

About the Center

Rochester Institute of Technology (RIT) was selected by the Alfred P. Sloan Foundation in 2001 to join the family of Sloan Industry Centers located at prestigious universities across the U.S. The Printing Industry Center at RIT is a joint program of the School of Print Media and RIT's College of Business, emphasizing Sloan's long-standing tradition of applying a broad multidisciplinary approach to industry investigations and findings.

Dedicated to the study of major business environment influences in the printing industry brought on by new technologies and societal changes, the Printing Industry Center at RIT addresses the concerns of the printing industry through educational outreach, research initiatives, and print evaluation services. The Center creates a forum for printing companies and associations worldwide to access a neutral platform for the dissemination of knowledge that can be trusted by the industry, to share ideas, and to build the partnerships needed to sustain growth and profitability in a rapidly changing market.

With the support of RIT, the Alfred P. Sloan Foundation, and our Industry Partners, it is our mission to continue to develop and articulate the knowledge necessary for the long-term economic health of the printing industry.

More information on the Printing Industry Center at RIT and its research activities can be found online at <http://print.rit.edu>.

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print review

Volume 8: Spring 2011

For Affiliates of the Printing Industry Center at RIT

Sustainability in Gravure Packaging Printing

In today's gravure packaging industry, sustainable development efforts are fueled by consumer and retailer demands for environmentally-friendly packaging products. These demands influence the production workflow of packages on multiple levels, such as the composition of materials and the implementation of printing process controls.

The primary goals of the survey-based research study, *Sustainability in Gravure Packaging Printing*, by Angelica Li and Robert Chung, were to assess:

- The general view of all stakeholders regarding sustainability in the gravure packaging industry,
- The specific views of various stakeholders regarding sustainability practices within their respective areas of expertise (discussed in detail in the full monograph), and
- The general views of respondents toward the development of sustainability.

Methodology & Sample

Gravure packaging stakeholders were identified through a collaboration with professional industry organizations in the United States and Europe. The Gravure Association of America (GAA) and the European Rotogravure Association (ERA) distributed this survey to their electronic mailing lists. The survey was also distributed directly to professional contacts in the gravure packaging industry through e-mail and phone-calls. A total of 190 individuals started the

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Sustainability in Gravure Packaging Printing



Development of the Open Publishing Guide

The Open Publishing Guide (OPG) is unique among the research projects initiated by the Printing Industry Center. Whereas the majority of the Center's efforts focus on experimental research and/or surveys of business practices and literature, the research findings from the OPG are generated as a by-product of its core mission: to be an online resource for non-professionals interested in self-publishing. As outlined in a previous monograph, *The Open Publishing Guide: Creating a Self-Publishing Website Using Open Source Content Management Tools*, the OPG was created to meet a perceived lack of unbiased and easy to understand information for everyday persons who wish to take advantage of print-on-demand technologies in order to publish their own work.

The primary goal of this month's research study, *The Open Publishing Guide—Development: Phase Two*, by Patricia Albanese, Matthew Bernius, and Rachael Gootnick, was to discuss all of the anecdotal, qualitative, and quantitative research collected since the public "soft launch" of the OPG in November of 2008. The data collected affirms the initial hypothesis: there is a significant demand on the Internet for high quality, easy-to-read, and—most importantly—actionable information about self-publishing. What was revealed in the data is that the information that users are looking for may be a bit different than was initially expected by the OPG team.

November 2008 – August 2009: "Soft Launch" and Beyond

The period from which we draw our data featured a number of important milestones for the OPG, beginning

with its "soft launch." Soft launching, or releasing a website without publicity, is a common tactic used when offering new services on the Internet. The OPG was publicly available, but no press releases or advertisements were issued. The only way that individuals could reach the site was by entering the site's URL directly into their web browser, following links placed on the Open Publishing Lab and Printing Industry Center websites, or via an Internet search.

There are two primary advantages to soft launching a site such as the OPG. The first is that it provides the site developers with additional testing time, ensuring that everything (rich media applications, links, spelling and grammar) is functioning correctly. The second advantage is that a soft launch allows a content-rich site such as the OPG to continue to build its archive of material while soliciting feedback from a select subset of users. During this period, we ran a number of user tests to gather usability feedback that was used to enhance the look and feel of the site.

The first public announcement of the site came as part of a presentation that the Open Publishing Lab (OPL) directors gave at the 2009 O'Reilly Tools of Change for Publishing Conference on February 9th in New York City. As a result of the presentation, news about the OPG and other OPL projects were reported via attendees' Twitter feeds and were also picked up on a number of publishing blogs. The site experienced a corresponding surge in traffic.

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OPG continued

During this same time, two important features were added to the site. To ensure that the OPG provided the 'freshest' possible content, a news feed was added to the Community section of the site. Using Real Simple Syndication (RSS) technology, the Latest News page aggregates interesting self-publishing related news and editorial content from across the web. This self-publishing clearinghouse is updated numerous times throughout the week. A series of discussion boards were also added to the Community section, with the goal of encouraging conversation among users.

The OPG then officially launched on May 2nd at the 2009 Imagine RIT: Innovation and Creativity Festival, with a public announcement and two exhibits where OPG creators were on hand to answer questions and talk to attendees. This event provided us with a wealth of qualitative feedback, both on the site itself and also on its utility for people who were interested in publishing their own works but didn't know where to start. Again, following the festival, the site experienced a rise in traffic.

However, during the summer, the OPG experienced a seasonal downturn in

traffic. This reduction was mitigated by a lecture program given at the Henrietta Public Library as part of a marketing effort to "take the OPG" to where its niche audience resides. While it is too early to quantitatively judge the results of this effort, the talks provided an invaluable source for qualitative feedback. Several Rochester-area libraries also have promotional bookmarks about the OPG available.

Discussion of Quantitative Findings from Site Statistics

The specific statistics that are of the most value to a website are measured in terms of unique visitors and unique visits to the site. These two categories allow us to measure how many individual users visit the website and how often those visits occur. "Unique" is a critical concept in web statistics, allowing us to differentiate between 100 people visiting a website once, and a single person visiting the website 100 times. These statistics, along with others that will be discussed below, allow us to understand user movements and select user behaviors at both the site and the page level.

It is important to note that these traffic reports are quantitative statistics. Therefore, we use the phrases "user movements" and "select user behaviors" as a reminder that they are best at providing information about "who" was "where" at a given time. These reports also provide information about where the user came from, how long they spent at our site, and their navigation within our site. From this we can make a number of educated guesses about our content. However, it is not good practice to use these reports for making qualitative judgments such as "whether or not a visitor liked the content" or if a given page was "useful." Results from our qualitative research will be discussed in the next section.

In addition to selecting what traffic data one wishes to analyze, the other critical variable to consider is over which intervals to measure data. The two primary units we have chosen for this report are weeks and months. Because week over week traffic is similar in terms of pattern (if not the proportion of unique visitors), it is a more stable measure than looking at daily traffic, which fluctuates significantly (and predictably) from Monday to Sunday.

For the first 108 weeks, the OPG averaged 72 unique visitors a week and had an average of 14% week-over-week growth in unique visitors (see Figure 1).

The highest number of unique visitors, 151, was recorded the week of February 22, corresponding with the O'Reilly Tools of Change conference. On eight separate occasions the site received over 100 unique visitors per week. On average, 39% of each week's unique visitors returned for at least one more visit during the same week.

When we shift from the weekly to the monthly view, our average return rate rises from 37% to 43%. As demonstrated in Figure 2, from December of 2008 to June of 2009 the OPG saw relatively consistent growth

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Figure 1. Unique visitors by week

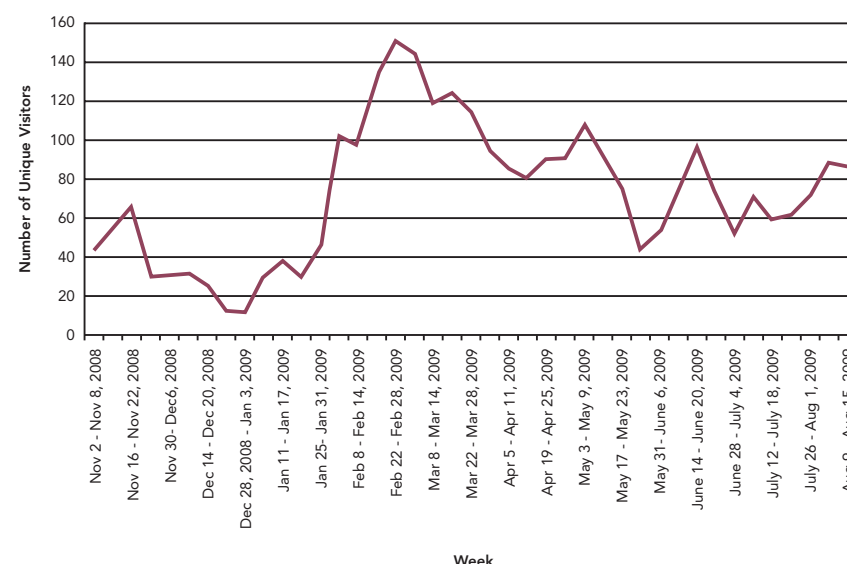
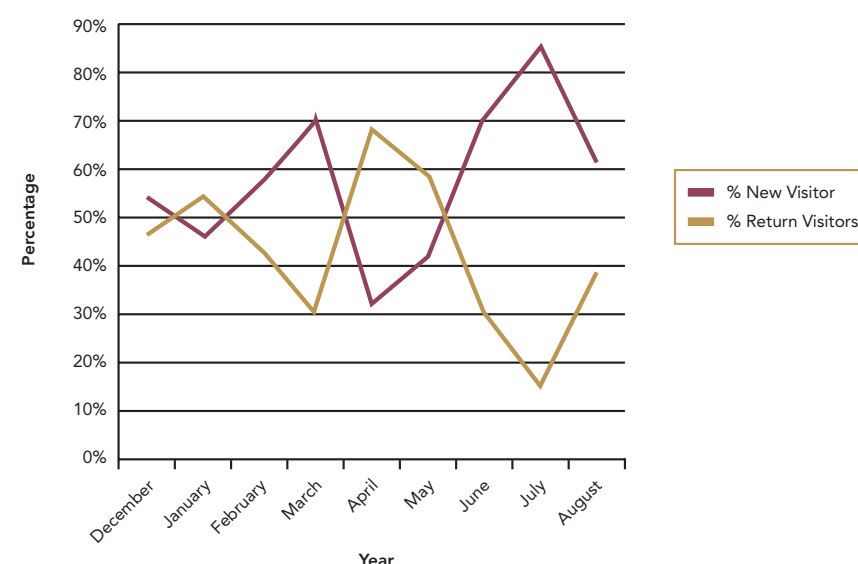


Figure 2. Percent of returning visitors by month



Sustainability *continued*

survey, and approximately 63% completed all of the questions—resulting in a sample of 119 total respondents.

As shown in Figure 1, the majority of respondents were Printers/Converters and Suppliers. The Customers/Buyers category includes those who are purchasing or seeking print services. Suppliers include those providing printers and converters with materials and equipment. Printers/Converters include the companies producing the final product that will be distributed to consumers. The Other category consists

Figure 1. Respondents by stakeholder category

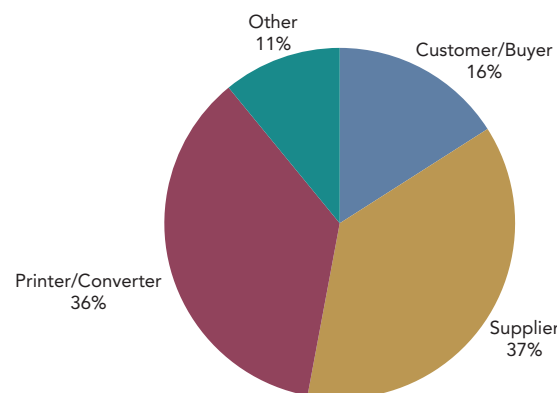
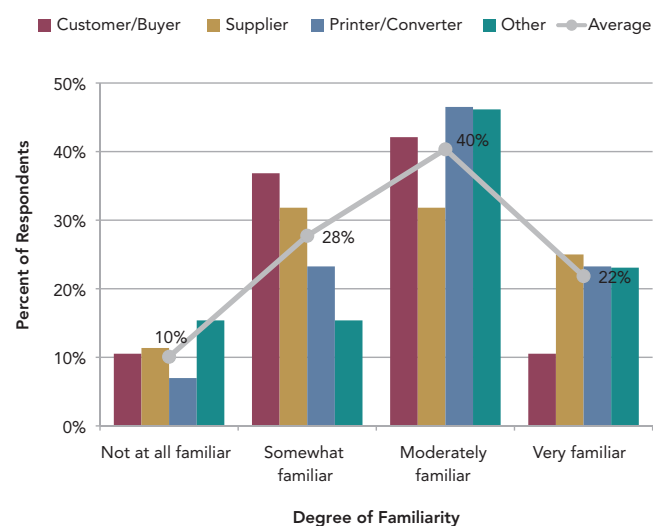


Figure 2. Familiarity with sustainability by respondent category



of responses mainly from those involved in educational institutions as well as a few from design and premedia services.

Knowledge of Sustainability

When asked how familiar they were with the issue of sustainability within gravure packaging printing, 62% of respondents feel that they are Moderately Familiar or Very Familiar (see Figure 2). Of the 22% that are Very Familiar with sustainability, only 11% of Customers/Buyers selected this choice. This indicates that customers and buyers of gravure packaging may need more education and training in sustainability.

Emphasis & Areas of Importance

When asked if the emphasis on sustainable printing within the past year has increased, stayed about the same, or decreased in importance, 72% of respondents say that it has increased.

When asked about the top three areas of importance in terms of sustainability, the results were (1) Competitive quality and pricing, (2) Efficient use and conservation of material resources, and (3) Management of waste and pollution.

Customer Behavior

All respondents were asked: What percentage of your current consumers are seeking sustainable products and services from your company? An average of 24% said that 50% or more of their customers are seeking sustainable products and services. However, for a larger portion of companies, it is less than a quarter of their customers.

Environmental Concerns

Respondents were asked to select the top three environmental concerns

they consider to be most important (see Figure 3). Customers/Buyers take these issues into consideration in their print supplier evaluation. The most important issues were recycled content and material sourcing. Only 5% of Customers/Buyers felt that greenhouse gas emissions were among the top three concerns.

Sustainable Printing Challenges

Customers/Buyers were asked: What are the top three challenges to obtaining sustainable printing from the packaging printing supply chain? Suppliers and Printer/Converters were asked: What are the top three challenges in making processes/products more sustainable? The results are shown in Figure 4.

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Figure 3. Environmental concerns by respondent category

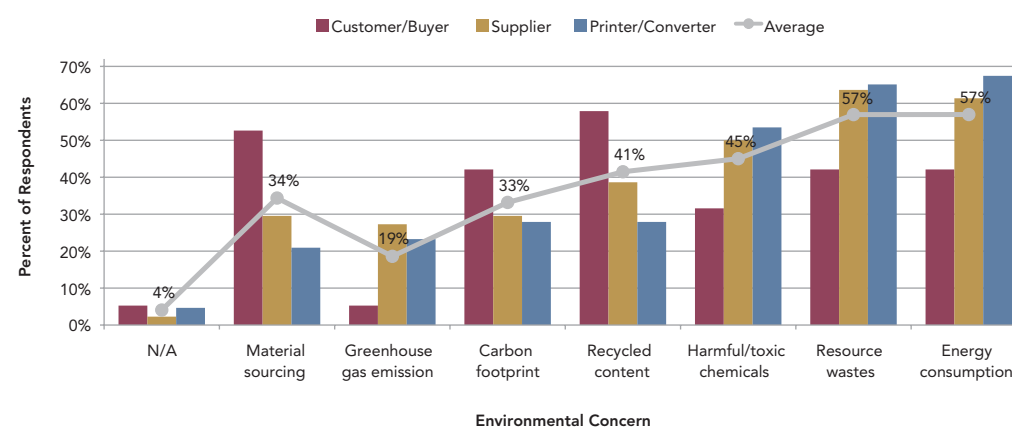
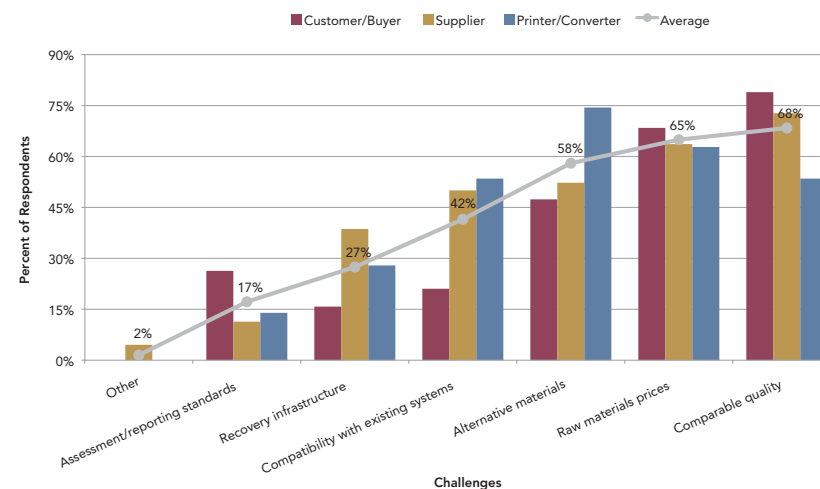


Figure 4. Sustainable printing challenges by respondent category



Sustainability *continued*

Further up along the supply chain, Customers/Buyers and Suppliers share some similar challenges. Comparable quality was the greatest challenge for both Customer/Buyers and Suppliers, with 79% and 73% respectively. This is followed by raw materials prices (68% and 64% respectively), and alternative materials (47% and 52% respectively). The production-oriented Suppliers also see compatibility with existing systems (50%) as a top three challenge as well as recovery infrastructure (39%).

For Printers/Converters, the top challenges are alternative materials and raw materials prices, followed by comparable quality and compatibility with existing systems. Compatibility is an issue during production because many companies have established workflows and specialized equipment. It is important that new materials be able to be processed without making changes to workflow or requiring the purchase of new equipment.

Current Policies & Practices

Most packaging gravure printers have sustainability policies in place. Eighty-three percent of companies have established sustainability policies: of these, 44% were informal/unwritten, while 39% were formal/written. On average, 11% of companies have no policies in place.

It is interesting to note that though customer requirements is a top driver for sustainability, a fairly large portion (37%) of Customer/Buyers have no sustainability policies.

When asked what guidelines are included in their sustainability policies,

most respondents include employee and customer education guidelines. Many also include measurable sustainability goals. These two categories are very broad (recycled content can also fall under measurable goals), and therefore more specific guidelines merit further survey.

Progress Assessment & Criteria

Most respondents use internal benchmarks and tools to assess sustainability progress. Other methods in use included 44% of respondents who use internal measurable benchmarks, and 36% who use internally developed assessment tools.

The criteria used to assess a company's progress in sustainability shapes the actions taken and their resulting impacts. For example, the inclusion of GhG emissions in an assessment will most likely cause the company to focus on and eventually decrease their air pollution. Therefore, respondents were asked what criteria were included in their sustainability assessments.

Consumption of materials was a popular criterion, with approximately half of all respondents selecting energy, waste, and material consumption as one of the criteria used in their sustainability assessment.

Criteria most frequently included in assessments were easier to measure—energy in BTUs, recycled content as a percentage, wastes in pounds, etc. On the other hand, criteria at the bottom of the list were more complicated, not defined by hard units, and difficult to measure. These include life-cycle analysis, design for printing, and human impacts.

Benefits & Standards

The greatest result of sustainable growth is the reduction of environmental impact and wastes/

costs (see Figure 5). This may be because respondents feel that both environmental and economic issues are well addressed by the industry.

Fifty-six percent of respondents felt that there should be mandatory certification standards before companies can market themselves as sustainable. Customers/Buyers and Other stakeholders felt more strongly about establishing standards, with 74% and 77% respectively saying "yes" to mandatory certification (see Figure 6).

Necessary Developments

There are a variety of areas within the gravure packaging industry that are affected by sustainability. Respondents were asked what area of gravure packaging currently requires significant developments in order to be more sustainable (see Figure 7). On average,

35% of respondents felt that significant developments are needed in printing ink and chemicals (such as cleaning solvents and fountain chemicals).

Conclusions

Sustainability within the gravure packaging industry is becoming a widespread movement that will only continue to grow. The survey results demonstrate that sustainability is indeed a substantial issue, with 62 percent of respondents indicating that they are moderately or very familiar with sustainability and 72 percent of respondents saying that the emphasis on sustainability has increased over the past few years.

Between the various stakeholders, there is a difference in environmental concerns, which may be due to their different functions within the supply

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Figure 5. Results of sustainable growth

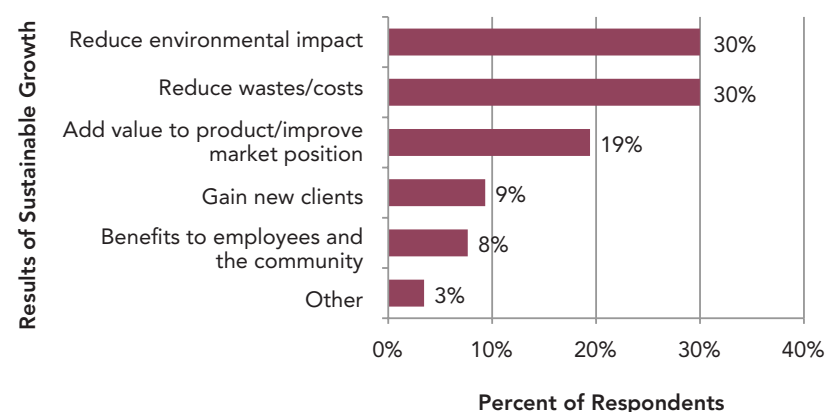
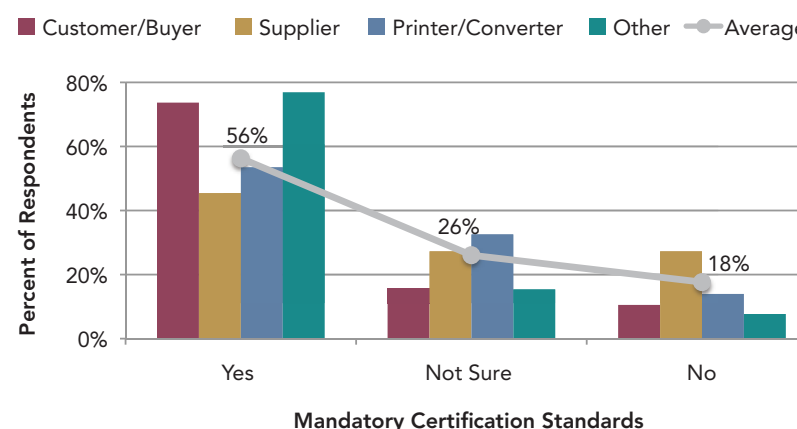
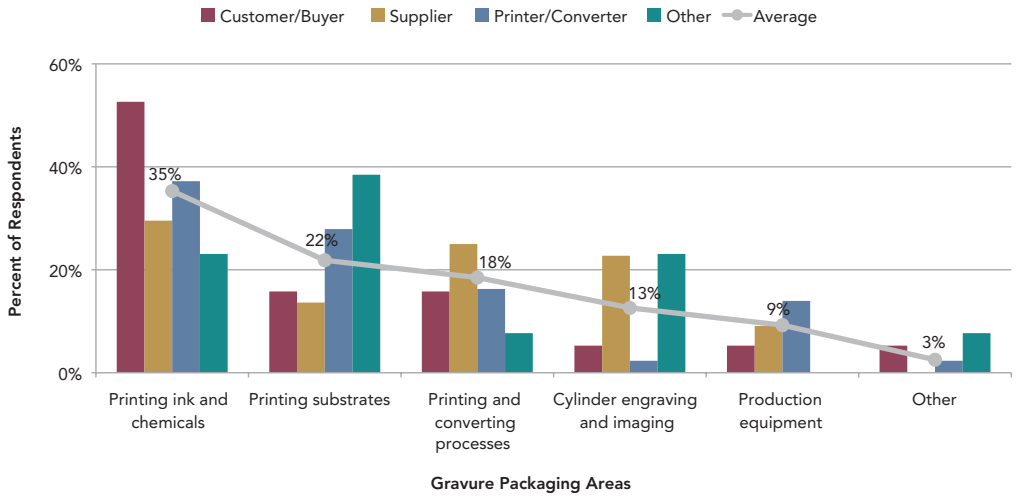


Figure 6. Level of support for mandatory certification standards by respondent category



Sustainability *continued*

Figure 7. Areas requiring significant developments in gravure packaging by respondent category



chain. Customers and buyers value more marketable concerns such as recycled content and material sourcing, while suppliers, printers and converters value material- and production-specific concerns such as resource wastes, energy consumption and harmful/toxic chemicals.

In terms of the future development of sustainability, there is a concern for proper marketing efforts to prevent “green washing.” Fifty-six percent of respondents felt that there should be mandatory certification standards before companies can market themselves as sustainable. Competitive quality and pricing is also an important area for gravure packaging stakeholders. Respondents indicated that energy and material costs and availability as well as changes in technology would impact their strategic direction in terms of sustainability. 📌

To read about this research in detail, download the monograph from:
print.rit.edu/pubs/picrm201006.pdf

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Expert faculty from the School of Print Media, the E. Philip Saunders College of Business, and other fields at RIT comprise the cadre of researchers that build and carry out the research initiatives undertaken by the Center. The research agenda is built through collaboration between Center researchers and Industry Partner companies, resulting in research that is cross-disciplinary and highly relevant to industry concerns.

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RIT Names Lorraine Justice

Dean of College of Imaging Arts & Sciences

Justice heads Hong Kong Polytechnic University's School of Design



Rochester Institute of Technology has appointed Lorraine Justice, director of the School of Design at The Hong Kong Polytechnic University (PolyU), as dean of the College of Imaging Arts and Sciences. Justice begins her new position in July.

Justice has worked in higher education for more than 20 years. For the past six years, she has served as director of PolyU's School of Design. Under her leadership, the school has emerged as one of the top 30 design schools in the world and one of the top four Asian design programs.

"Lorraine brings her international expertise in design, an energetic spirit of collaboration, vast experience for building industry and donor partnerships and a commitment to strongly advocate for college faculty, staff and students," says Jeremy Haefner, RIT provost and senior vice president for academic affairs. "We look forward to Lorraine joining the RIT family."

Justice is a Fellow of The Industrial Designers Society of America. In 2008, IDSA awarded Justice with the National Educator Award. She serves on editorial boards for six journals and is an international consultant and accreditation expert on design. In 2006, ID magazine selected Justice as one of

the world's top 40 influential designers, praising her for "raising standards" for both design education and the industry.

Justice says there were many factors that attracted her to RIT's College of Imaging Arts and Sciences.

"The range of creative programs; the excellent faculty members, staff and students; and the superb facilities are just some of the things that make CIAS great," says Justice. "I also appreciate the reputation of RIT and what it has become over the years. I look forward to strengthening what we can in CIAS and starting new ventures that will grow out of the expertise in the college."

Prior to leading PolyU's design school, Justice headed the industrial design program at Georgia Tech and served for several years at Ohio State University as professor of visual communication.

A native of Pennsylvania, Justice obtained her BFA from Edinboro University and her master's in design and Ph.D. in communications from Ohio State.

Justice adds: "I will certainly be glad to be back in the States and closer to my family and friends, but I will also be glad to get back to the beauty of nature found in the region. I missed the seasons and landscape found in New York and Pennsylvania. I also look forward to returning to the U.S. to help with its creativity and innovation programs. It is important to nurture this type of education to preserve our culture."

OPG continued

in the number of unique monthly visitors who returned at least one more time during that month. March is a predictable outlier due to the influx of new traffic due to the Tools of Change conference.

When we look at traffic patterns at the page level in terms of total number of visits to a page (Table 1), the three most popular sections of the site by far are the *Public Domain Resources*, *Print On Demand Profiles*, and the *Self-*

Publishing Advisor. Looking to the top ten pages, more than half of the top most requested pages focus on learning about various content and print-on-demand resources.

When we evaluate content based on the average number of visitors per month, some subtle but noteworthy shifts occur. *Connect and Share* and *Author Community*, two pages added later to the site as part of our community features rise to the number three and four spots respectively; our community *Forums* enter into the seventh slot (see Table 2).

Table 1. Top pages based on total number of visits

Ranking	Page	Visits
1	Public Domain Resources	1366
2	Print On Demand Profiles	983
3	Self-Publishing Advisor	733
4	Latest News	637
5	Free Software Tools	543
6	Publishing Step By Step - Layout & Design	511
7	What is Publishing Step By Step?	430
8	Marketing Resources	390
9	About	358
10	Public Domain Pictures.net	271

Table 2. Top pages based on average visits per month

Ranking	Page	Avg. Visits/Mo.
1	Public Domain Resources	137
2	Print On Demand Profiles	98
3	Connect and Share	78
4	Author Community	77
5	Self-Publishing Advisor	73
6	Help	66
7	Forums	65
8	Latest News	64
9	Publishing Steps	62
10	References	56

Table 3. Top search engine keyword by total percentage of referrals

Ranking	Search Keyword	% Total Search Engine Traffic
1	open publishing guide	16%
2	bartleby dictionary	15%
3	open publishing guide toc*	12%
4	rit opg	5%
5	book1one**	4%
6	opg opl rit	4%
7	public domain clip art	4%
8	public domain clipart	2%
9	smultron column mode***	2%
10	public domain pictures	2%
11	free software	2%
12	step layout	1%
13	bartleby's dictionary	1%
14	public domain cliparts	1%
15	on demand photobook publishers	1%

*"toc" is short for Tools of Change. **A print-on-demand site. ***A Mac text editor.

What both tables reveal is the popularity of the reference content, including the self-publishing information. With the exception of the home page, *Public Domain Resources* and *Print On Demand Profiles* are the two most popular pages on the site by a significant margin. It's also worth noting that there is also a noticeable difference in popularity between those two pages.

One explanation for the popularity of the resource content can be attributed to one of the methods that visitors use to get to the OPG. Since the launch of the site, over 450 unique visitors have been directed to the OPG via Google and other search engines. Table 3 displays the top 15 keywords used to find the site with the corresponding percentage of search engine traffic that they have driven.

Excluding searches based on the name of the OPG, it's clear to see that the vast majority of search engine traffic to the OPG is the result of different self-publishing support resource keywords.

The last quantitative data point of note is the amount of time that a visitor spends on the OPG. On average, a visitor to the OPG will spend seven minutes on the site. Considering the traffic patterns discussed above, many of those visitors are using the OPG to find resources to assist them with a publishing task at hand. Given that the OPG's role in such a transaction is directing visitors to other sites, a seven-minute stop suggests that beyond links, the OPG is offering interesting enough content to hold its visitor's attention for a short time.

Discussion of Qualitative Findings

In addition to this quantitative data, the OPG team collected and used qualitative data to further develop the site. There were three primary sources

for this data collection: the OPG's web feedback form; a series of usability tests conducted during the winter and spring of 2009; and in-person feedback collected from individuals at live events.

All of the feedback collected was extremely positive. The majority of the feedback also indicated that the content was written at an appropriate level so as to be useful. Most people were also impressed that the site was a free service.

Conclusion

As previously articulated, the goal of the OPG was to create a web resource for non-technical individuals who are interested in self-publishing. In looking at the quantitative and qualitative data it is clear that, in this respect, the site has been a success. Not only have people directly communicated how valuable they found the content, the overall web traffic patterns have demonstrated that the OPG's highest value content is its' resource material.

Unfortunately, the fact remains that while the general feedback on the OPG's content is good, overall web traffic to the site is low. There are multiple approaches available to increase traffic to the content, which are discussed within the full monograph.

Based on all of the data collected, it is apparent that the OPG is an important tool in helping people to overcome their self-doubt and to start down the path to self-publishing.

To read about this research in detail, download the monograph from: print.rit.edu/pubs/picrm201005.pdf