-go” (Hanningan). These products will need to be created in a very smart workflow, because the user is going to have limited knowledge and limited interest in getting that knowledge (Riordan). The content will combine text with images, and the images taken by the user will contain GPS information, which will be used to build content (Cooney).

Personal Content vs. Professional Content

User-generated content has less quality than content professionally created but, potentially, has more value for the end-user (for example, YouTube). What do you think will be the mix of user-generated content and professionally produced content on personalized print products in the future?

There was a general agreement in this topic. Most of the experts thought that users will prefer their own content, even if this content is of less quality than professional created content. Some experts mentioned the coexistence of both, and a few of them chose the professionally created content as the source of content for user-generated product.

The most frequent reason given by the experts for supporting the use of user content is the availability of easy-to-use tools, as well as more user-friendly devices with more high-end tools (Moses). Users can create quality material with their own capabilities and their own content (Barzelay). Users want to try to do it themselves (Sigg), they want to look as professional as possible with the least amount of effort, they want convenience (Riordan), and there is software to do it (Cooney) to get the “good enough” point (Clar). Some users will demand professional templates to get good results (Frey). Relating to this idea, another expert says that this generation does not demand a high level of quality for personalized products because they do not have the mentality of saving things; they just want to use things, then throw them away (Eldridge).

Discussing the content of printed products, some expert noticed that this content will be more visual (Eldridge). The quality of user-generated content has improved in technical areas, such as image resolution, but has decreased in all conceptual areas related to expression of ideas and organization of thoughts. (Bigelow, Barzelay). There is a significant lack in verbal and writing skills (Barzelay, Conley).

Some experts underscore the preponderance of the content over the quality. Users will prefer their own low-quality content (Jones) because the print attribute does not have as high a priority as the reason why they want to produce it (Garno). "Image quality -- it does not matter at all. It could be faded, it could be out of focus, but it is my grandma" (Frey). One of the experts was more specific, saying that all this personally created content "…is not just about my content, but about me. Do not look at this nice picture of the Grand Canyon. It is not about the Grand Canyon. It is about me in the Grand Canyon" (Conley).

Relating to the quality of user-generated content, one expert said that there is a huge emotional value in the pictures taken by the user; "You cannot put a value on people's vacation pictures" (Peres). Another stated that "the beauty is in the eye of the creator" (Cooney). Talking specifically about this generation, another expert said that they do not trust anybody over thirty, that everything coming from peers is seen as more trustworthy than material coming from corporations or industry. Anything that looks so sleek is seen as suspect (Sorce).

Some experts refer to both kinds of content, professionally created and user-created, coexisting in two different ways. The first way would be using professional content for more important events (Sigg, Naveda), for a presentation, or for professional use (Riordan, Albanese); the second way would be using personal content for all other uses. Another expert says that there will be a blend of both professionally created and user-generated content in the same product (Vogl, Clar, Cooney). Users will like to use their content, but if they find better content on-line, they will use that, along with their own content (Clar). This blend of content will allow users to make a product that they themselves would not be able to get (Cooney). One expert also mentioned hybrid content linked by 3D barcodes and mobile devices, arguing that this generation is already carrying these devices at all times (Vogl).

There are also few experts who think that users will prefer professional content for their products. One of the reasons given is that there are higher expectations for print product than for digital product; users apply a different standard for print, which makes the print a premium product (Pankow). Another reason is that users will be interested in printing only high-quality products; they will not print low-quality products (Cummings).

Personal Experience

Have you ever purchased any kind of personalized printed product such as a photo book or greeting card from an Internet site? Are you a regular user of

such services? What was the last product you printed for personal use? (photo, map, greeting card, etc.)

This question was different from the rest. All the other questions asked about the behavior of current college-aged population; this one was about the personal experience of the experts, none of them in the population of study. Eleven of the experts had purchased a personalized product from Internet sites. Most of them had a printed few items; some of the experts did it just to see how the technology works. There are also some experts who are very active using these technologies. Two other experts print personalized products, but create the product from scratch, without using website tools.

There are eight experts who have never created these kinds of products. One of them said that he used to create print products, but now he creates digital content and distributes it in a PDF file or in a DVD (Chung). Another expert pointed out that he does not use this technology because he does not want to learn a new process, but if he gave all the digital content to his son, he would have 30 photo books by the end of the weekend (Conley).

Viability for printed products

Fifty years from now, where do you think print will still be viable in user-generated products?

Some of the experts mentioned that 50 years is a long time, so that it is very difficult to do any kind of prediction. One of them pointed out how

technology has changed more in the last 20 years than in the last 50, and in the last 50 more than in the last 500 (Bigelow). Others experts refer to the uncertainty about the substrate that will be used in 50 years because of issues related with natural resources and sustainability (Vogl, Hanningan).

Among the products mentioned by the experts, the most frequently used were photo books or other kinds of image and picture collections (Cummings, Albanese, Barzelay, Cooney). Referring to these kinds of products, one of the experts said that we are now at “the tip of the tip of the iceberg in terms of where the possibilities can go,” because of the adoption of the technology by the younger users and the powerful connection between a bound product and the user (Cooney). This expert indicated the growth of ColorCentric and similar companies as a sign of this trend.

Other items mentioned by the experts were coffee-table books (Cummings) personalized textiles (Riordan), a much more personalized newspaper (Riordan, Cummings), and art-books and children books because users want to touch them (Garno). Another big opportunity for the print business mentioned was bringing social networking sites onto paper (Clar).

The only product that was cited explicitly as one that will disappear was magazines (Garno, Conley); users will demand interactive advertising that printed magazines cannot provide (Conley). At the same time, other experts were surprised at how many magazines are read by this generation (Cummings,

Riordan), as well as how the sections devoted to magazines are growing in some bookstores (Moses).

One expert said that there will not be any printed product in 200 or 300 years; that print “is going to move to something that is strictly for the privileged class, as something that reflects luxury and more traditional values” (Sorce). Relating to the concept of print disappearing, another expert forecasts that in 50 years, there will be a personal device that will give the user the experience of a trade book. One limitation today is that current devices cannot show several pages, but if technology makes this possible, “you are taking away many of the advantages of the print product” (Conley).

Experts also mentioned characteristics that the print products or print process will have in the future. Users will have the capability to create the things they want for whatever purpose it has (Cummings), the on-demand business will grow immensely (Moses), and products will be personalized; in other words, “this is how I want my stuff” (Riordan). Users will print less, but more what is printed will be more valuable for the user and of better quality. This better quality will be due, not to the skills of the users, but to the improvement to workflows and devices used (Frey). Most of the print will be done on desktop devices (Sorce, Barzelay); it is a waste to send 10 million copies when 90% will end up in the wastebasket (Barzelay).

Appreciation of Value

The third set of questions attempted to identify the value appreciated in the print product versus an electronic file by the end-users. The interview used four questions in this set asking about pricing model, substrate, archival qualities, and advantages of print vs. digital.

- Nowadays documents obtained from the Web are expected to be free, unlike many printed products, which are expected to be obtained at some cost. The price reflects the value of the print product as something worth the money spent on it. Do you think that printed products will continue to be purchased at a cost, or will they need to be subsidized by advertising to become free for the end-user in order to survive?
- What substrate do you think will be chosen more often to print personal products on -- higher quality materials that enhance the perceived value of the product, or lower quality materials that reduce the price of the product?
- Will the archival qualities of print remain a distinguishing value in the future, or will electronic archiving make print archiving obsolete?
- Choose the three top advantages of print versus digital from the list of characteristics provided

<u>Pricing Model</u>

Nowadays documents obtained from the Web are expected to be free, unlike many printed products, which are expected to be obtained at some cost.

The price reflects the value of the print product as something worth the money spent on it. Do you think that printed products will continue to be purchased at a cost, or will they need to be subsidized by advertising to become free for the end-user in order to survive?

Most of the experts cannot see the free printing model working on user-generated content, at least for most of the users. The reasons provided are that this is a more personal content (Vogl, Garno), that this kind of content would be sometimes used as a gift (Moses) where ads would be seen as an invasion of privacy (Frey), and that the price reflects the value (Cummings, Frey). One expert pointed out that the acceptance of ads would be higher when the purchase price becomes higher (Albanese), but several experts said that the price was not the problem and that the trend was for becoming cheaper (Albanese, Frey). Another expert argued that advertising budgets are not big enough to support all the businesses trying to generate revenue from ads (Bigelow).

On the other side, many experts said that many users would accept a logo to reduce the price (Eldridge, Peres, Naveda. Jones, Riordan, Cooney, Clar). These experts say that the population of the study is so used to seeing ads everywhere, at anytime, that ads do not disturb them anymore, and that they would accept ads to reduce the purchase price; this is especially true for younger people with lower incomes (Naveda). However, one expert uses this same

argument to characterize the overwhelming presence of ads (Moses, Sigg) as an advantage for an ad-free printed product, as “a space to rest”. (Hanningan)

Some experts say that the material object is always more appreciated than the non-material one, that there is a tactual, tangible value (Sigg, Garno, Hanningan, Riordan). Relating to that idea, another expert pointed out that the current workflows are making the production of personal content so easy that the value of this content will diminish (Sorce). Another expert underscored that there will always be products that one group can afford and other groups cannot (Cummings).

Relating to advertising in other related markets, the experts talked about how books are being subsidized by accepting ads on their back covers (Barzelay), how ads are appearing in yearbooks (Riordan), or how professional journals are looking precisely for this model, a free printing version subsidized by ads (Naveda). Some of them pointed out how users try to avoid ads in other media, such as TV (Sigg, Frey).

Some of the experts do not agree with how the question was formulated, and pointed out that content available on the Web is not free, at least for quality content (Moses). One of them said that “as the e-book market continues to grow, the content downloaded from the Web is not going to be free,” and that it will become even more expensive on a digital device than on paper (Cummings). At the same time, various experts mentioned the growing open-source movement as a trend of free content on the Web (Barzelay, Albanese). On the print side,

other experts said that much print content is also expected to be free (Cummings, Vogl).

Substrate

What substrate do you think will be chosen more often to print personal products on -- higher quality materials that enhance the perceived value of the product, or lower quality materials that reduce the price of the product?

There was not an opinion generally accepted by most of the experts. Most of them agree that there will be a market for each kind of substrate – high-quality and low-quality. One expert underscored that there will be a clear difference between B&W (using mostly lower quality) and photo products (on high-quality substrate) (Cooney). Another expert noted that these two different markets would support one another (Riordan). However, almost half of them forecast a more important market for the high quality substrates, and the other half thought that the low quality substrate would be most often used. One expert forecasted a much faster growth in the high-quality substrate market, but a much bigger volume in the low-quality substrate market (Vogl).

Some reasons provided to support the option of high-quality substrates are that these kinds of products will be used to print something personal and of nice quality. They would want something that looks good, that increases the perceived value, and is durable; people would like to keep it (Cummings, Barzelay, Hanningan, Cooney). “Sensory experience will drop convenience”

because print products will become more and more a prestigious, luxury item, and the focus will be on emphasizing the sensuality of it (Sorce). Users will pay the extra money that high quality implies (Pankow). The more digital we become, the better the print piece has to be (Hanningan, Riordan). On the other hand, low-quality images will not end up being printed anyway (Eldridge, Jones).

Reasons used to support the selection of a lower quality substrate by the users include the fact that it is cheaper, so price would be the primary reason to determine the substrate (Garno, Moses). Users do not have the awareness or the knowledge that the better quality will retain the image better; they do not see the difference (Peres, Moses). There is a threshold where the image quality is good enough for 99% of customers (Garno, Clar). Users would like to print just for fun; the novelty of being able to print or to create some content would make them print something that they do not really care deeply about. The higher quality market will be reserved for more artistic expressions (Frey). Using lower quality substrates will also increase the use of the higher quality ones. Users will try the low quality substrate and after that, they will print using a higher quality one (Riordan).

Another interesting feedback from the experts relates to the kind of substrate, not only the quality. This question was formulated thinking of paper as the major substrate for user-generated content. However, some experts pointed out that other substrates would be chosen many times; these include fabric (Cummings, Frey, Riordan), synthetic materials (Barzelay), and even the skin.

One expert said that "there is one substrate that we must take into consideration with this generation which is skin, a tattoo**.** Definitely that would be a high-quality image that they will want to be sure that is visible" (Cummings).

Regarding the variety of the substrates, some experts said that it would diminish (Eldridge), that the quality expectations would normalize (Garno), but there will be a full range. As the market grows, it will begin to sub-segment (Conley).

Archival Qualities

Will the archival qualities of print remain a distinguishing value in the future, or will electronic archiving make print archiving obsolete?

There is a bigger support for paper as an archive substrate, but there are also several experts supporting the electronic version as a better archival media. Most of them think that the print product has better archival properties, and that this advantage will remain a long time. One of these experts said that "the archival quality is one of the more important qualities of the print document versus the digital one." (Vogl) Several pointed out the weakness or insecurity of digital format (CD, DVD, or flash-memory) (Barzelay, Chung, Hanningan, Cooney) or the "ability to ensure the migration of digital data to each new stage where it needs to be saved" (Pankow); this is especially true for user-generated content, where "users cannot afford multiple hard drives" (Peres). One expert said "in a professional environment, the chances are higher that the file will

survive in a good quality so that you can do another print; on the consumers' side, I have no hope" (Frey). Corporations do have the resources needed for creating backups, but it is also true that "we do not know for sure how digital paper last; all that we have is an accelerating ageing process trying to guess it" (Riordan).

However, others experts support that the print products will lose this archival advantage. Users trust in the original file in digital format (Moses) and that the back-up of pictures will be the scanner, the digital version (Cummings). According to one of the experts, the next generation would not select the print material chosen by the current one to live on (Sorce). Some experts pointed out current projects of digitalizing printing libraries (Google or the Library of Congress) are providing much broader access to that material (Naveda, Bigelow). The growth of "works available only in digital form also suggest electronic archiving" (Bigelow). In the user-generated content "there is no need for being printed forever. Print is hard to move and to protect; it deteriorates and is not environmentally friendly" (Conley).

At the same time, some of these experts pointed out the idea that "we are going to see a few years from now people who are very disappointed that they do not have their originals any more" (Moses). Another expert said that "both will evolve simultaneously with a bigger concern about the substrate chosen and a better archive of digital files" (Riordan).

Regarding the topic of losing information, one expert said “this time will not have a historical record about what is going on because is volatile” (Sigg). For several experts, that was seen as a problem; one expert said that memory makes us human (Frey). However, another expert said that that would not be a big deal, that probably it was the arrogance of the twentieth century to try to keep a record of everything, as if everyone and everything were important enough to keep (Sorce).

Advantages of Print vs. Digital

Choose the three top advantages of print versus digital from the list of characteristics provided

Many different characteristics were selected, showing a broad and diverse range of opinions. The characteristics most often chosen as an advantage for the Web were “not only fast, but immediate” (9 times) and “easier to search on” (7 times.) On the print side, the characteristics most often chosen were “touchable” (10 times) and “permanent” (7 times.) Table 1 shows all the characteristics ordered by the number of times chosen.

Table 1. Advantage of Web vs. Print products

Advantage of Web	
- Not only fast but immediate	9
- Easier to search on it	7
- Free	5
- Present myself as I want to be known or seen	4
- More accessible	3
- Networking	2
- Share my documents	2
- Copy without losing quality	1
- Customize it	1
- Do it yourself	1
- Easy to change and manipulate	1
- Have fun	1
- Link in one place many services (mail, videos, pictures, etc)	1
- Reusable	1
- See my friends' documents	1
- Store much information in small devices	1
- Use it, while doing other things	1
- Environmentally friendly	0
- Free storage and management of my pictures and mails	0
- Less time demanding	0
- Link a picture with a contact	0
- Meet new people	0
- Searchable using key words	0

Advantages of Print	
- Touchable	10
- Permanent	7
- Technology independent	5
- Portable	4
- Higher quality	2
- Show to friends at home	2
- Ownership	2
- Readability	2
- External recognition (publishing)	1
- Have a seat and enjoy	1
- Gift	1
- Higher value	1
- Keep always with you	1
- Use for a time and renew it	1
- Fix, cannot be delete	1
- Keep it, storage	0
- A way to get away	0
- Luxury	0
- Pleasant	0

Characteristics added by experts

Some experts wanted to add some advantages to the Web list. The advantages on the digital side were the possibility of copying a file many times without losing quality, the capability of storing much information in a small device like a USB flash memory (Sigg), and the ease to change and manipulate an image (Jones). The advantage on the print side is that the image is "fixed; it cannot be deleted"(Naveda). One of these experts also said explicitly that "I have more trouble finding an advantage for print than for electronic." (Sigg) Indeed, for most of the experts, it took considerably more time to choose the advantages of the print product than the advantage of the digital ones.

Another interesting observation made by one expert was that some of the characteristics that the current generation would classify as an advantage for print product, the new generation would classify as an advantage for the Web. This expert said "to me, portable, yes. But for them, portable is to see the picture in a portable device. That is portable: they do not need to print. 'A way to get away' -- this is one of the issues that I think that we will see changing. A book is an escape for me, something relaxing for me, but they do not read. The only place where they read is on the portable device or on the computer. They do not have time to read. I think they do not realize the satisfaction. For me, print is forever, and the content on a CD is not forever. For them, the content on CD is forever" (Eldridge)

One expert said that the next step for the printing industry is to take the advantages of the Web (speed, accessibility, and ease of sharing) and turn them into something that is touchable and portable (Cooney).

The Role of the Print Industry

The fourth set of questions looked at the role of the print industry in this new environment. This set has three specific questions, plus a final open question that allowed experts to make any other comment or bring up any other topic. The questions ask about service demanded, skills needed, and barriers for printing.

- What services would the end-user demand the most from the industry? Templates to create content? High quality pictures available for free? Accurate soft proof? Better impression quality? Faster shipping?
- What skills not taught in the printing curriculum will help new professionals to serve better user demands? What skills currently taught will lose relevance?
- What are the main barriers to users creating personalized print products via the Internet today? Discuss the factors of price, ease of use, turn-around time, and product variety.

Services demanded

What services would the end-user demand the most from the industry? Templates to create content? High quality pictures available for free? Accurate soft proof? Better impression quality? Faster shipping?

Most of the experts chose “templates” as the service most often demanded by the users. The option next most often chosen was “faster shipping,” followed by the very similar option of “accurate soft proofing”. Some experts said that all the services quoted are important, but none of them chose explicitly “better impression quality” or “high quality pictures available for free” as service that would be demanded by the end-user.

Many of the experts who chose “templates” underscored the need for making the printing process easier for the user (Barzelay, Garno, Naveda, Frey), removing barriers (Albanese), and simplifying skills required to make the print document (Albanese). Relating to this idea, one expert used the example of Kodak, and how this company is succeeding because it kept the process simple and accessible to everybody (Naveda). Other experts used the example of PowerPoint as software providing the tool to do a nice product in a very simple way (Naveda), or lulu.com (Moses). Users do not have the knowledge, nor the interest to get that knowledge (Riordan). Nor do they want to do a lot of design work, so the easier, the better (Pankow).

Relating to shipping and turnaround time, some experts said that shipping is fast in the US (Jones, Vogl), so that it does not represent a big issue (Sigg).

However, for many other experts, this is the most important service that the end-user would demand. Some of them said that this generation does not want to wait; they want the product “right now” (Eldridge, Conley). Pressure on turnaround is extremely important (Cooney), as nobody can get anything fast enough; “the faster you get things done, the sooner you get to your other life.” (Hanningan) It is a distribution issue (Conley). One expert said that when FedEx merged with Kinkos, that was the smartest move in terms of the potential, with someone specialized in delivering content and another one specializing in quick turnaround printing (Riordan). This expert also said that the higher the quality the print, the more patience people would have in waiting for it.

Accurate soft proofing was also mentioned by several experts (Albanese, Riordan), as was reliable color (Pankow). One of them said that soft proofing remains a problem, and if companies want to sell through the Internet, then they would need a good soft proofing system (Sigg). However, other experts pointed out that this issue is becoming less important, because it has been answered through the process (Cooney). Users do not have to know about it; it just happens (Garno).

There were also some experts who indicated all of them as being equally important (Bigelow, Peres).

The experts also mentioned other services that users will demand from the industry. One of them said that printers will be providing more non-print services, such as mailing, Web design, database management, and digital and

physical archiving (Cummings). Another expert underscored the need for the industry to become more consultative, to be service providers in the sense of showing the users how to do things, and to be more service-oriented. As one expert said, “Service, service, service -- that is going to be the name of the game” (Barzelay). In fact, another expert said that she does not see a role for the traditional printer in personally created content and that many of the print products would evolve to the desktop printers going to the distribute-and-print model (Sorce).

Skills Needed

What skills not taught in the printing curriculum will help new professionals to serve better user demands? What skills currently taught will lose relevance?

The experts gave a broad variety of answers. Regarding skills that will help new professionals better serve user demands, answers could be grouped in these four big sets: workflow, communication skills, data-based skills, and a miscellaneous set of various skills. There were fewer experts providing ideas related to data-based skills than to the other two topics, workflow and communication skills. In reference to skills that will lose relevance, many experts were not able to find topics to remove or skills not needed; others experts mentioned design and being an old school specialist as the skills that sooner will lose relevance.

Several experts mentioned workflow as a topic that future professionals will need to know more in-depth, but each one pointed out a different aspect of workflow, including an understanding of:

- the industry as whole, its structure and infrastructure; not only a limited vision of print industry as creating a book or magazine, but being able to get a graphical representation of the industry (Cummings)
- the flow of the digital file throughout the printing process (Clar)
- the role of cross-media and templates in the process (Frey)
- how systems integrate, how IT people think, how programmers and designers work ("that ability of seeing how the dots connect") (Riordan)
- process production control (Garno), print as a industrial manufacturing process, and business turnaround (Cooney).

Regarding the set of answers called "communication skills," it is possible to classify answers into two subgroups: communication within the industry and communication with the customer. Some experts underscored the need for more communication skills inside the company (teamwork and talking with one another) because nobody has control over all of the process (Sigg). One expert emphasized the importance of increasing communication between creative and production teams (Vogl), and another between engineers and printers. Other experts emphasized the importance of improving communication with the

consumers, of becoming more costumer service-oriented so that the customer will want to come back (Pankow), of being able to listen the users, of knowing what the users are saying and being able to interpret it, of integrating what is available to get what the users want, and of learning how to connect expertise with users (Albanese). Skills in dealing with people will be needed; especially in the on-demand business, printers are dealing with people who are trying to print and they cannot, and so become frustrated; they always "need it yesterday (Moses)."

Some experts also emphasized data-based skills as needed for new generations in the personalized printing business who will need to understand what a database is, how databases interact with content, and what is important in a database (Albanese); they will need to realize that the power of a user profile is tremendous (Riordan). One of the experts, talking about Variable Data Printing, said that the professional in this field should have SQL, XML and some programming knowledge to manipulate data, along with design skills.

Other skills mentioned included a more in-depth knowledge of digital content distribution beyond printing on paper (Jones), color science and color printing manufacturing, (Garno) ink-jet technology (Eldridge), the social networks phenomena and cultural patterns, the economics of printing and publishing in this new environment (Bigelow), how to surf in a electronic world, and how to work with complicated software suites (Naveda). Two experts underscored the idea of teaching the new generations how to think (Conley, Hanningan) and how to

embrace change. If they understand the concept behind the program, they can adapt pretty well (Hanningan); however, if they learn the program and not the concept, they will have problem when transferring to another software (Frey).

Many experts did not know what they would remove from the curriculum or what skills will lose relevance. This idea was expressed by an expert saying “you need to teach for the new generation, but most of the industry is still in the old generation. You have to teach the traditional and the new technology” (Eldridge). At the same time, another expert pointed out that any institution that wants to be a center of excellence of graphic communication has to spend more time in the “what if” than in the “now” (Conley).

Among the skills forecasted to become obsolete sooner were a knowledge of design and typography due to templates (Naveda, Riordan, Pankow) (not the design of templates, which is very different) (Riordan) and of how to physically operate the press (Clar) because the degree of automation is making that less necessary. The process will become a black-box (Vogl); the technology will get to a point where it just happens (Clar). There will not be so much need for the old school specialist (Riordan); however, there will still be a need for offset printers, moving more and more into digital printing (Albanese).

Barriers for Printing

What are the main barriers to users creating personalized print products via the Internet today? Discuss the factors of price, ease of use, turn-around time, and product variety.

The main barrier to users creating personalized print products for most of the experts is “ease of use”. The barrier next most often chosen was “time,” and a new one not presented in the question, “awareness”. There were also some experts who identified “product variety” as the main barrier to users. The least often chosen barrier was “price.”

Several experts said that software is still difficult to use (Moses, Vogl). One expert noticed that these barriers are due to the vendors, because “it is so complex to create something simple” (Frey) and complexity is not an advantage (Sigg). The process of creation has to be simpler, perhaps using a drag-and-drop model; users need to be able to get good quality without having to know about technical issues. “The more the printing industry removes the pain to make it as simple as possible, the better the service to the end-user” (Albanese). Users sometimes are intimidated by the complexity of the process (Naveda); therefore, they will need more accessibility through easy templates, using a VistaPrint model (Riordan). There will be more templates, but then they will see less variety (Moses); at the same time, users expect quality (Naveda). The process will have to be easy because users do not want to spend time using it. Users will like the software to create the product for them, then pick it up at the drug store (Conley).

Regarding this relationship between being easy to use and making the product faster, another expert said “we are all busy, so it is better to be fast. It is better to be intuitive. It is better to be easy. It is better to be really good, and we are starting to see technologies coming out” (Cooney). However, the main barrier for this expert was not these technology problems, but the user’s awareness.

Awareness was not identified in the question, but several experts brought it up as the main barrier to creating personalize printing products (Chung, Pankow, Conley, Cooney). One of them used the example of the digital camera to forecast a similar growth in these kinds of products (Pankow). Another noticed that the industry is marketing to the wrong people. They are not marketing to this generation because they do not have money to spend yet, but this is a mistake (Conley).

Several experts pointed out the time spent on the creation process as the main barrier. As one expert noticed, it does not take much time, it just takes time; but this society is expecting everything to be instant (Peres). The less time you spend working on it, the more time you can spend with your family. (Hanningan) People’s free time is becoming smaller and smaller (Clar).

The reason chosen next often by the experts was the “lack of variety (Jones, Frey, Garno).” Users can create a few different models and then they may be bored (Frey). Users should be able to create the same products than they can print on offset, but is not like that now (Garno).

Among the options expressed in the question, the one chosen the least often was “price”; in fact, only one expert pointed out price as the first barrier to creating personalized printed products (Garno). Another expert said that price is always an issue, but many times it is just a perception; in her professional experience as graphic designer, to do something well on the Web costs more than to do it to print. “Comparably is always cheaper, both in the print cost and the design” (Hanningan). On the other hand, one expert said that price is not necessarily the first barrier (Frey), and another said that many times, price is not relevant (Naveda).

Other obstacles to print given by the experts were lack of assets because of lack of effort to preserve data (and lack of interest in creating these products) (Sorce) and the need of know or to own specific software (with the growth of free-software, the user does not need to spend money on software, nor want to learn how to use it.) (Albanese).

Chapter 6

Summary and Conclusions

Analysis and Interpretation of the Data

One of the experts quoted Niels Bohr when he said, “prediction is difficult, especially about the future.” That is precisely what this Thesis is trying to do. Although knowing the difficulty and the limitation of this study, the researcher thinks that he can offer a qualified point of view about the topic, based on the literature review and the interviews conducted with the 21 experts on the topic. These interviews provided insights from very different perspectives. At the same time, in CAST Engineering Technology Building in Rochester Institute of Technology, is quoted the sentence of William G. McGowan when he said, “people should be allowed to make mistakes. If they are not making mistakes, they are not trying new things”. In this way, the researcher will exercise his right to make mistakes, while offering a new point of view on this topic. Therefore, all the statements expressed in this chapter are just the researcher’s opinion based on his interpretation of the interviews conducted and the literature read.

The conclusions follow the same structure used in data collection, expressing the researcher’s opinion in each of the four sets of questions.

Motivation and Environment for Creating Personalized Products

The current college-aged US population has a very limited interest for printed personal products at their current stage of life, but this interest will grow substantially in the next years. They will print much more personal products than the previous generation did, as a way of expressing themselves and transmitting those expressions, very often through a social networking environment.

The lack of interest of the current college students in personal printed products is due, not to the population itself, but to the environment. Therefore, it will be similar for the next generations. During the college years, with current technologies, there are so many inputs: data, images, people, experience, etc, that there is neither time nor interest to generate outputs.

The conjunction of three factors, the overwhelming amount of information, the development of communication technology and devices, and the cultural habits, allow and demand an immediate and constant access and interaction with all this information. This behavior is not compatible with printed product. These current students cannot wait to get to the computer to check their Facebook account; they have to do it from their cell phone during a break between two classes. They cannot wait because there has been so much new information accumulated in the last hour, because they have the technology right there in their pocket, and because there is a constant feeling that there is someone waiting for an answer from them.

The issues described above are positive issues related to what they have. There are also negative issues related to what they lack. They do not have enough money, time, closets, or memory; also, they have not lost any items. They have a very limited budget, so they prefer to invest in different items. They have more things to do than time for doing them. They have a little closet to share with other three roommates; therefore, they do not want to store print product. They do not have life enough beyond them to feel the need of reporting it. They do not have the experience of loss; in this stage of life, everything is to gain, to increase, to broaden. Although they have all these disadvantages, this generation is also sowing the seeds and preparing the field for creating many personal products in their near future.

This generation will print much more personal products than the previous one did. The main reason will be awareness. They are getting to know about all the different products that they are able to create, and these products are constantly growing. They also have the skills to create these products on-line, not only because of their strength in technical issues, but also because applications for creating personal print products are becoming easier and more intuitive to use. This generation is also used to on-line transactions and an on-line distribution model. They are generating tons of digital pictures and material that they may use for personal printed products. They will probably lose many of them. On one hand, there will be so many pictures that they will always have more stuff than they will be able to use, and on the other hand, they are

developing the habit of taking images constantly; therefore, there will be a non-stop input of digital assets. These assets will be hosted and managed for free, on-line, in exchange for using one specific website. The websites will get money by selling ad space or other products through those sites.

For the users, many of the barriers to printed personal products will disappear; they will have more income, more time, and more shelves to fill, but mainly they will have the need for building a memory. They will do it for themselves to keep, but mainly for others to show them those images. They will also experience the loss of data and of people, and they will like to turn some of the digital assets into print product as a more permanent substrate.

The print product will be a blend of self-expression and gift, a self-expression that wants to be shared. With the growth of maturity and responsibilities, the circle of friends and people dealing with them will be smaller, but the relationships will be deeper. The print product will play the role of a more emotional and valuable object for giving or sharing, as a unique object, done with a unique purpose, that is fixed and cannot be altered or repurposed.

Many of these personal printed products will be created in a kind of social networking environment. There will be unique or very limited profiles from where users will be able to manage all their digital assets and their contacts, to create personalized printed products, and to distribute from there. Social sites are growing very fast. This generation will need to be more selective. Dave Carr wrote an article in *The New York Times* on July 2008 titled “Hey, Friend. Do I

Know You?" The number of "friends" on those sites is so big that the relationship is very vague. The print product generated and distributed from these social sites will serve as a filter, not only for the content to choose to be in, but also for the friends to choose to send to.

The more technological the environment becomes, the more appreciation there will be for the print product as a valuable object, as a way to get away, as a needed break.

What Would be the Content of these New Products?

The content of these new products would be more visual, more personal, and would cover all kinds of daily events. Users will use mostly their own content, but they would be able to blend it with professional content in a broad gamut of products. Personal printed products will extend to other products different than conventional photo books, such as textiles, wallpaper, and any kind of print product. These products will be printed in digital printers' facilities, not on desktop printers.

This generation is much more visual than the previous one. That is the way they are learning and the environment where they are. They are getting most of their classes through PowerPoint presentations, they are carrying digital cameras in their phones at anytime, and they are getting used to recording and photographing everything and sharing these images or videos instead of talking about them. They are spending much more time watching videos in YouTube or

sharing pictures in Facebook than talking with friends or reading, and many of the times that they are reading, they are reading on the Internet, surrounded by pictures and interactive graphics. This turn toward a more visual communication is contributing to a decrease in verbal and writing communication skills that feedback the visual communication.

The content will be much more personal. One of the experts, talking about the content of new personalized printed products, said “Do not look for a nice picture of the Grand Canyon. It is not about the Grand Canyon; it is about me in the Grand Canyon” (Conley) . This researcher agrees completely with this idea, but he thinks that this “me”, which right now refers to the one who is doing the products, will expand to a broader “us,” including friends and family. Most of the products will be created around themselves, what they are doing, where they are going, etc. Therefore, they will use their own content for creating these products. This content has much more emotional value that an external, professionally created content. In addition to that, the technical quality of this user-created content will improve significantly, due to the automation built into the devices and the improvements on the software that will make it easier to take better pictures and to correct them without need for technical knowledge.

There will be a great variety of templates and products. Some templates will be very simple to use, with many restrictions, but there will be also other templates that will provide more freedom to the user to express their uniqueness. There will also be professionally created images that users will be able to blend

with their own. Some of these templates and pictures will be free; many others will be purchased at a cost. The term “professional” will be more diluted; everybody will be able to sell their pictures or their templates, if other users like them.

The content of these products will expand from special events to daily events, and at the same time, the users will create these products to show to others more than to store them; therefore, they will not use the greatest quality, they will stop in the “good enough” range of quality. This “good enough” will become better and better. The growth in the production will drop prices, and user-generated templates will create very nice products that people would like to use.

Although more of the products will be mostly visual, there will be a significant growth in self-publishing text-content books. One of the experts forecast a social network for users who want to publish their novels, similar to YouTube (Naveda). This researcher agrees with this idea and thinks that these networks could be created by the editors to use as a live test for new authors, taking the better ones, and printing and doing the promotion in the conventional workflow. Lulu.com is going in that direction -- not only allowing user to publish, but creating a network and offering more services to the users.

Variable Data Printing will be used mainly by the advertising industry, but it will also be used by the end-user for creating personalized products for a

number of friends or contacts. These kinds of products will be linked with social networking sites.

The personalized products will expand from printing on paper to any kind of surface and product that could be printed on. Regarding book-shaped products, the ones that will grow more will be the more tangibles ones, the ones made to be touched, like photography or children's books. One specific product that the researcher thinks that will grow will be children's books done by the children themselves. That will be one way of extending the "about me" to "about us" philosophy.

Some experts mentioned the idea that many of these personalized printed products will evolve to the desktop, following the distribution-and-print model. This researcher disagrees with this idea. These personalized products will not be just "print products," but "bound products," as the binding and other finishing features become a more and more important factor. This researcher agrees with the concept of distribute-and-print. Each item will be printed in the digital printing store closest to the users to avoid shipping as much as possible, but not at the user's house.

Value Appreciated in Printing vs. Digital

The two advantages chosen more often by the experts for the print product were "Touchable" and "Permanent," versus "Fast" and "Easy to Search" for the digital product. Print product is not perceived as a useful or convenient

product, but as a sensorial and fixed product, something that has value itself, not through the use that the print product can perform. The digital product is much more useful and can be used for many more things than the print product. The value of the print product is precisely that it cannot be used for a purpose different than the purpose of the author. It cannot be reprinted; it cannot be erased and used for another purpose; therefore, the print product is considered truer than the digital one.

Many experts suggested that print product has better archiving qualities because of the insecurity of the digital format. This researcher disagrees with this reason. He thinks that this argument is correct for the previous generation, but not for the current and next generations. In previous generations, data collection was difficult, and formats did not change for several years. Every change was a traumatic, risky, and in many cases, frustrating event. This generation is used to constant change. They are used to exploring and changing constantly, so format change is not a traumatic event, but an almost daily event. Data collection is incredibly easier and there is duplicity of most of the data, so they can get that data from different places. In one weekend, they can create a Facebook profile and get 200 friends with all their contact information, which would have taken years for the previous generation. The preservation of the data is also easier in digital format than in print format. It is possible to have different copies in different locations; quality does not fade with every copy; and the procedures, equipment and companies dedicated to digital data preservation are going to increase and

improve. This constant improvement will not happen in the printed format. However, there is still the idea that print is forever and digital is temporal; it is not because of archiving issues, but because print cannot be modified.

Archival properties will not be a big issue in most of the personalized printed products created for this generation. Archival properties were an issue for previous generations because product created at that time was difficult to create and was very expensive; therefore, it was associated with very special events that should be preserved. This generation will create daily event products, products that will be cheap and easy to create. These kind of products are not created to endure a long time.

There will be a great variety of both products and users; therefore, there will be different business models to pay for the product. There will be free products subsidized by advertisers, but most of them will be paid for by the user to avoid the presence of advertising in the product. These products will be created by the user, and they will want to show them to others. They would like the products to look as professional as possible. Digital content will not be free either, and to some extent, it will be more expensive than the printed version. This has already happened in the e-books market. Most of the software for creating the product will be on-line and free, both for the digital content and for the print content; the user will pay only for the product.

The substrate chosen will be related many times with the pricing model. Free or partially subsidized product will use a low-quality substrate, and products

paid for by the user will use a better quality substrate most of the times. There will be a reduction in the variety of the substrates for most of the products because the creation process will be less craft; it will become a three-click process where the user will chose between medium-, good-, and supreme-quality substrate.

Both business models, free and purchased at a cost, will be related. Many users will start with a free product, learning how to use it, having fun, and expressing freely using a low-quality substrate and an advertiser-subsidized product. These users will turn to a better quality substrate and will remove the advertising when they want to create a more quality product to keep or most of the times to show. However, as we have already seen, the print product will be appreciated by itself, and the sensorial aspect will play an important role in the print product; therefore, more of the personal product will be a good-quality, advertiser-free model.

Personalized printed products will be made using a wide variety of substrates other than paper. The one that will grow faster will be probably printing on fabrics for designing one's own clothes, but there will be personalized products in any single printed product, from M&M's or stamps that are currently available, to wallpaper, to car or housing decorations, or any other product.

Role of the Industry in this New Environment

There is still a lack of awareness in many users. The industry has to make the process extremely easy for the user, removing knowledge needed, providing nice templates, being accessible from everywhere at any time, and doing the whole process fast. Price is not a main obstacle, nor does it seem to be. The new professionals will need to understand the whole workflow, and improve their communications skills and understanding of databases.

The main barrier to increasing the production of personal printed products is a lack of awareness about the products available, as well as the relative ease and inexpensiveness to use. The current generation is more conscious of it.

Once the user is aware of the products available, the next barrier is the need for templates that “remove the pain to make it as easy as possible”. (Albanese) Experts use examples of different companies or products that have succeeded precisely by removing the pain of creating a new product: Kodak with the invention of the photograph camera allowed to everybody to take photographs (Vogl), PowerPoint allowed to the general user to do a presentation easily (Naveda), lulu.com opened the publishing capability to everybody (Hanningan), and VistaPrint provided easy templates to create daily office products (Riordan). Another company mastering the “easy to use” philosophy is Apple, which also has been very concerned about design, about creating cool products.

The print industry has to follow similar patterns. Creating a personalized printing product has to not only be very easy to do, but also must generate a very

well-designed product. Another key factor is the lack of time. Free time is shorter and shorter; therefore, the whole process of product creation has to be very short. One of the experts summarized these ideas, saying, “We all are busy, so it is better to be fast. It is better to be intuitive. It is better to be easy. It is better to be really good” (Cooney). The researcher would add that the process of creating a print product by the user has to be even fun. In order to be fun, there should be a great variety of products and templates flexible enough to allow the users to express their uniqueness (Albanese), their creativity.

Another issue to improve upon is the turnaround time. The current college-aged generation could be called the “right-now generation.” They are used to instant communication and instant gratification. Digital printers will have to master Digital Asset Management to offer the customer much faster service. This need for faster service and lower shipping costs will draw to print most of the products in the digital center closer to the user. Only the products requiring a special binding or finishing will be done in a centralized placed and will be shipped from there.

Some experts said that printers would have to offer different services to users, such as mailing, web design, database management, consulting, etc (Cummings). The researcher agrees with this idea regarding commercial printing, but not regarding personal printed products. In commercial printing, users will print a product that they will use to communicate; in personal printed products, users will communicate, and sometimes, it will happen to be printed by

“someone.” Users of personal printed product will not have a relationship at all with the printer. In fact, the print product creation will take place many times through social networking sites while doing other things, as another feature of these sites. In that way, it would be available at anytime, anywhere, and from any device with an Internet connection.

All the material needed would be on-line in picture repositories like flickr or on social sites like Facebook; therefore, it will not be necessary to create these products from users’ own computers, and templates should be easier enough to create a nice product using a cell phone. The software used will be free, and the user will pay exclusively for the product, as it happens with iTunes (which is free and the user only pays for the songs downloaded) or Kindle (where the connection is free and the user pays only for the product purchased.)

Skills needed for professionals in the printing industry in general will be different in this new environment. Professionals will need a broader understanding of the whole workflow, from design to production, finishing, and distribution; as well as an understanding of the printing process as a manufacturing process, not as a craft process. These professionals will need also good communication skills to communicate with other professionals (printers, engineers, etc.) involved in the process, design, and production. It will also become more and more important to have good communication with customers. A deep understanding of databases, how they work, and how they interact with content would be also very useful.

The skills that would be less needed include being the old school specialist in the printing process. These processes will become so automatic that they would be “a block box” that just works. Templates will diminish the need for design, but design skills would also be needed for the creation of templates and for non-template works.

Agenda for Further Research

Due to time and resource constraints, this research interviewed only a select but reduced number of experts. From the very beginning, it was clear to this researcher that this study should be completed with similar interviews to the end-users. It would also be very useful to extend the number of experts interviewed, mainly from the industry.

This research had to narrow the study to a very specific population and product. There are two other very interesting markets that could be analyzed in a similar way -- the publishing sector to study the effect of e-readers and digital content versus print editions, and the newspaper market to analyze their users’ preferences between digital editions and print editions.

While doing the literature review and interviews, this researcher with his Thesis Advisor faced very interesting topics that exceeded the scope of this study and could be topics for further research. They are to:

- Study the content already being printed as personalized product in a print-on-demand company, such as ColorCentric. Define a taxonomy and classify the content that has been printed.

- Define and run an experiment to determine what kind of content is preferred in printing form versus digital, which one is more valued, and which one leaves a deeper and more permanent impression on the user.

- Study the capabilities of social networking sites, as well as their evolution and interaction with other sites, looking for specific ways to print from these sites.

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Appendix A

Panel of Experts

Appendix A

Panel of Experts

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Appendix B

Questions Asked of the Panel of Experts

Appendix B

Questions Asked of the Panel of Experts

The combination of the Internet and digital print is in the process of making the capabilities of the printing industry scalable and available to every individual with a computer and an Internet connection. This interview focuses on your ideas about the way the industry will serve individuals to enhance their personal experiences and support their lifestyles in the coming years.

In all of these questions, “end-users” refer to the current college-aged US population, and “personal products” refer to products that are created for the purpose of entertainment, information, and personal expression, not for business purposes.

Introduction

- For how many years have you worked professionally in printing communications-related fields?
- What is your current position?

What will be motivation and environment for creating printed products by the college-aged population?

- Do you think that this generation of college-aged young people is interested in printed forms of personal communications such as photo

books and personalized greeting cards? How do you thing this interest will evolve in their futures? Will it increase or decrease?

- What do you think that would be the reason why college-aged people will print personal products? to keep a record, to use and recycle, to print for other as a gift?
- Do you think that there is an opportunity for print to play a role in Internet-based social networking sites such as Facebook and Myspace? How?

<u>What would be the content of these new products?</u>

- What kinds of new products incorporating personalized printed graphics do you think will be available through the Internet in the future?
- User generated content has less quality than content professionally created but, potentially, has more value for the end user (example Youtube). What do you think will be the mix of user-generated content and professionally produced content on personalized print products in the future?
- Have you ever purchased any kind of personalized printed product such as a photo book or greeting card from an Internet site? Are you a regular user of such services? What was the last product you printed for personal use? (photo, map, greeting card , etc.)
- Fifty years from now, where do you think print will still be viable in user-generated products?

What would be the value appreciated in printing vs. electronic by the end user?

- Nowadays documents obtained from the Web are expected to be free unlike many printed products, which are expected to be obtained at some cost. The price reflects the value of the print product as something worth the money spent on it. Do you think that printed products will continue to be purchased at a cost or will need to be subsidized by advertising to become free for the end user in order to survive?
- What substrate do you thing that will be chosen more often to print personal products? Higher quality materials that enhance the perceived value of the product, or lower quality materials that reduce the price of the product. What do you think will be the long-term opportunities for high quality printed materials that convey luxury and high value in personal applications?
- Will the archival qualities of print remain a distinguishing value in the future, or will electronic archiving make print archiving obsolete?
- Choose the three top advantages of print vs. digital from the list of characteristics provided. How long will each one remain as an advantage? Have we missed any advantages that are not on the list?

What will be the role of the print industry in this new environment?

- What services would the end-user demand the most from the industry? Templates to create content? High quality pictures available for free? Accurate soft proof? Better impression quality? Faster shipping?
- What skills not taught in the printing curriculum will help new professionals to serve better user demands? What skills currently taught will lose relevance?
- What are the main barriers to users creating personalized print products via the Internet today? Discuss the factors of price, ease of use, turn-around time, and product variety.
- Do you have any further thoughts on this topic that you would like to add?

Appendix C

Advantages of Web versus Print

Appendix C

Advantages of Web versus Print

Advantages of Web, ideas related with Web

- Free
- Not only fast but immediate
- More accessible
- Share my documents
- See my friends' documents
- Meet new people
- Use it, while doing other things
- Networking
- Link in one place many services (mail, videos, pictures, etc)
- Have fun,
- Free storage and management of my pictures and mails
- Link a picture with a contact
- Present myself as I want to be known or seen
- Do it yourself
- Reusable
- Less time demanding
- Environmental friendly
- Easier to search on it

Advantages of print, ideas related with print

- Permanent
- Higher quality
- External recognition (publishing)
- Show to friends at home
- Have a seat and enjoy
- Gift
- higher value
- Keep it, storage
- keep always with you
- Touchable
- Portable
- Use for a time and renew it
- A way to get away
- ownership
- Technology independent
- Luxury
- Pleasant
- Readability