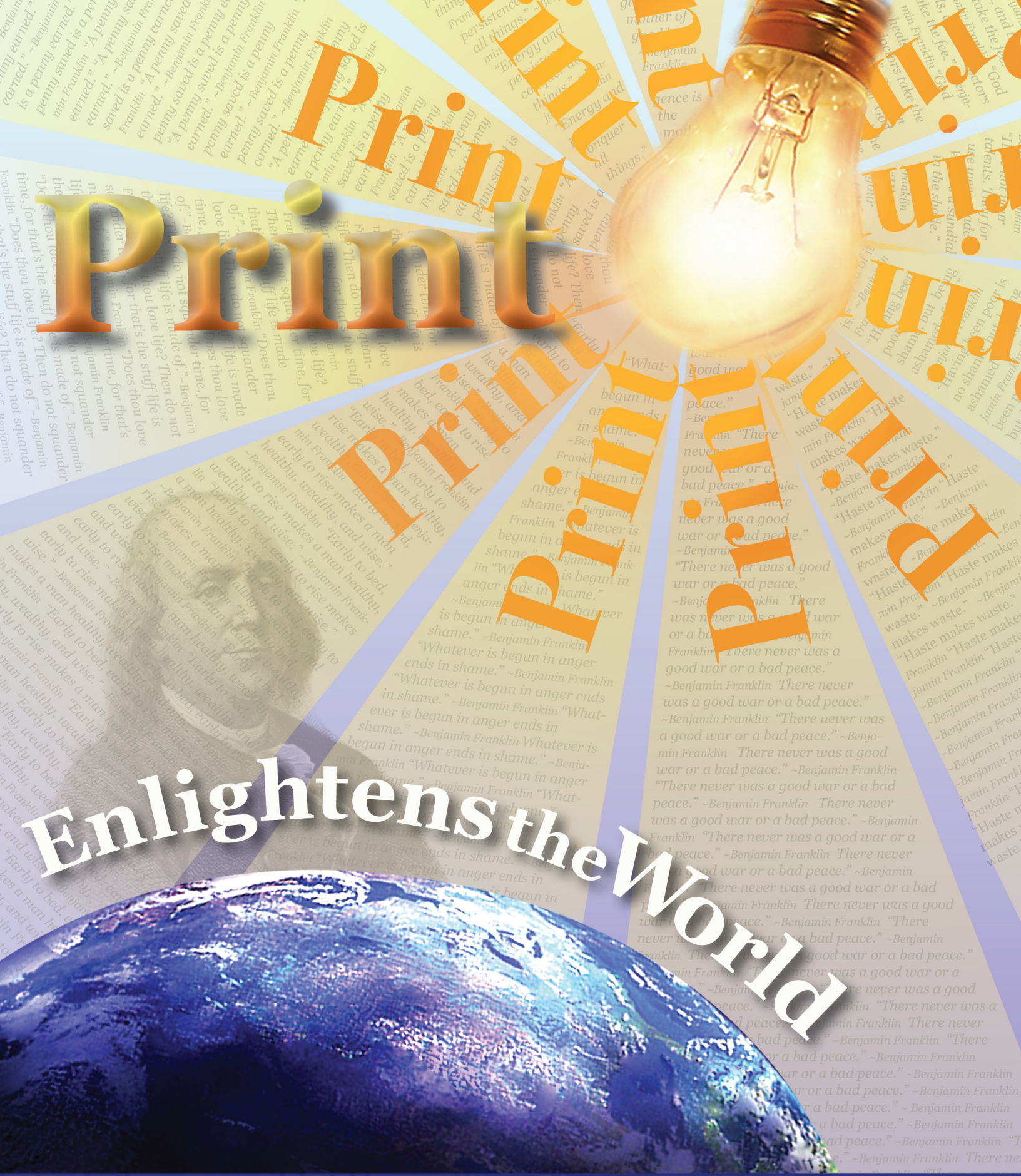

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About the Journal

The *Visual Communications Journal* serves as the official journal of the International Graphic Arts Education Association, Inc., and provides a professional communicative link for educators and industry personnel associated with design, presentation, management, and reproduction of graphic forms of communication. Manuscripts submitted for publication are subject to peer review by the Association and the views and opinions expressed herein are those of authors and do not necessarily reflect the policy or the views of the IGAEA.

Article Submission

Please follow the guidelines provided at the back of this *Journal*.

Membership and Subscription Information

Information about membership in the Association or subscription to the *Journal* should be directed to the IGAEA Second Vice-President.

Table of Contents

Editor's Note

by Jerry J. Waite, Ed.D, University of Houston

I generally take the opportunity in the editor's note to introduce you to the topics covered by the edition. This time, however, I'm going to deviate from that pattern and talk with you about the importance of the *Visual Communications Journal* and how you can contribute to it and to your professional association.

Dr. Mark Snyder did a far-reaching study of the IGAEA membership during his tenure as President in 2008–09. The results of that study are provided in this edition of the *Visual Communications Journal* on pages 7–17. Please read his paper carefully so that you may better understand your organization, its members, and its needs.

Although 80% of the IGAEA membership believes that the *Visual Communications Journal* meets its needs, I think there could be a great deal of improvement in this *Journal* and the articles it contains. Ironically, even though our profession is one centering on communication, Dr. Snyder, when describing responses to the question *What aspect of IGAEA do you consider needs improvement?* writes: "Among the other items listed in this category, perhaps the most ironic is the perceived need for better communication throughout the organization." Although the IGAEA maintains an interactive website and publishes *The Communicator* and the *Visual Communications Journal,* the perception is that we do not do a good enough job communicating with each other. What should we communicate? News, of course. But, more importantly, we should communicate our ideas, our successes, our failures, and our dreams. The *Visual Communications Journal* can do that for us...if we only work together.

One of the common misconceptions about the *VCJ* was stated by one of the respondents to Dr. Snyder's survey in response to the question *What aspect of IGAEA do you consider needs improvement?* The member wrote: "...the *VCJ* has simply become another tool for those seeking tenure or promotion at senior institutions." Of course, the *VCJ* DOES serve as a tool for professors seeking tenure and promotion. However, it is not simply "another" publication. In fact, there are very few journals in which a professor of graphic arts can publish. That's why another respondent said that the "*VCJ* is absolutely critical to many of the college-level instructors on tenure track."

However, the role of the *VCJ* goes far beyond tenure and promotion. In fact, the *VCJ* accepts four different types of articles: edited, juried, refereed, and student (please see page 43 for complete definitions of these categories). The *juried* and *refereed* categories of articles are definitely for professors on tenure track. Those articles are submitted to at least three members of our editorial review board and can only be published if a majority of those reviewing it believe it has merit and deserves publication.

Edited articles, however, are NOT submitted to the editorial board. The content of *edited* papers, and the process they go through in order to be published, is strictly up to the author and the editor. So, potential authors do not need to worry about a review process.

Edited articles should be about what you are doing that is cool and exciting. These articles do not have to be formal or conform to rigid formatting requirements. They do, however, have to be well written and be of interest to graphic arts educators. For example, I recently visited a school in which the instructor was using Facebook as a media for students in a design class to share their ideas with each other. I thought it was a very cool idea and mentioned it to my students who were completing their senior project. Although my students did not ultimately use Facebook (they used Wiggio instead), the idea caught hold and was "copied" by many other students. The unfortunate part is that I'm the only one who learned about the process when I visited the other school. **Had the instructor written a short article about his success, then we would *all* know about the technique.** In fact, I thought the idea had so much merit that I asked the instructor to write it up. I haven't, unfortunately, received an article from him.

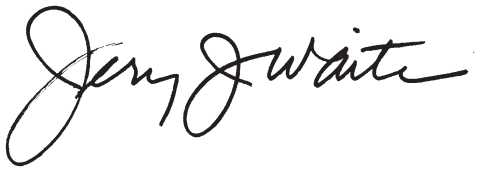
Another instructor I know has some really cool ideas about *Second Life*. He shares them at meetings, but hasn't written about them. In print, I am hereby asking him to write a short article for the *VCJ* in which he describes what he does and how it works.

There's a fourth category of article that is available to IGAEA members, and that is the *student* article. Although this category has been in existence for many years, very few teachers, instructors, or professors make use of it. In fact, I haven't received a *student* paper in several years. If you have your students write papers of

any kind, please consider submitting the best ones for publication.

Let's work together to improve not only the communication between members of the IGAEA, but also the profession as a whole. Share your ideas. Publish in the *VCJ*.

One last thing...this *Journal* wouldn't be possible without the help, support, dedication, and professionalism of our editorial board. Thank you to Cynthia Carlton-Thompson, James Tenorio, Zeke Prust, Bob Chung, Christopher Lantz, Malcolm Keif, and Mark Snyder. Editorial board members Christopher Lantz, Mark Snyder, and Cynthia Carlton-Thompson published articles in this edition of the *VCJ*. They did not review their own articles and their work was subjected to the same level of scrutiny as any other paper.



Informed Direction: A Survey of the IGAEA Membership

by Mark Snyder, Ed.D, Millersville University of Pennsylvania

Purpose

The mission statement of the IGAEA reads: "The International Graphic Arts Education Association (IGAEA) is an association of educators in partnership with industry, dedicated to sharing theories, principles, techniques, and processes relating to graphic communications and, imaging technology." As an organization, it is appropriate to review the mission statement occasionally to determine whether the Association is following its mission and/or determine whether the mission is still appropriate for the Association.

This survey was conducted to ascertain feedback from the IGAEA constituency, allowing individuals a chance to share their views. The goal of the project was to provide a voice for the membership that could contribute to the evolution of the organization. The objective was to gain specific information, based on perspectives from individual members, related to the future of the IGAEA.

Method

To encourage participation, the survey was kept brief, including only 21 questions. Eighteen items were Likert-type questions (seeking a degree of agreement or satisfaction) and three were open-ended items seeking a brief written response. The survey was developed by the 2007–2008 Executive Board to include broad questions, items to address what the Board perceived to be issues, and finally some questions that were of specific interest to the Board.

The survey was distributed by email on Friday, May 9, 2008 and responses were received through the next month, with the last one being returned on June 11, 2008. The survey was sent to the entire membership list that included 538 names at the time and, although many email addresses went undeliverable, the number of delivered surveys was estimated to be 447. Of the approximate 447 delivered surveys, 68 responses were received—providing an overall response rate of 15.2%. Also, please note that not every item received a response from each participant, so the total number of responses per item may vary but will not exceed 68. The lowest number of responses received by any one item was 63. In calculating percentages of responses in the conclusions section, the percentages were calculated according to the total number of responses received for each individual item.

Analysis

The list of questions developed for the survey, along with a brief analysis of the responses provided in the appendix at the end of this article, were as follows:

1. The mission statement of the IGAEA is still appropriate.

The general consensus is (over 91% of respondents agreed or strongly agreed) that the mission statement of the International Graphic Arts Education Association is still appropriate.

The mission statement of IGAEA is still appropriate.

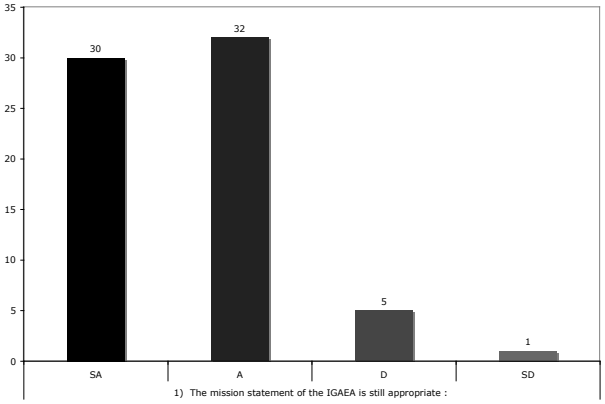


Figure 1

2. The IGAEA should be more inclusive of non-print, digital communication technologies such as web media.

The traditional perspective of Graphic Communication, consisting predominately of print media, may be changing. On item #2, 84% of respondents either agreed or strongly agreed. A related item, #14, identified that this may also be a membership issue through recruiting graphic design and art teachers/professors. Obviously, new technologies are having an impact on the field of Graphic Communication and the Association must pay attention to these changes.

The IGAEA should be more inclusive of non-print digital communication technologies such as web media:

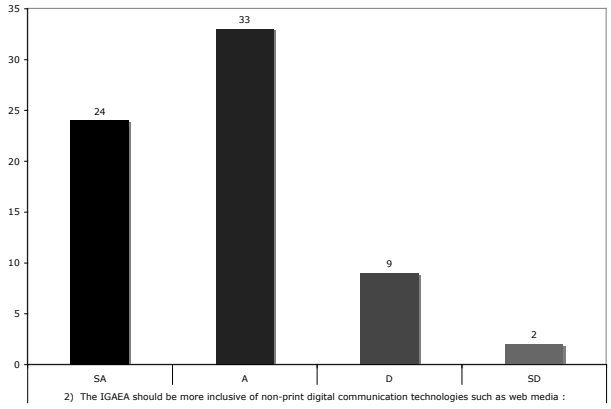


Figure 2

3. The IGAEA should promote and facilitate the development of articulation agreements between members' educational institutions.

Items #3 and #16 were introduced, by the President-elect, as a topic of interest and potential focus for the 2008–2009 administrators. The idea of promoting and facilitating articulation agreements between members' institutions received a very favorable response from the membership. Item #3 received the highest amount of agreement (heavily weighted towards strong agreement) compared to all items in the survey.

4. IGAEA conferences are of great value to me in my current position.

A positive sentiment was also expressed by the response to item #4. The response to this item was overwhelmingly supportive with 89% in agreement with the larger portion (48%) expressing strong agreement. "The conference" was cited many times in the open-ended responses to item #20, but was only listed once in the Appendix.

5. I believe I get a good return on my dollar for my IGAEA dues.

Item #5 sought to determine whether members felt that the current dues were fair, and 90% either agreed, or strongly agreed, that this was true. However, item #17 relates to raising dues–an idea that was not favorable to most members. One open-ended item response to the question "what aspect of IGAEA do you consider needs improvement?" stated, "what do you actually get for your dues?"

6. *The Communicator* newsletter meets my expectations.

Items #6–7 were geared primarily towards determining levels of satisfaction with current publications provided by the organization. Item #6 related specifically to *The Communicator* newsletter. The response was generally positive, with 78% respondents agreeing, or strongly agreeing, that the newsletter "meet(s) (their) expectations." However, the open-ended items revealed some discontent with *The Communicator*, citing inconsistency, outdated material, a need for more technical articles and, generally, the need for a "makeover."

7. The *Journal of Visual Communications* meets my expectations.

Item #7 related specifically to the *Journal of Visual Communications.* It received a slightly more favorable response than the previous item with 80% of respondents agreeing, or strongly agreeing, that the Journal "meet(s) (their) expectations." The open-ended items also identified the Journal as the most beneficial aspect of IGAEA membership for several members, although some others saw it as too specifically targeted to college-level faculty.

The *Journal of Visual Communications* meets my expectations.

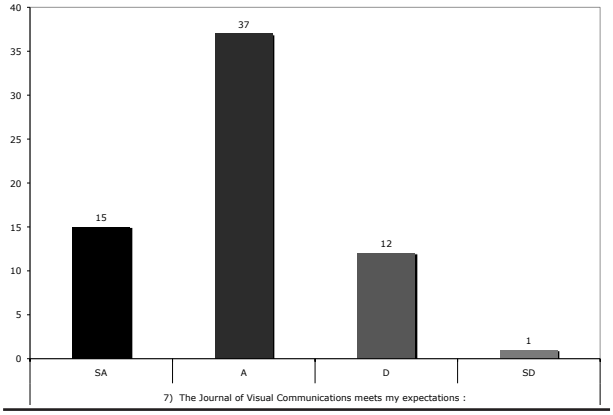


Figure 3

8. The Gutenberg Awards are important to my students.

Regarding the Gutenberg Awards, 77% agreed or strongly agreed that this competition was important to their students." The open-ended item #20 also identified the Gutenberg awards as "the most beneficial aspect of IGAEA membership" on more than one occasion.

9. IGAEA should work towards creating student chapters at high schools, community colleges, and universities.

This item was developed in response to a topic that has been active at the board-level for several years. In the

recent past, a few new student IGAEA chapters have been created. The response to this item was highly in favor of creating student chapters with approximately 72% of respondents either agreeing, or strongly agreeing, that this was a good idea. Two open-ended items also addressed the idea that school chapters would help attract new members and that this was a needed are of improvement for the organization.

10. Serving as an officer of IGAEA would be beneficial to my career.

This is an essential need of the IGAEA. We need more members to participate as officers. Approximately 67% of respondents agreed or strongly agreed. Item #10 is certainly one the Board hopes members will follow-up on with action.

11. IGAEA is more beneficial to college faculty than high school faculty.

This item was aimed at determining whether there was a perception that the organization provides greater benefit to members who are college faculty rather than high school faculty. Approximately two-thirds of respondents either disagreed, or strongly disagreed, that this was the case. Despite the consensus on this item, a few open-ended items demonstrated strong sentiments toward the contrary.

12. As an IGAEA member, I attend as many conferences as possible.

In response to this statement, 26% strongly agreed, 43% agreed, 28% disagreed, and 3% strongly disagreed. This indicates that the conference is still a large factor among members' reasons for participating in the IGAEA and that they do try to attend frequently. The conference is repeatedly identified in the open-ended items as one of the most beneficial aspects of membership.

13. The opportunity to make presentations at conferences is important to me.

The response to this item was very mixed with a nearly 50/50 split and little "strong" sentiment. This might be attributed to a good mix of the respondents being from both high school and college-level programs. There were several open-ended items that clearly identified various aspects of conference presentations as significant to the interests of respondents.

14. IGAEA should make a greater effort to expand membership by recruiting graphic design and art teachers/professors.

This item was developed with the intent of exploring avenues for recruiting new members. Traditionally, the IGAEA has served predominately educators whose primary emphasis is teaching content related to print production and print media. The response to this item was very favorable towards being more inclusive of graphic design and art teachers and professors in the future. As prepress becomes more design-oriented and web media continues to grow, it seems to make sense to broaden the perception of Graphic Communication among the membership.

IGAEA should make a greater effort to expand membership by recruiting graphic design and art teachers/professors.

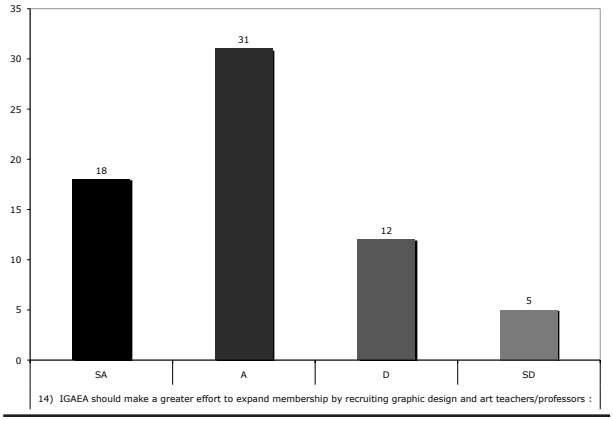


Figure 4

15. Late July is a good time of the year for IGAEA conferences.

In response to this item, 67% agreed, and another 18% strongly agreed that late July remains appropriate for the annual conference. This is traditionally the timeframe that conference hosts have planned for their events. This question was designed to confirm that this time of year was still convenient for the majority of members.

16. The IGAEA should develop common standards for the development of articulation agreements.

This item was related to item #3 and was placed toward the end of the survey to reinforce validity on the topic of articulation agreements. Approximately 80% of respondents agreed, or strongly agreed, reinforcing the strong support of item #3 and the need for articulation agreements between members' educational programs at various levels.

The IGAEA should develop common standards for the development of articulation agreements.

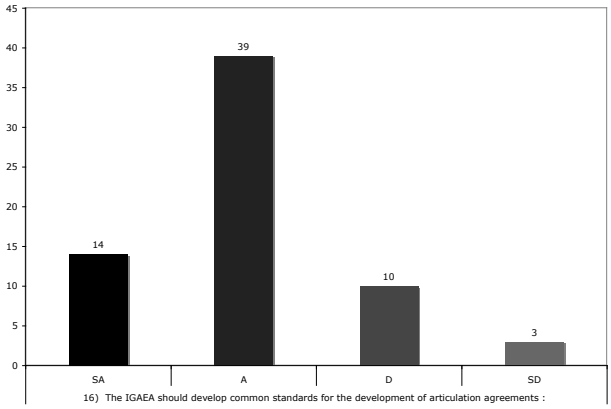


Figure 5

17. IGAEA membership dues should be raised to assist in lowering conference registration fees.

While people felt that they currently received a good value for their dues (see item #5), about 70% of respondents, on item #17, disagreed or strongly disagreed that IGAEA membership dues should be raised to assist in lowering conference registration fees. This may be a response to raising dues in general or specifically to the application of lowering conference registration fees.

18. The International Graphic Arts Education Association should consider changing its name.

A perennial matter of discussion at conferences, the name of the Association (and the sometimes awkward acronym IGAEA) was apparently less of an issue than some might believe. In response to the question, the membership was fairly opposed to considering a name change. The outcome was that approximately 8% strongly agreed, 24% agreed, 47% disagreed, and 21% strongly disagreed. Thus, over two-thirds of the respondents were against the idea of a name change. Still, throughout the three final items, there were multiple suggestions for name changes.

The remaining three items (#19–#21) sought written responses to more general, open-ended questions. These three questions garnered a wide range of responses. The appendix includes all responses received but a brief synopsis of responses to each of the open-ended items is provided below.

19. What can the IGAEA do to attract new members?

The responding members provided a wide variety of good ideas based on different perspectives. The most commonly recurring theme seems to be looking to young, potential members. The development of student chapters in high schools and recruiting new members in college, teacher education programs were mentioned a few times. Also, more than one respondent proposed partnering with other organizations and educational programs. More regional conferences, the development of a targeted marketing plan and a stronger web presence were among many other good ideas listed.

20. What is the most beneficial aspect of IGAEA membership for you?

This question received a fairly uniform response. Most people mention the conferences in response to this question. One respondent stated:

> *Learning at the conferences. A chance to talk to people who are like me. I am the only print teacher at my high school and I don't feel I have anything in common with the rest of the faculty. I don't know what I would do if I didn't have the IGAEA!*

The term *networking*, which appears frequently in this section, also describes the essence of what people value about the conferences. Another quote from a respondent relating to the fellowship of our organization reads as follows:

> *I believe the most beneficial aspect of IGAEA membership is that it is a membership of Graphic Arts Educators. It is not a membership just for me, but for all of us involved with the technology, the art, the design and the business of print and new media.*

The concept of networking definitely stands out as the predominate factor that most respondents felt was most beneficial to them.

21. What aspect of IGAEA do you consider needs improvement?

This question (like item #19) received a wide range of responses. One important comment involves continuity and consistency of services when officers change. As one respondent stated, "there is almost no 'standard' for what members can expect from year to year." This is definitely a challenge to any volunteer organization. The board has tried to address this in recent years by staggering terms of critical officers.

Another vital issue that was mentioned several times involves the organization's website. Although the IGAEA has been well served with a website for over ten years, there seems to be growing demand for a more responsive, interactive website. This is currently being addressed and

work is well underway. The board soon expects to present exciting new information regarding an updated website that the organization will maintain itself. One feature anticipated for the new site is the ability of members to log in and maintain their own contact information. This will streamline the once cumbersome process requiring the Second Vice-President to update member information continuously. Other officers will also have specific links enabling them to be better informed about their responsibilities and to perform their duties more efficiently. There will also be a much wider range of resources available to all members.

Among many other items listed in this category, perhaps the most ironic is the perceived need for better communication throughout the organization. This concern is interrelated with the previous comments, but extends beyond what the board hopes will be largely resolved by the new interactive website. Some respondents are calling for electronic versions of publications such as *The Communicator* and the *Visual Communications Journal.* The rationale for this includes decreased costs related to printing and more expedient availability of the content.

Conclusions

The majority of people who have reviewed the raw data from this survey, thus far, felt it was useful information for the IGAEA. The content included in the following Appendix was provided to the Association leadership during the 2008 IGAEA Annual Conference. This information remains available to the Board of Directors (and future boards) and can be weighed along with the wisdom of past, current and future leadership. This information enables the development of a strategic plan for continued recruitment of new members so that the International Graphic Arts Education Association may remain viable for years to come. This article is provided to the membership as a report of the various perspectives gained from participating members regarding their vision for the future direction of the organization.

In retrospect, the development of the survey items could have been more carefully considered. For example, including four different items related to conferences may have placed too much emphasis on that topic. Also, a conference-related question that might have been considered is: Have the annual conferences served regional needs? In other words, have the conferences been held in an appropriate variety of locations, or do some members feel that conferences are consistently too far away? Perhaps more emphasis could have been placed on questions seeking to ascertain what would entice more people to become involved in leadership roles. The Executive Board encourages everyone to become actively involved in IGAEA and to learn more about the governance of our organization. As an all-volunteer Association, participation is essential.

The open-ended items revealed a wide variety of ideas that warrant careful consideration by the current IGAEA Board. Members who read this, and see the statements they sent in, are challenged to follow-up on their suggestions by asking questions at conferences, attending the business meetings, contacting Regional Vice-Presidents and also through direct communication with Board members. If you feel passionate about your ideas then, be aware that your participation in the process of governance is probably the most direct course of action that can result in successful outcomes.

Another intended outcome of this survey was to remind current, and future, Board members that they serve the membership of the IGAEA. As a Board member, one may certainly have a hand in the process—but the members should always have a strong voice. One thoughtful response to the open-ended item #21 was the anonymous quote that follows: "the timeliness of this survey indicates that there is concern for the current state of IGAEA. Being ever vigilant is the resolve for complacency, which erodes the status of any organization. Thank you for doing so."

Thank you to all those who participated in this survey and especially all those who have served the International Graphic Arts Education Association throughout its long and illustrious history.

Appendix–Responses

Likert-type Items

The outcomes of the survey were as follows:

1. *The mission statement of the IGAEA is still appropriate:*

SA	*A*	*D*	*SD*
30	*32*	*5*	*2*

2. *The IGAEA should be more inclusive of non-print digital communication technologies such as web media:*

SA	*A*	*D*	*SD*
24	*33*	*9*	*2*

3. *The IGAEA should promote and facilitate the development of articulation agreements between members' educational institutions:*

SA	A	D	SD
32	29	6	0

4. *IGAEA conferences are of great value to me in my current position:*

SA	A	D	SD
30	26	8	1

5. *I believe I get a good return on my dollar for my IGAEA dues:*

SA	A	D	SD
28	32	7	0

6. *The Communicator newsletter meets my expectations:*

SA	A	D	SD
10	41	13	1

7. *The Journal of Visual Communications meets my expectations:*

SA	A	D	SD
15	37	12	1

8. *The Gutenberg Awards are important to my students:*

SA	A	D	SD
19	33	13	2

9. *IGAEA should work towards creating student chapters at high schools, community colleges, and universities:*

SA	A	D	SD
20	29	14	5

10. *Serving as an officer of IGAEA would be beneficial to my career:*

SA	A	D	SD
9	36	21	1

11. *IGAEA is more beneficial to college faculty than high school faculty:*

SA	A	D	SD
2	20	36	9

12. *As an IGAEA member, I attend as many conferences as possible:*

SA	A	D	SD
17	29	19	2

13. *The opportunity to make presentations at conferences is important to me:*

SA	A	D	SD
5	28	29	3

14. *IGAEA should make a greater effort to expand membership by recruiting graphic design and art teachers/professors:*

SA	A	D	SD
18	31	12	5

15. *Late July is a good time of the year for IGAEA conferences:*

SA	A	D	SD
12	45	9	1

16. *The IGAEA should develop common standards for the development of articulation agreements:*

SA	A	D	SD
14	39	10	3

17. *IGAEA membership dues should be raised to assist in lowering conference registration fees:*

SA	A	D	SD
2	19	36	12

18. *The International Graphic Arts Education Association should consider changing its name:*

SA	A	D	SD
5	16	31	14

Open-ended items

19. *What can the IGAEA do to attract new members?*

- Get the word out more.
- Sponsor VICA activities.
- National and local marketing initiatives.
- I'm not sure. I'm a new member myself.
- Advertise through SkillsUSA and PrintED.
- Have shared curriculum and projects online.
- Attract more Graphic /Web Design Teachers.
- Establish school chapters, college and high school.
- Advertise, offer online webinars/workshops/classes.
- More actual teaching at the conferences, less sales pitch.
- Curriculum resources, model lessons, promotional posters, etc.
- Negotiate special opportunities for members with industry suppliers.
- Open up to website designers, interactive media, and graphic designers.
- Change the name to International Graphics Education Association (IGEA).
- Advertise more for membership at all colleges and universities, recruit students.
- Articulate a clear value proposition for joining and then widely publicize that proposition.

- They need to see value and other then the networking I have done I do not see a lot of value.
- Partner with other Associations and integrate graphic arts needs, such as curriculum and certification.
- Make a greater effort to expand membership by recruiting graphic design and art teachers/ professors.
- Focus on 21st century issues and technologies, leading the way with compelling new activities, curriculum, etc.
- IGAEA members should attend other conferences where new Graphic Art teachers are attending and promote IGAEA.
- We are beyond Art era now. Industry is changing. We need to come up with a name which is more appropriate and aligned with the current industry e.g. IGCEA.
- Look at a "What's in it for me" attitude to attract members. Giveaways, posters, mousepads, anything that can be used in the classroom. Webinars to update teachers who are unable to attend conferences.
- All members should never stop recruiting. Encourage regional conferences to network with other local graphic arts educators in a region.
- Get PIA to contact local PIA affiliates to encourage them to make contact their local schools to meet instructors and get them involved. This would "kill two birds with one stone."
- A letter of introduction to the appropriate departments in schools across the country, describing the nature and benefits of IGAEA membership.
- Conferences do not attract members, though IGAEA has used this as a draw. Services attract members. The articulation idea is a good one. More technical "how-to" information in *The Communicator* may also be a draw.
- Reach out to high schools that have a graphics program and promote the IGAEA as a way for them to connect with other graphics teachers.
- Get information out to the teacher ed. schools and programs. Teachers that may teach in the graphic arts area may not realize that there is a professional organization.
- Try to work out some membership discounts with training providers such as Kelby Training, or suppliers such as Adobe, Apple, or Nikon.
- This is a tough one. All professional organizations are having trouble with membership. It is up to each member to promote the organization.
- Emphasize the benefits of membership more in terms of opportunities for advancement professionally, presentations at conferences, publications, etc. Also, the advantages of attending conferences —networking, new skills and classroom activities.
- Get more going on at the local county levels in various school districts. Out of the 12 graphics programs in my county, I am the only one I know of who has gone to a conference and is involved in IGAEA. I have let my colleagues know of the benefits however they obviously choose to focus their efforts elsewhere.
- Open the doors to cover additional areas. Printing as a single career is closing, our printing degree plan has been replaced with Production Technology and all the presses and bindery equipment has been sold. Austin Community College is building a Game Development program where printing used to be located.
- Make new members feel welcome. Don't overburden them with holding an office early on in their membership. If they do get elected to an office early on in their membership, let's provide support and effective communication—not unrealistic expectations. Another useful tip, those who criticize negatively, to offer solutions or help.
- A stronger web presence with a calculated, targeted marketing plan (e-mail, direct mail, etc.) would attract more interest among professionals. Before joining, I was unaware of the organization. I found out about IGAEA through a colleague that I met at another professional conference.
- Start by publishing *The Communicator*, add other forms of communication for members. Try to organize state or regional conferences. A place to post questions that could be answered by our member experts to help young teachers.
- I like the idea of expanding the organization to educators that deal with Tech Pres, Multi Media and maybe Journalism/Communications. In a significant way, the computer is blurring the tradi-

tional lines between takes in our industries. Or, just thinking out loud, a free one year membership to all GA instructors in hope that they renew. This could be done one region at a time. I would pick the largest region and start there.

- I'm not sure how much the organization is pushed on college campuses, but that is one place where it may be beneficial. The other thing I've found is that members attract new members. That's how I got started and how I brought someone into the organization. I also believe we need to get the word out to high schools and colleges and tout the benefits of membership.

20. *What is the most beneficial aspect of IGAEA membership for you?:*
    - Newsletters.
    - Networking.
    - Information.
    - The conference.
    - Regional Conferences.
    - Camaraderie, learning.
    - The annual conference.
    - Meeting other teachers.
    - Professional networking.
    - Networking, collaboration.
    - The conference if affordable.
    - Annual poster, random articles.
    - So far, the upcoming conference.
    - Networking with other educators.
    - Interaction with other instructors.
    - Journal of Visual Communication.
    - Better network and bench marking.
    - Networking with others in my field.
    - Conference presentations and *VCJ*.
    - Gutenberg awards for my students.
    - The Fall Conference in '05 was great.
    - Summer Conference and networking.
    - Conferences and sharing of information.
    - The conference when held on a campus.
    - Relationships formed with other members.
    - Having people I can contact with questions.
    - Networking with other educators from around the country.
    - Meeting other educators and discussing educational strategies.
    - Networking with other members at regional & national conferences.
    - The collegial atmosphere afforded by the listserv and Graphic Comm Central.
    - Networking…and to be honest an opportunity to socialize with my colleagues.
    - Conferences, region meetings, networking with other teachers, project exchange.
    - Networking with fellow Graphic Art teachers results in developing new lesson plans.
    - When I can work in the conference. Gutenberg awards. Shared curriculum and projects.
    - Meeting and learning from other members at the annual summer and regional conferences.
    - When I could, the summer conference. I just have a hard time getting away as I am so busy at work.
    - The opportunity to network with other teachers and the professional development (conferences) that are offered.
    - The information I glean from attending the sessions as well as sharing with colleagues makes the conference a valuable event.
    - *VCJ* is absolutely critical to many of the college-level instructors on tenure track. Networking in regional IGAEA is also important.
    - The fellowship of other motivated educators at summer conferences and regional meetings. This includes much of the training/education spirit found in earlier years, which has diminished recently.
    - I can't list a benefit other than the annual conference, I don't publish so *VCJ* is not a direct benefit. Can't count on *The Communicator* being current if published.
    - The organization has helped me advance professionally. It is more beneficial to me than other organizations for collegiate faculty such as NAIT.
    - The opportunity to attend many presentations in my field that interest me, and the opportunity to travel several places.

- I believe the most beneficial aspect of IGAEA membership is that it is a membership of Graphic Arts Educators. It is not a membership just for me, but for all of us involved with the technology, the art, the design and the business of print and new media.
- Some conferences have been good, but I find the material has not been as beneficial to pushing the knowledge in the given areas. I have presented in the past and would do so again, if the opportunity presented itself. I have taken a lot away from IGAEA over the years and I am willing to give back to the group.
- Learning at the conferences. A chance to talk to people who are like me. I am the only print teacher at my high school and I don't feel I have anything in common with the rest of the faculty. I don't know what I would do if I didn't have the IGAEA!

21. *What aspect of IGAEA do you consider needs improvement?*:

- Got me.
- Communication
- Alignment with the industry.
- Recruiting and communication.
- Marketing - database development
- *The Communicator* needs a makeover.
- Website to share projects and resources.
- What do you actually get for your dues?
- Recruiting high school graphics teachers.
- Limiting focus to printed communications.
- Better communication. rotation of committee chairs
- Working on getting new members before the organization no longer exists.
- Distribution of information, more updates about organization and initiatives
- Diversification of assets- new and better ways to develop as an organization
- It would be nice to have a database of projects and lesson plans that could be shared.
- We need to be more consistent in maintaining member contact through *the Communicator.*
- I am a relatively new member. I don't have any suggestions at this time. I do like what IGAEA has to offer.
- Continuity when officers change. There is almost no "standard" for what members can expect from year to year.
- I'm puzzled as to why more teachers do not use the listserv for collaborating, communicating and commiserating.
- Being more inclusive, the lines are blurring between art, graphics, multimedia and journalism
- More activity during the school year. Interaction among other members during the school year instead of just at the conferences.
- Information to prospective members to show the benefits of we offer. There are many organizations to join but what makes us special? Why should I join and what will I get?
- Please, please, please pursue high school chapters for students! I am available to help and to start the first one.
- Working to develop a national curriculum under the PrintEd standards that would bring a level playing field regardless of state.
- Stay on top of things, like the Web site. It was totally unacceptable to get the specs for the GC Week Poster on the last day of my Spring Semester classes.
- National & international recognition as a body that serves education. Negotiate special opportunities for members with industry suppliers.
- Project ideas and cutting edge lessons that can be shared with all members through current newsletters and the IGAEA web page.
- Communication with all members. I know an effort is made and I know all officers have enough to do already in the jobs, but any email, blogs web site sharing is always good.
- Communications. Whenever I see a *The Communicator* the information is old. I would love to start to trade instructional material with people on certain topics, but there is not a practical tool for that. (Project exchange has bee a possible outcome, but I think it could be much more significant.)

- It is required to have conference presentations published in conference proceedings for promotion and tenure at the university level. This is very important to me. If we had conference proceedings (even a CD will do), I would not miss one conference.
- The name might be IGCEA–IG (Communications) EA. "Graphic Arts" is a dated term. Opening the door to art teachers is a bad idea—it might change the entire culture and focus of the organization should those professionals gain officer positions.
- We need to keep continuous contact with our membership during the year so that we can support each other and keep our network strong. Members need to feel they are receiving a value by being a member, even if they cannot always attend a conference.
- Getting info about the organization into the hands of instructors that don't know about it AND making sure the REALLY understand the organizational mission. IGAEA has been a great benefit to me, but I was unaware of their existence until about 5 years ago.
- I would like to see a stronger local presence (Ohio) that would keep me connected to the group. It seems like the communication from IGAEA is only every few months. The professionals that I have met through IGAEA have a wealth of knowledge to share that I could benefit greatly from. Maybe more timely announcements on the website and the addition of a "board" to exchange ideas and news would draw more members together more often.
- Target involvement of younger graphic arts educators. Become more proactive in recruiting and retaining members. Make new and existing members (young and old) feel (as I mentioned in Q19) welcomed. Continue the Gutenberg Awards—however, just select one Best-of-Show, one first place, one second place, and one third place award winner. In the past there have been too many second place and third place winners from the same category. There could be multiple Honorable Mentions.
- The problem really is not with IGAEA. Everyone is being tugged in many directions at once. However being creative and innovative could help. If we had a way to help the high school teachers get certified or recertified through the association, that could help attract members. Perhaps colleges could design courses just for Graphics instructors on line, that require membership to enroll
- The Board needs to step up and deliver basic services to the membership. For example, the Board should take responsibility for publishing 3+ worthwhile *The Communicators*/year (electronically would be fine). Historically, there were six *The Communicators*/year AND the "*Research and Resources Report*." I'm not advocating for the latter, but I think the IGAEA would need to deliver 3+ worthwhile e-publications/year (beyond the *VCJ*) that would be You published 0, 1, and 1 each of the last three years. That needs improving. Review and update every page on the IGAEA Web site at least three times/year (e.g., the most recent Awards posted are currently 3–5 years old. Has the IGAEA stopped awarding those awards? The Board MUST make sure all info on the IGAEA Web sit is CURRENT.
- As a longtime member of more than 30 years, I believe the "family oriented" conference (which I never found attractive) has become an increasing liability to the organization. Try three-day conferences, with member emphasis and stop diverting time and resources to kids and spouses. This should lower the cost and complexity of putting on a conference, and increase the functional benefits to the majority of the membership. The idea that we are providing a tax-beneficial family vacation is not only a questionable benefit, it is not in the best interest of the membership majority or the organization. Publications: the *VCJ* has simply become another tool for those seeking tenure or promotion at senior institutions. It has lost its immediacy to all members except those in this particular niche. The common interest articles are long gone, and instead we have grad assistants and assistant professors latest "research" projects complete with statistical analysis—Yawn! While these may be beneficial to the authors' paychecks, they hold precious little interest for other members, particularly those at the secondary school level, which represent a large proportion of the total membership. By the same token, *The Communicator* has been meager in recent years, with fewer issues and

articles. More effort needs to be put into this publication—if the printing is what is holding it back, lets just do it with emailed PDF's. We should be having at least 4 issues per year with a diverse range of articles: software and training reviews, equipment ratings, instructional techniques and tips, etc. One item that has hurt us deeply is when compared to organizations like NAPP, etc., is that our training at the conferences is substandard. When you can attend a 3-day Photoshop World conference for about the same amount that we charge for our annual conference, such comparison is invited. Unfortunately, our training will not do well in this comparison. Perhaps by concentrating more on the training and less on the picnics, ice cream, and carnival rides, we can lure back some of the member that has been lost. I hope so.

This is a refereed paper

Focus Blending For Close-up and Macro Photography

by Christ Lantz, Ph.D, Western Illinois University

There is an increased interest in close-up and macro photography as a result of a new focus blending, or focus-stacking, feature in Photoshop CS-4. Blending multiple photos together with different focus points increases the area of sharp focus. Close-up photography is less than life size and macro photography is life size (1:1) or larger magnification on the CCD or CMOS imaging sensor. One of the main limitations of close-up and macro photography is the limited depth of field available. The closer the camera is to the subject, the less depth of field is available. One approach is to stop the lens down to the largest number f-stop for increased depth of field. Even with the aperture stopped all the way down, there is often insufficient depth of field to bring the subject in to focus. The best image quality is also not achieved with the lens stopped down all the way because of diffraction or light bending around the blades of the aperture. With focus blending the lens can be used at the optimum aperture (usually two or three stops from the smallest number aperture) and photos are taken at different focus points across the subject. The camera must be on a tripod so the images will be in alignment for focus blending. The resulting photos (Figure 1) are blended into one image with an increased area of focus (Figure 2).

The workflow and equipment available to create the source images used for macro or close-up focus blending

The area of sharp focus in the top photo is on the microchip and chip package connection pins and on the dark plastic surface of the chip package for the bottom photo. These two photos were blended to create Figure 2.

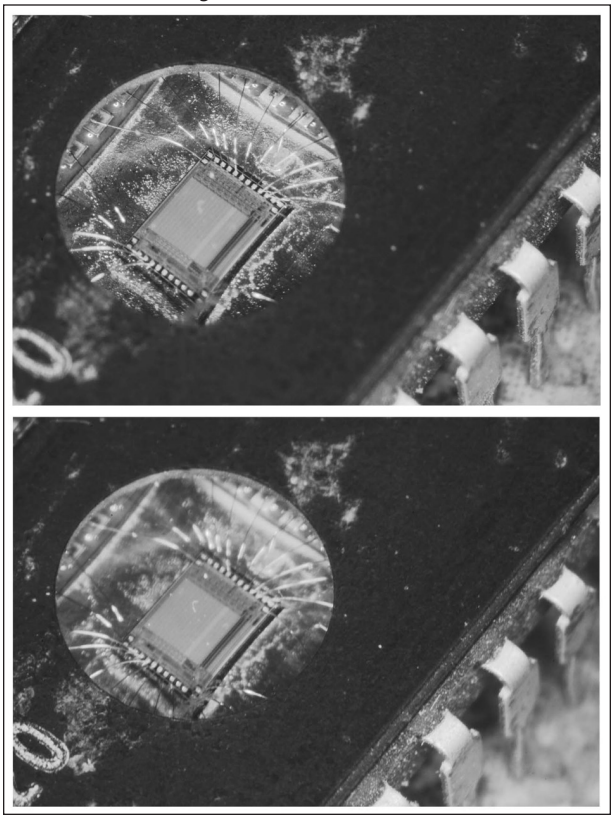


Figure 1

The top image indicates the framing for the bottom focus blended image of the microchip package. A 135mm enlarging lens, bellows and extension tubes were used for this photo below.

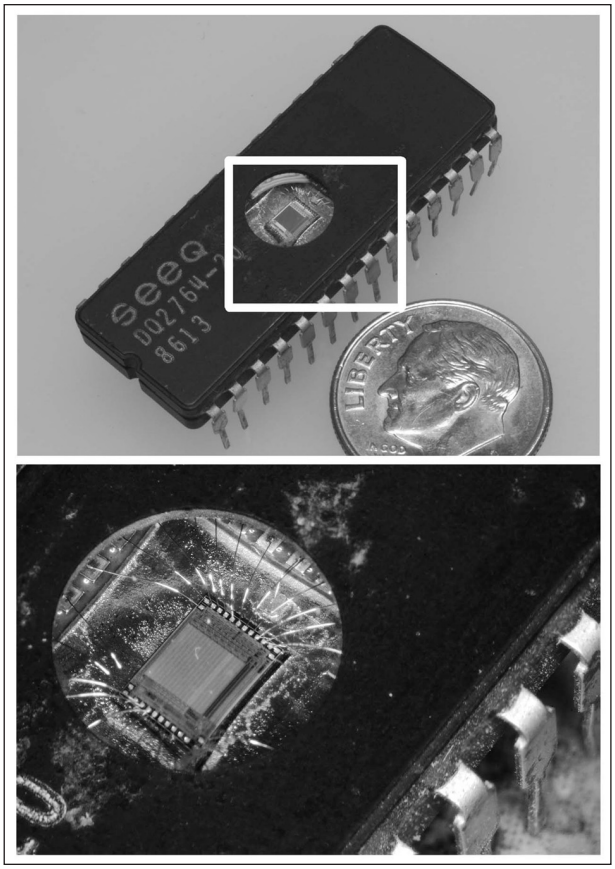


Figure 2

will be provided in the following sections. Prices are provided to assist in selecting equipment and software. The focus blending process itself is not very complex once the images are captured correctly. Small errors in capture such as bumping the tripod between images or not overlapping sharp areas of focus between images can make the blending process more difficult or impossible in software. Focus blending is not a new procedure, having been used in photography through the microscope where depth of sharp focus is even more shallow. Dedicated focus blending software, such as Helicon Focus and the free Combine ZM, has been available for several years. Focus blending can be used for other types of photography, but has special application in close-up or macro photography because of the limited depth of field available.

The area of sharp focus in the top photo is on the wire connection of the microchip surface and on the areas behind it for the middle and bottom photos. These three photos were blended to create Figure 4.

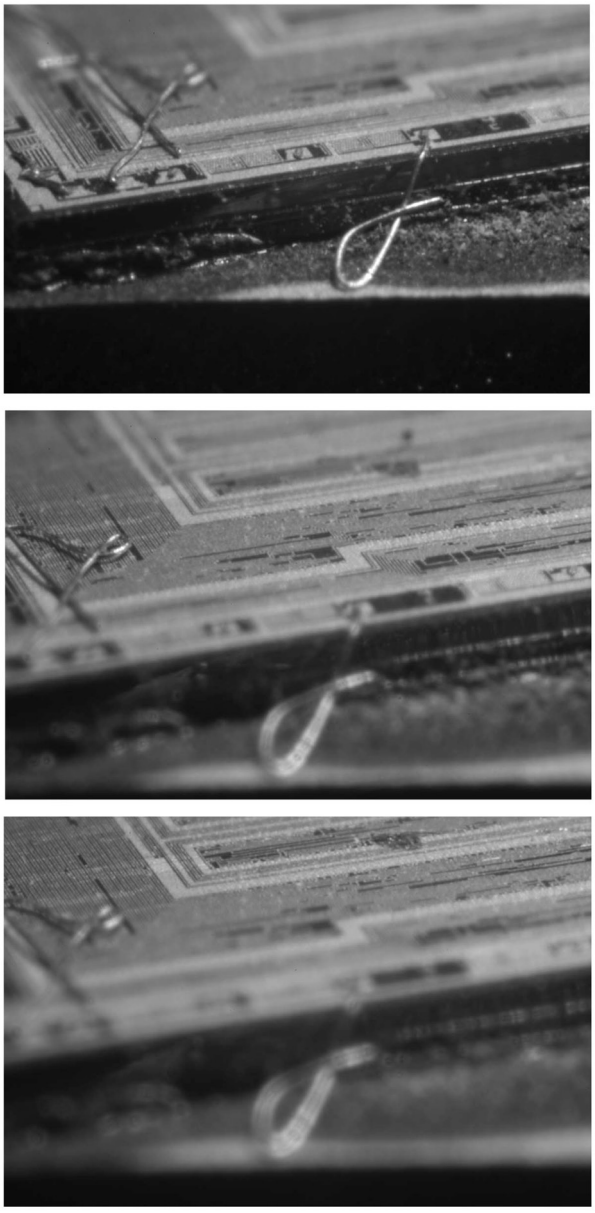


Figure 3

The top image indicates the framing for the bottom focus blended image of the microchip surface. An 8mm movie camera lens mounted in reverse on a camera body cap was used for this photo.

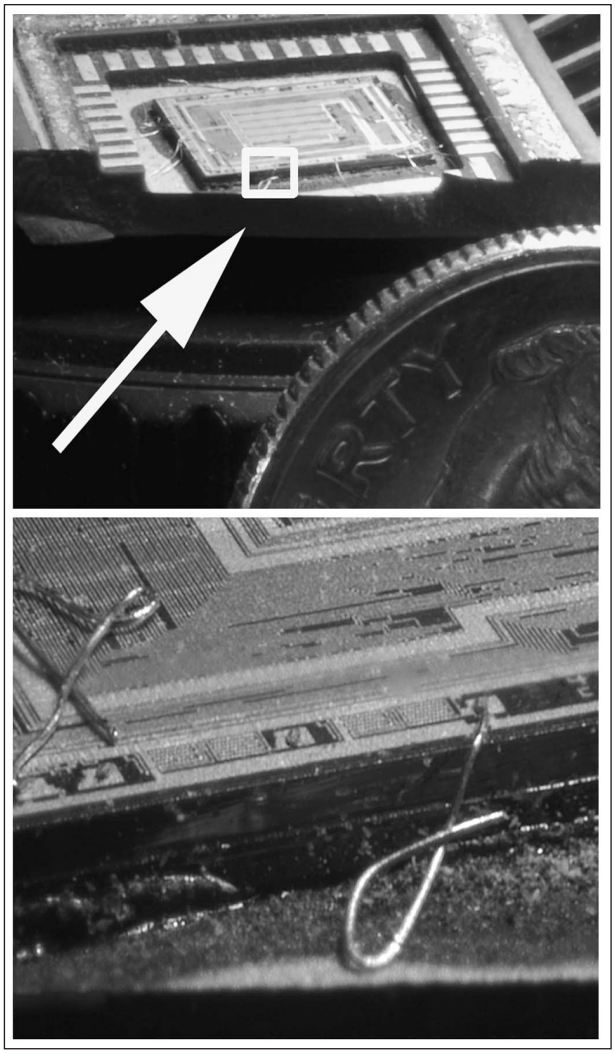


Figure 4

Image Capture

The area of sharp focus, or depth of field, for each image used for focus blending should have some overlap of sharp focus (Figure 3). This provides the focus blending software with sharp overlapping pixels necessary for increasing the area of sharp focus and a smooth blend (Figure 4). The number of photos needed is dependent on the depth of field available with your subject. Depth of field is lessened the closer the lens is to the subject and the smaller the number f-stop used. Higher magnifications with reduced depth of field usually require more pictures, such as in Figure 5 and Figure 6. More images at the optimum f-stop are often required for sharp images at macro magnifications because of increased diffraction. It is more difficult to make a smooth blend with such a large number of images. Using the largest-numbered f-stop can be the best choice for close-up or smaller-than-life-size on the camera sensor where a reduced number of source images are needed. Diffraction is not as important for sharp images with a smaller than life size magnification on the sensor.

The areas of sharp focus for this photo of a wristwatch screw head was on the top engraved area, screw head, gears and the top of a dime (top to bottom). These four photos were blended to create Figure 6.

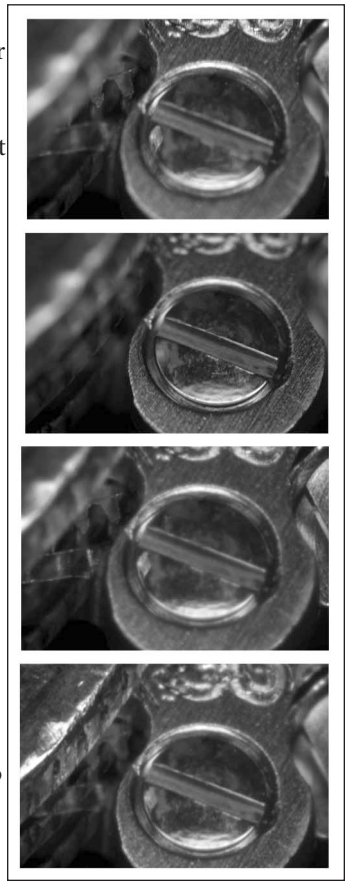


Figure 5

Focus Blending Software

Focus blending in Photoshop CS4. The steps for focus blending in Photoshop are provided below.

1. Files with different focus points are imported into Photoshop CS4 using the *scripts* and *load files into stack* option in the *file* pop down menu.
2. In the *load layers* dialog box use the *browse* button to find the image files and check the *attempt to automatically align source images* button.
3. Select all the layers in the layers palette using the *select* pop down menu and *all layers* option or use the shift key to group select the layers.
4. Next use the *auto blend layers* option in the *edit* pop down menu. In the *auto blend layers* dialog box use the *stack images* option and check the *seamless tones and colors* box. Blending errors along the edges of the image reduce the usable image area depending upon how much the layers were shifted during alignment.

Focus blending in Helicon Focus. A Windows or Mac OS evaluation copy of Helicon Focus can be downloaded from www.heliconsoft.com. The light version is $115 with a one-year license available for $30. Drag and drop image files into the *source* area of the program window and use the *run* button to process images. Make sure to open the images and study the details under magnification to

The top image indicates the framing for the bottom focus blended image of the wristwatch screw head. A reverse mounted 50mm macro lens was used on a bellows for this photo.

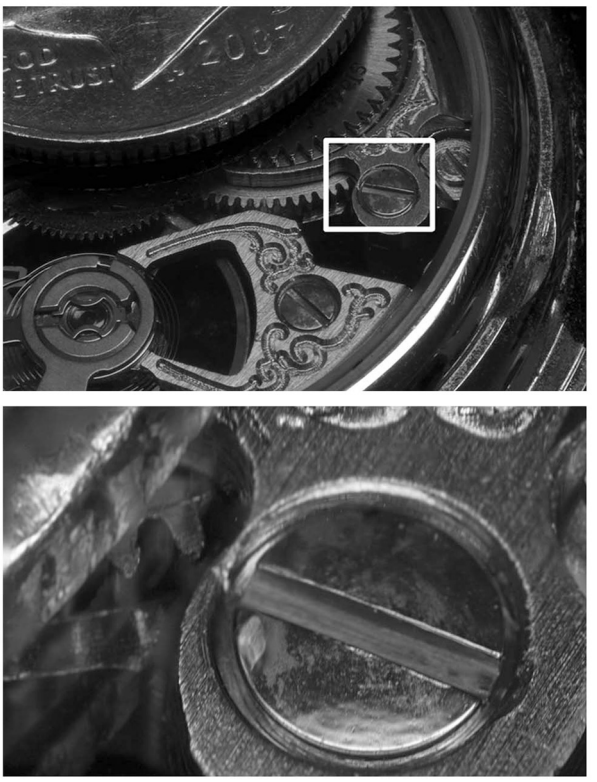


Figure 6

detect any blending or alignment errors. Try the options button and change the *radius*, *smoothing,* and *image processing* methods to improve the blend. Try both *Method A* and *Method B* first and then adjust the radius and smoothing options within each method to find the best results.

Focus blending in Photoacute. Photoacute software has several functions, one of which is focus blending. An evaluation copy is available for Windows, Mac, and Linux from www.photoacute.com. A $49 version is available for fixed lens point-and-shoot cameras and a $119 Pro version is available for those with digital single lens reflex (DSLR) interchangeable lens cameras. The steps for focus blending in Photoacute are provided below.

1. Drag the images into the file area on the left side of the program window.
2. Select the image in the list with the most important area of sharp detail and then push the *start* button.
3. In the *processing* dialog box select *depth of field expansion* on the top and then select the lens used if it is available. Select *combined 1x output (no superresolution, noise reduction only)*. Then select *focus stacking* and *normal alignment* before pushing the *ok* button on the bottom of the dialog box.
4. If the result is acceptable push the *save* button in the main program screen.

Focus bracketing in Combine ZM. Combine ZM is a free Windows only program available for download at http://www.hadleyweb.pwp.blueyonder.co.uk/CZM/News.htm. Launch the program and use the *new* option from the *file* menu. Use the *open* import dialog box to import your files. A *files* progress window will result and then you are brought back to the main program screen. Use the *do stack* option from the *macro* pop down menu and a *CombineZM* progress window will result that shows a listing of filters automatically applied to the image while processing. All of the filters listed during processing can be used manually with the pop down menus at the top of the main program screen.

The camera on the left is a fixed lens digital camera with a reversed lens mounted on top. On the right is an exploded view of the components.

Figure7

Close-up and Macro Methods

Methods for fixed lens cameras. Close-up lenses and the lens stacking technique described in this section could be used on other camera types, but are the most practical methods for fixed lens point-and-shoot-cameras. Many point and shoot digital cameras have a capable close-up mode but may not achieve macro magnifications or

The area of sharp focus on the top photo of the printing plate is on the foreground halftone dot pattern and on the background halftone dots for bottom photo. These two photos were blended to create Figure 9.

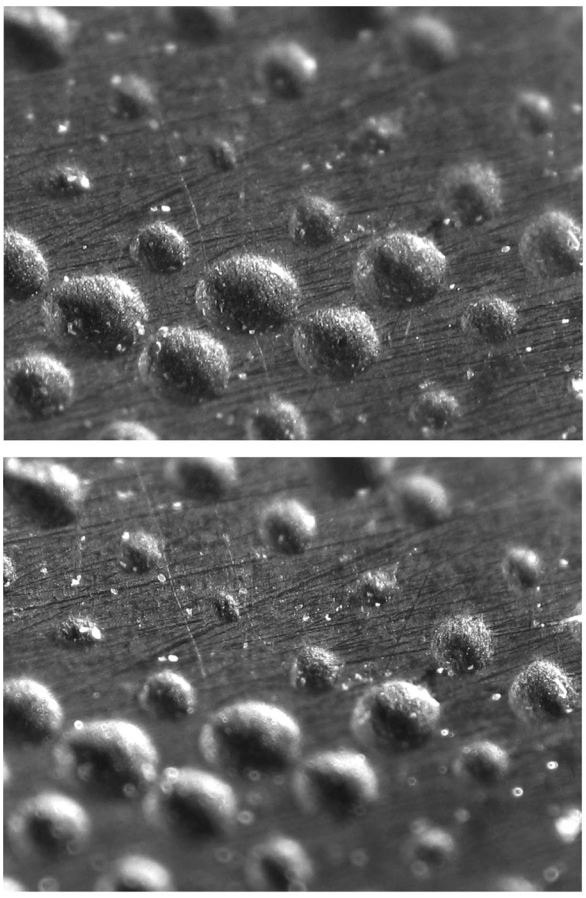


Figure 8

greater-than-life-size images on the camera sensor. Some point and shoot cameras have a filter adaptor tube available. Close-up lenses or diopters can be used directly on this filter-adapter for increased magnification. Close-up lenses are usually in a set of three filters with a #1, #2 and #4. The three filters can be used individually or together for the greatest magnification. The filters are screwed together on the lens in descending order. The disadvantage of close-up filters is that they reduce optical clarity especially at the smallest number f-stop on the lens.

Another option is to stack the lens or reverse mount another lens on top of the lens on the camera. A filter-thread adaptor or macro coupler with threads on both sides is used to connect a lens upside down as in Figure 7. A 50mm lens was stacked on a fixed lens camera for the halftone pattern in Figure 8 and Figure 9. The stacked lens acts like a high quality close-up filter. Old and inexpensive 50mm normal fixed focal length lenses designed for film cameras are the most commonly used.

The top image indicates the framing for the bottom focus blended image of the halftone dot pattern. A point and shoot camera with a reverse mounted 50mm normal lens was used for this photo.

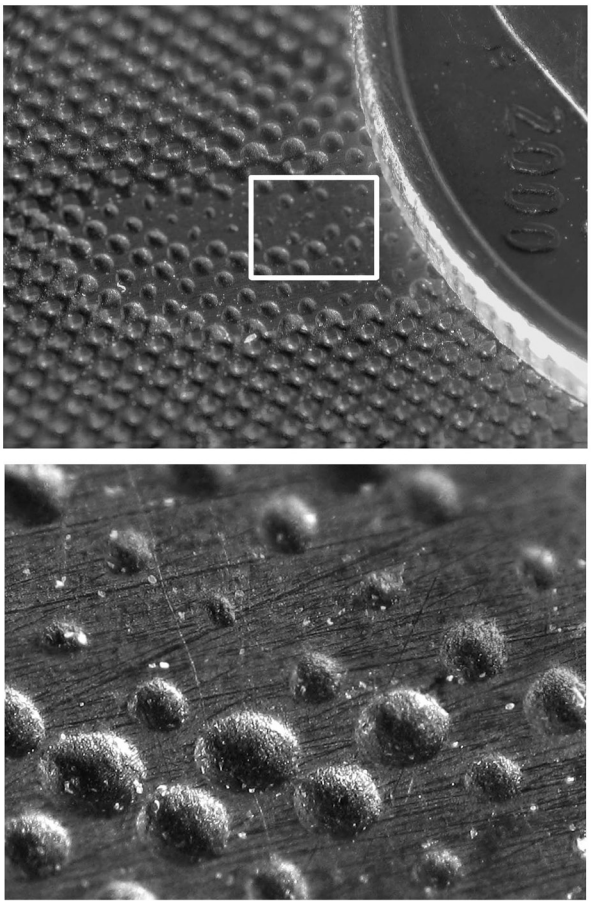


Figure 9

The reverse lens adaptor in the foreground allows a lens to be mounted in reverse on the camera body in the background.

Figure 10

Manual extension tube set.

Figure 11

Reversing the lens. Reversing the lens, or using it backwards on an interchangeable lens digital SLR camera body, is one of the least expensive options for close-up photography. A reverse-lens adaptor contains filter threads on one side and a camera mount on the other side. The Nikon reverse-adaptor-ring is the BR-2A (Figure 10). Nikon also makes a BR-3 adaptor, which is mounted on the reversed lens to provide a filter thread if the photographer desires to use filters such as a polarizer with this combination. Wide-angle lenses, such as 28mm, provide greater magnifications when reversed compared to a 50mm normal lens.

Extension tubes and bellows. Other options similarly priced to close-up filters but of better optical quality on a digital SLR camera are extension tubes or a bellows. Images produced by extending the distance between the camera and lens with tubes or bellows can be sharper,

Bellows surrounded by enlarging lenses. A homemade mounting system was used to mount the enlarging lenses to the bellows (foreground). A standard camera lens can also be used on a bellows.

Figure 12

The mini plunger on the left was used to create the tilt close-up lens on the right.

Figure 13

The mini plunger lens in Figure 13 was tilted to change the plane of focus to better correspond to the SD memory card in the background of the bottom photo. The same 5.6 f-stop was used for both photos so the change in sharpness was not caused by depth of field.

Figure 14

especially at the wider apertures when compared with close-up filters. Auto extension tubes are available with the correct electrical and mechanical connections to maintain auto focus and exposure-metering functions ($150–175). Manual extension tubes are less convenient and require manual focus and exposure, but are sometimes available for less than $20. The extension tube set typically contains three tubes of different depths that can be used together for greater magnification (Figure 11).

A more flexible option to extension tubes is a bellows unit (Figure 12). The bellows unit usually extends further than the typical combined extension tube set allowing greater magnification. Tubes and bellows are often used together for telephoto lenses. Tubes and bellows were used with a 135mm lens for Figure 1 and Figure 2. A specific magnification can also be set with a scale available on some bellows units. With a bellows, the distance between the camera and lens is adjustable and focus can be achieved by moving the bellows. This is important because dedicated lenses without a focus ring are often used. Repurposed lenses, such as inexpensive enlarging lenses, are often used on a bellows. Lenses can be used in reverse for greater magnification with extension tubes and bellows. A reversed 50mm lens on a bellows was used for Figure 5 and Figure 6.

The top photo is an 8mm movie camera lens reverse mounted to a camera body cap and on the bottom is a 16mm movie camera lens reverse mounted to an extension tube.

Figure 15

The area of sharp focus for the top photo of the lens connection pins was on the pins and on the edge of the lens mount for the bottom photo. These two photos were blended to create Figure 17.

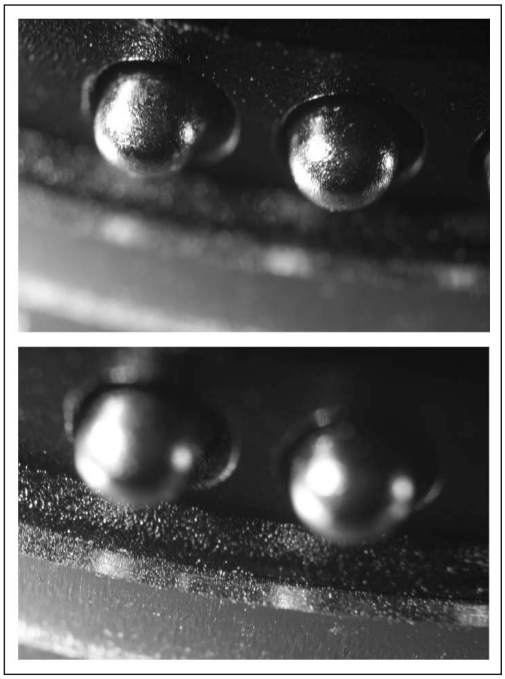


Figure 16

Enlarging lenses. An enlarging lens has a flat focus field designed to project a negative in an enlarger. These lenses work well as macro lenses, especially with flat subjects such as stamps and computer chips. When stopped down, they also have a comparable depth of field to lenses designed for general-purpose photography of 3D subjects. A huge variety of used enlarging lenses at different focal lengths are available in many cases at very low cost (Figure 12). Lenses in the $20–50 price range on Ebay are often recent (1970–90's) German-made six-element designs that were originally priced at $200–500. An enlarging lens can be used in conjunction with an extension-tube set by cementing or otherwise attaching it (black duct tape) to the shortest tube in the set. Some enlarging lenses have an illuminated aperture with a small piece of clear acrylic plastic on the back of the lens that should be taped over to prevent light leaks.

The top image indicates the framing for the bottom focus blended image of the lens connection pins. A 16mm movie lens reversed mounted on an extension tube was used for this photo.

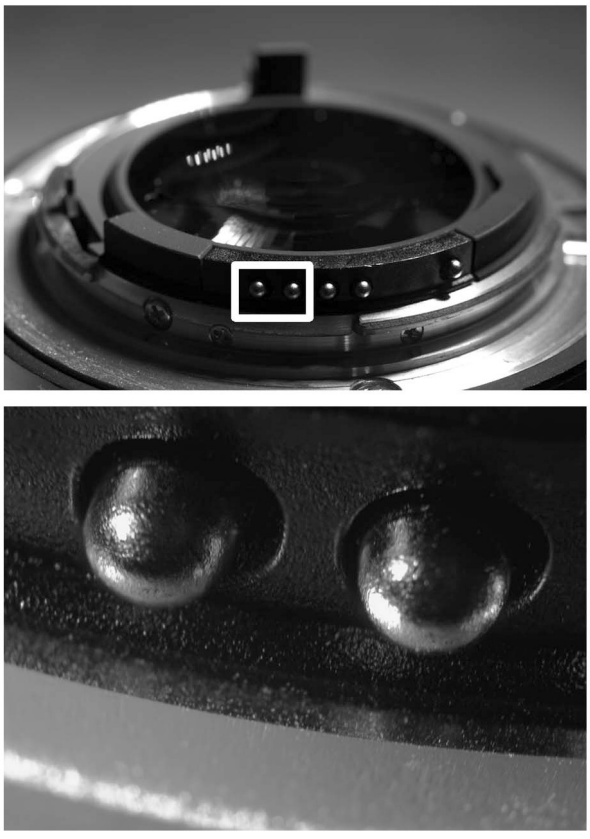


Figure 17

Many enlarging lenses have a small diameter filter screw thread on the lens, which can be used for reversing the lens for increased magnification. The enlarging lens can be attached to a bellows or can be used in conjunction with extension tubes. If an extension tube or a bellows is not available, any tube can be used in conjunction with a hollowed-out body cap that came with the camera. One popular project is to use a Pringles potato chip can. Another option is to use the flexible plastic portion of a plumber's mini plunger as in Figure 13. The handle is cut off the plunger and this leaves a hole just large enough to mount an enlarging lens. In this case the plunger was made of yellow plastic so black masking tape was used to light proof the flexible tube. A metal T-mount lens mount adaptor ($15) was used for a secure connection between the large end of the plunger and camera body. A lens retaining ring was used to mount the 80mm enlarging lens on the smaller side of the plunger. This method provides additional functionality beyond a bellows or extension tubes because the lens can be tilted. Tilting the lens with the flexible portion of the plunger provides increased depth of focus across a flat subject such as the memory card in the background of Figure 14. A 75–105mm enlarging lens, originally designed for

Macro lenses have longer front focus barrels that extend out at maximum magnification and act as a built in extension tube.

Figure 18

medium-format film, is used for the larger image circle necessary when the tilting the lens. A flash is used with the plunger lens to stop any movement of the camera when tilting the lens. Dedicated tilt/shift macro lenses are $1800.

Movie camera lenses. Another example of repurposed lenses for macro photography is the movie camera lens. Obsolete movie camera lenses, designed for regular 8 film cameras, are capable of very high magnifications when mounted in reverse on a camera body cap. An 8mm movie camera lens was used for Figure 3 and Figure 4.

Geared macro focus rail.

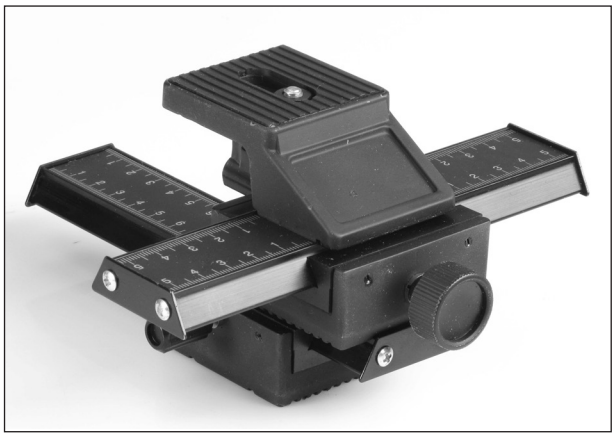


Figure 19

Focus distances that are possible with a 2x teleconverter for a reverse mounted 50mm lens on the left and a 28mm lens on the right.

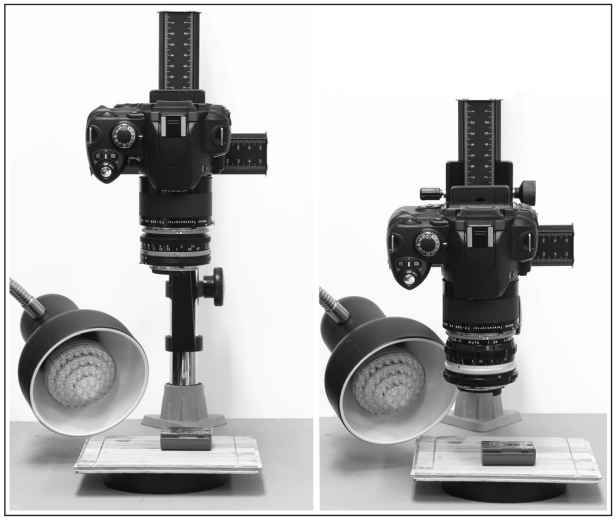


Figure 20

Hollowing out a DSLR plastic body cap and screwing the front of the movie lens to this cap provides the proper distance to the camera sensor for the 8mm movie lens in Figure 15. Lenses designed for 16mm movie cameras provide less magnification, but work well at a longer distance from the sensor. A 16mm movie lens was reverse mounted on an extension tube in Figure 15. A 16mm movie lens was used for Figure 16 and Figure 17. Some movie lenses designed for regular 8 or 16mm movie cameras are less than $10. Movie camera lenses can be found on Ebay, camera swap meets, or garage sales. It is often best to buy the lens with an old movie camera and then discard the camera unless it makes an interesting decoration for the shelf.

The short duration pulse from a flash made this high-speed macro shot of a water drop possible.

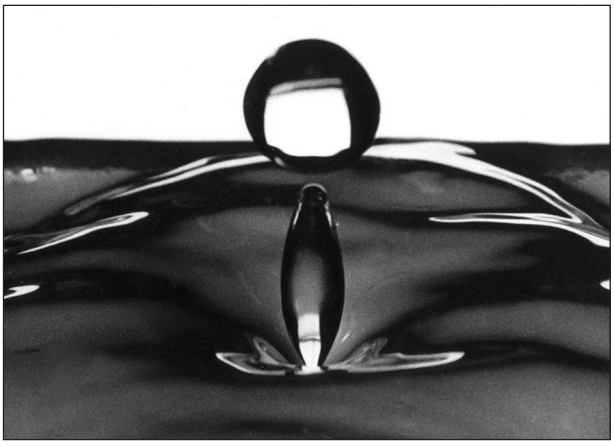


Figure 21

This photo made with a ring-flash has characteristic round highlight reflections and a shadowless or flat lighting pattern.

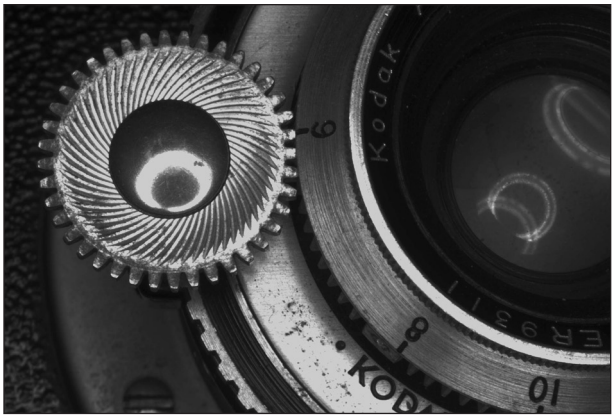


Figure 22

Dedicated Macro lenses

Normal focal length macro lenses. Lenses specifically designed for macro or close-up photography can be the most expensive options available. Common zoom lenses at low price points are often labeled "macro" zooms. Such lenses may focus closer than the average zoom in their class, but most are not considered "true" macro lenses. Macro lenses are able to achieve 1:1 life-size or larger magnifications on the camera sensor. Several types of macro lenses capable of 1:1 and beyond are available in different camera mounts. The normal 50–60mm fixed focal length macro lenses are priced at $275–450. These lenses have the ability to focus at infinity and can be used as a normal lens or short telephoto lens. Extension tubes or bellows are commonly used for larger-than-life sized magnifications. Older manual focus lenses of similar optical design are often available used in the $100–150 price range (Figure 18). Such lenses may only be used in manual exposure mode with some camera bodies. Manual focus is not a disadvantage for many applications because it is not possible to use auto focus at extreme macro magnifications. The method used to focus with the highest magnifications is to lock the lens at the closest focus distance and then move the whole camera to focus. Macro focusing rails are used to assist in moving the camera in small increments for macro focusing applications (Figure 19).

Telephoto macro lenses

Telephoto macro lenses have the advantage of increased focus distance from the subject. This increased distance makes lighting the subject easier because there is more room for lighting equipment between the lens and subject. With the normal 50 or 60mm macro lenses, specialized equipment, such as a ring-light or ring-flash, is sometimes necessary. Most new camera-branded autofocus telephoto macro lenses are $400–850. Used manual-focus telephoto macro lenses are typically available for $100–150. One low-priced manual-focus telephoto macro lens is the $100 Vivitar 100mm 3.5 Macro. The least expensive option is to use a teleconverter on a standard macro lens, reversed lens, or stacked lens. The teleconverter lowers optical quality, but can be the only low-cost method to provide additional distance between the camera and subject. Figure 20 illustrates the focusing distances possible with a reversed mounted 50mm lens (left) and 28mm lens (right) when used with a 2x teleconverter. Without the teleconverter, a ring-light is necessary because of the close-focus distances to the subject.

Lighting for Close-up and Macro

Flash lighting. The motion stopping capability of flash typically ranges from 1/1000 to 1/40000 and could be

A low cost ($100) auto ring-flash.

Figure 23

A macro flash bracket angles two flashes down toward a close-up subject. This system works best with a telephoto macro, 75–135mm enlarging lens or a teleconverter.

Figure 24

used for photographs of fast-moving subjects such as the water drop in Figure 21. Macro flash is often used at a very dim flash power because of the short distances involved. Lowering the power of the flash reduces the duration of the flash pulse thus increasing the motion stopping capability. More commonly, the advantage of the short flash duration is to stop motion blurring when hand holding the camera and/or when the subject is moving.

Ring-light. One popular lighting method for the restricted distances in close-up photography is the ring light. The light from a ring-light is shadowless and flat as in Figure 22. The ring flash is a circular flash tube mounted in a housing that contains a lens-filter thread adaptor. Auto TTL (through the lens metering) ring flashes, such as the Phoenix in Figure 23 are available for $100. The Phoenix has only an automatic TTL mode that often does not work with older manual-focus lenses.

A thin sheet of notebook paper was used to diffuse a flash creating a broad highlight on this shiny watch bezel.

Figure 25

Another ring-light option is to use a flash adaptor for a dedicated Nikon or Canon flash, such as the Ray Flash by Expo Imaging. This is just a light guide that redirects the light from the flash to the ring around the lens and has the advantage of maintaining the TTL auto flash exposure functions. Such a unit can also be homemade using foil and cardboard.

Macro flash bracket. Standard flash units can also be used for macro photography with a macro flash bracket. A macro bracket angles the flash down and toward a subject that is close to the lens (Figure 24). Two flashes

A 50mm lens on a bellows at full extension has a very short focus distance. This distance is ideal for a ring-light such as this magnifier lamp with the magnifying glass removed.

Figure 26

with a different power settings or distances from the subject can be used to create a shadow on the subject. Softer-edged shadows with a broad highlight on shiny objects can be created with diffusion material over the flash. A single thin sheet of notebook paper was used as diffusion material over the flash for Figure 25. The flash could also be bounced off a white card if it has an angle adjustment. Manual off camera flash is possible using a PC sync cord and/or a photocell flash trigger. A dedicated flash cord, such as the Nikon SC-17, could be used to maintain auto TTL metering as in Figure 24. Older flashes designed for film cameras could have a higher sync voltage that may damage digital camera circuitry, so use the Wein Sync Saver adaptor or a photocell flash trigger with older flash units.

Continuous light. The circular fluorescent tubes widely available in magnifying lamps are useful for macro photography (Figure 26). The magnifying glass can be removed from the lamp and the camera can shoot through the round fluorescent tube. A tripod camera support or a copy stand will be necessary, along with a remote shutter release, or use the self timer to reduce vibration. High macro magnifications of the subject also magnify camera and subject movement. If possible, it is often best to move small subjects indoors where wind will not create a motion blur when using slow or low number shutter speeds. LED and fluorescent energy saver bulbs are also useful for close-up photography because of low heat. LEDs are especially useful for macro photography because they can fit in the very small spaces between the lens and subject such as in Figure 27.

The focus distance for this image of dust on the edge of a dime was so close the only way to light it was with a single LED diode. A 30mm enlarging lens on a bellows was used for this photo.

Figure 27

Conclusion

Limited depth of field has been a factor that has prevented some photographers from exploring the more extreme macro magnifications possible. At greater magnifications the depth of field becomes so shallow that the subject is not identifiable. Focus blending makes greater magnifications more practical. A low cost macro system can be constructed from a DSLR camera, a reversed movie camera, or enlarging lens and free focus blending software.

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This is a juried paper

The Correlation between the Frequency of Web Site Modification and Performance of a Commercial Printing Firm

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Introduction

The Web is one of the fastest growing technologies. It is a multi-functional tool that has a number of advantages. Companies can use Web technology as a business tool to publish the information about their products and services, to market and sell their products and services, and to communicate with their customers, vendors, and employees. Additionally, through Web technology, companies can offer technical support and receive payments. Findings gathered from the review of literature showed that there were contradictions on the effect of Web technology on the performance of companies. Some professionals believed that their companies were performing better because of Web technology. Some professionals did not notice any change in the company's performance. On the other hand, some professionals perceived that Web technology adversely affected their performance.

This paper is mainly based on Roth's findings (1998), Auger's empirical study (1997), and Rogers' theory of diffusion of innovations (1995). An empirical research study was conducted to investigate the correlation between the frequency of Web site modification for conducting business-to-customer (B2C) operations or e-commerce and performance of a commercial printing firm. The performance was divided into three categories: financial, non-financial, and overall. The financial performance (FP) was measured using four financial indicators: sales, profits, costs, and return-on-investment (ROI). The indicators used for measuring the non-financial performance (NFP) were number of customers, merchandise return rate, and sales and marketing productivity. The overall performance (OP) was measured by combining both financial and non-financial indicators. Roth (1998) found that only 48% of graphic communications companies maintained their Web sites. Auger (1997) concluded there was a positive relationship between the frequency of Web site updates and performance of a company. It was determined from the results of this study that there was a significant positive relationship between the frequency of Web site modification and non-financial performance of a commercial printing firm. However, there was no significant relationship between the frequency of Web site modification and financial performance of a commercial printing firm.

Purpose

The purpose for conducting this research was to investigate the correlation between the frequency of Web site modification and performance of a commercial printing firm while conducting B2C operations using Web technology.

Problem

It was found from the review of literature that business people of different industries believed that there is a positive association between the frequency of Web site modification and performance of their companies while conducting the business online. The problem of this study was not many commercial printing firms were performing well on conducting B2C operations over the Web.

Hypotheses

Based on the review of literature the following hypotheses were formulated.

H_1: The frequency with which a Web site is revised and modified is positively related to the financial performance of a commercial printing firm.

H_2: The frequency with which a Web site is revised and modified is positively related to the non-financial performance of a commercial printing firm.

H_3: The frequency with which a Web site is revised and modified is positively related to the overall performance of a commercial printing firm.

Review of Literature

This paper is mainly based on Roth's findings (1998), Auger's empirical study (1997), and Rogers' theory of diffusion of innovations (1995). Rogers (1995) defined diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (p. 5). The innovation can be an idea, practice, or object that is perceived as new by an individual or other unit of adoption (Rogers, 1995). This study examines the Web as an innovation or technology and its diffusion in society in terms of how it brings changes to the organizational performance of companies. Rogers (1995) stated that the consequences are the changes that occur to an individual or to a social system as a result of the adoption or rejection of an innovation.

There are adequate findings on desirable, direct, and anticipated consequences of Web technology based on the Rogers' theory. McLean (2000) said that Web sites could be powerful tools for printers, if they were well constructed. He added that Tonya Starr, president of Premierprinter.com, cited the research study finding that a company that has a Web site achieves a 35% higher level of credibility than a company that does not. Behrens (1997) indicated that the usefulness of e-mail and Web sites as present-day marketing vectors can trigger sales promotion, and thus can be widely used by many printing companies. Williamson (1997) stated that using the appropriate software, Internet-based retailers can communicate customized messages and promotions to individuals with the desired interests and shopping patterns. Because of interactive technology, manufacturers can build a one-to-one relationship with their customers, tailoring the marketing mix to individual preferences (Pine, Peppers, & Rogers, 1995). Hirshowitz (1997) stated that the World Wide Web provides several benefits to quick printers. For instance, Kinko's uses its site to display products and services, while Herndon, a Virginia-based Insty-Print, generates $5,000 to $15,000 monthly sales on the Internet (Hirshowitz, 1997). Hirshowitz (1997) cited that AlphaGraphics in Scottsdale, Arizona, developed a Web site that allows customers to transact business with its 300 franchised print shops worldwide. Frank Romano, professor emeritus, Rochester Institute of Technology, mentioned that e-commerce would allow printers to deal more efficiently with the everyday rapid changes ("E-commerce options," 2000). Cummings and LeMaire (2006) found from their empirical study that printers, customers, and end users all benefited from e-commerce services in the printing industry.

Based on the Rogers' theory, there are also undesirable, indirect, and unanticipated consequences associated with Web technology. It was stated in "The Ultimate E-commerce Study" (2002) that the Indian industry has clearly understood that e-commerce is not a solution for all business problems and marketing strategies. It is important to note that a blind choice of Web technology has further added to many firms' problems, those who have been unable to comprehend the effect of the Web on their businesses. Durfee and Chen (2002) indicated that one of the important lessons learned in the last year is that e-commerce is not for everyone, because investments are significant, and mistakes are expensive and highly visible. Roth (1998) cited the findings of research conducted by the Graphic Arts Marketing Information Service of Printing Industries of America (GAMIS/PIA) that not many companies are making profits by conducting business-to-customer activities on the World Wide Web. Roth indicated that only 11% made money on Web sites, while 43% thought they broke even and 38% lost money. Burke (1997) discovered that existing retailers have also been reluctant to support electronic shopping for the following reasons:

1. Building and maintaining a Web site requires a significant investment of time and money with an uncertain return on investment.
2. If retailers post their prices on the Internet, customers and competitors have easy access to this information, increasing market efficiency and reducing margins.
3. Electronic-sales incur shipping and handling costs.
4. Electronic-sales have higher return rates of goods because sometimes customers do not obtain the goods that meet their expectations.

In another study, Jarvenpaa and Todd (1997) indicated that the main drawbacks of Internet shopping were not technical issues like network security and bandwidth. Instead, consumers complained that the Web was hard to navigate, specific items were difficult to find, and offerings of individual sites were too limited and not competitive in price. Auger (1997) conducted similar research to investigate the relationship between a Web strategy and the financial and non-financial measures of performance of a company. He concluded that there was a positive association between multi-objective sites and overall performance. Additionally, he found a positive relationship between advertising of the Web site and overall performance. Auger investigated that there was a similar relationship between the number of visitors and overall performance as well as between the frequency of site updates and overall performance. Surprisingly, he found a negative association of Web site design features and services with overall performance. Further, Auger found that the more complicated the Web site, the less the number of visitors. Hence, the overall performance could be negatively affected.

Nath, Akmanligil, Hjelm, Sakaguchi, and Schultz (1998) conducted research on e-commerce. They interviewed executives of ten organizations. They found that the executives believed that the Internet was an inexpensive advertising tool which can reach a huge audience, the barriers to conducting business were minimal, and an Internet presence improved the image of the business. However, they also found that executives were worried

about security, costs, site maintenance and support, lack of knowledge, lack of skilled personnel, and legal issues.

Based on the literature, Web technology brings about both positive and negative consequences that affect organizational performance. Positive consequences of Web technology, such as reaching a large number of customers, online marketing and sales, online transactions, and customization of messages, usually improve the performance of a company. On the other hand, there are negative consequences as well, such as the costs of building and maintaining a Web site, shipping and handling costs for tangible goods, higher return rate of items sold on the Web, and increasing competitiveness. There was no study found on the correlation between the frequency of Web site modification for conducting B2C operations or e-commerce and performance of a commercial printing firm.

Methodology

A survey instrument—a questionnaire—was pre-tested for its validity and reliability. A pilot test was conducted to check the validity of the questionnaire, eliminate any ambiguity, and make appropriate changes according to respondents' suggestions. A targeted sampling technique was applied to select the final subjects. Commercial printing firms of the Midwest region of the United States that had Web sites were selected. Questionnaires were sent to appropriate graphic communications professionals, such as presidents or owners, vice-presidents, directors, and marketing managers of those firms. A seven-point Likert scale was used to measure the organizational performance. The seven-point Likert scale used the following scale: (1) strongly disagree, (2) disagree, (3) somewhat disagree (4) no difference, (5) somewhat agree, (6) agree, and (7) strongly agree. The four financial indicators, including sales, profits, costs, and ROI, were used to measure the financial performance, while the three non-financial indicators include number of customers, merchandise return rate, and productivity related to marketing and sales functions. All the seven indicators were combined to measure overall performance. The Spearman correlation, analysis of variance (ANOVA), and chi-square statistical methods were used to determine the correlation between the frequency of Web site modification for conducting B2C activities on the Web and three levels of performance (financial, non-financial, and overall) of a commercial printing company.

Findings

A total of 38 questionnaires out of 103 subjects were received. The response rate was 36.89%. Table 1 exhibits the frequency of responses to the question on how often commercial printing firms modify or update their Web sites. The frequency at which commercial printing firms modify or update their Web sites was categorized into four groups: at least once a month, once in three months, once in six months, and once a year or less than once a year. Only 18.42% of the total respondents said that they modified their Web sites at least once a month. On the contrary, 23.68% of the total respondents agreed that they modified their Web sites once a year or less than once a year.

The Spearman correlation method was used to measure the association between the frequency of Web site modification (M) and the three levels of performance (FP, NFP, OP). Table 2 demonstrates a positive relationship between

Table 1: Frequency of Web Site Modification

Frequency of Modification	Frequency	Percent	Valid Percent	Cumulative Percent
At least once a month	7	18.42	18.92	18.92
Once in three months	7	18.42	18.92	37.84
Once in six months	14	36.84	37.84	75.68
Once a year or less than once a year	9	23.68	24.32	100.00
Total	37	97.37	100.00	
Missing	1	2.63		
Total	1	2.63		
Total	38	100.00		

the variables, M and NFP ($p = 0.0054$) that is significant at $\alpha = 0.01$. The independent variable, M, did not affect the other dependent variables, FP and OP. The findings supported the directional hypothesis H_2, but did not support the hypotheses, H_1 and H_3. The data revealed that there was a positive association between the frequency of Web site modification and sales, number of customers, and sales and marketing productivity at $\alpha = 0.05$.

The chi-square analysis was performed to verify the results of the Spearman correlation and ANOVA statistics. Most of the results were consistent with the results of the Spearman correlation and ANOVA. Table 3 shows the significant positive relationship between the frequency of Web site modification for conducting B2C operations or e-commerce and non-financial performance of a commercial printing firm at $\alpha = 0.05$.

Table 2: Association Between Frequency of Web Site Modification and Performance Indicators

Performance Indicator	Spearman Correlation Analysis		ANOVA Method to test Difference in Means	
	Coefficient	p-value	F-Statistics	p-value
Financial Performance	0.0970	0.5793	0.53	0.4698
Sales	0.3653	0.0262*	5.22	0.0285*
Profits	0.1530	0.3661	0.83	0.3674
Costs	-0.0457	0.7881	0.72	0.4012
Return on Investment	0.1112	0.5249	0.87	0.3580
Non-Financial Performance	0.4485	0.0054**	6.01	0.0193*
Number of Customers	0.3374	0.0411*	6.04	0.0191*
Merchandise Return Rate	0.1375	0.4172	0.27	0.6094
Sales & Marketing Productivity	0.4037	0.0132*	6.18	0.0178*
Overall Performance	0.2384	0.1679	2.03	0.1632

Note. * significance level a = 0.05. ** significance level a = 0.01.

Table 3: Chi-Square Statistics to Validate the Results of Spearman Correlation

Frequency of Web Site Modification Variables	df	Chi-Square	Significance
Financial Performance	1	0.2767	0.5989
Sales	1	0.0108	0.9172
Profits	1	0.0044	0.9471
Costs	1	0.5658	0.4519
Return on Investment	1	0.0204	0.8864
Non-Financial Performance	1	4.0394	0.0444*
Number of Customers	1	1.1123	0.2916
Merchandise Return Rate	1	0.3304	0.5654
Sales & Marketing Productivity	1	2.0560	0.1516
Overall Performance	1	0.7825	0.3764z

Note. * significance level α 0.05

The seven-point Likert scale was divided into two groups: (a) No Agreement (scale 1 – 4) and (b) Agreement (scale 5 – 7). The frequency of Web site modification was divided into two groups: (a) Once a year or more and (b) Once or more in six months.

Conclusions

Findings were partially consistent with the findings of Auger's study that there was a significant positive correlation between the frequency of Web site modification and non-financial performance of a commercial printing company. However, the findings did not show the significant correlation between the frequency of Web site modification and financial and overall performances.

In relation to the consequences of an innovation model, it was concluded that the use of Web technology as a business tool brought desirable, direct, or anticipated changes. That was Web technology increased non-financial performance. At the same time, it brought undesirable, indirect, or unanticipated changes that included no significant improvement in financial and overall performances.

The results matched with the GAMIS/PIA study that not many printing firms were making profits by conducting B2C activities on the Web. The findings showed similarities with the results of "The Ultimate E-commerce Study" and Durfee and Chen's study that e-commerce was not for everyone. Future research studies should be conducted over a larger population to determine which other factors are responsible for improving financial, non-financial, and overall performances of commercial printing firms to conduct e-commerce.

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This is a juried paper

Service-Learning as a Pedalogical Approach to Student Development in Technology

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Everyone can be great because everyone can serve.

—Martin Luther King, Jr.

There are many problems that affect our society and help to shape academia. As technology faculty, one can help to create new opportunities while focusing on solutions to aid our communities. One way of doing this is through service-learning. Service-learning is a major movement at every educational level and a powerful force in undergraduate education. At some universities, students are mandated to complete 50 or more service hours upon graduating. How do they do that? What mechanism is in place to incorporate service-learning at the university level to make it successful?

There are many definitions of service-learning. Service-learning as an educational strategy is designed to enhance social and academic learning while developing character and citizenship skills (Burke, Fall 2007; Wikipedia, 2009). "Service-learning engages students in projects that serve the community and build their social and academic capacities. Service-learning is a teaching and learning methodology that connects classroom curriculum and identifies community issues and needs. The strength of service-learning is that it strengthens the classroom instruction of students in all courses and helps to improve the students overall academic success. Students are exposed to new concepts in learning and develop a strong sense of social responsibility and civic awareness. Service-learning is also a project that engages student to serve the community and build their social and academic capacities. One thing for sure is that service-learning is a strategy and not an outcome" (Stanton, 1990; The National Service-Learning Clearinghouse, 1994; National Commission on Service-Learning 2002, Burke, 2007).

As educators, we are committed to integrating service-learning as a means for improving the community and the world in which we live. This article addresses components of service-learning, completing service-learning projects, sample of course objectives, examples of service-learning projects completed by graphic communication students, and benefit of service-learning to faculty and students. Therefore, this article addresses service-learning as a pedalogical approach to student development in technology.

According to the Pennsylvania Service-Learning Alliance (2002, 2007) and Burke (2007), service-learning enhances the classroom environment. Listed are some objectives and reasons as to why service-learning is beneficial to the educational environment: enhance field experience to classroom instruction; connect experience to coursework; enhance problem-solving, critical thinking, analytical reasoning skills; integrate research with practice; apply active learning and principles to real life problems; establish a mutually beneficial relationship with the community; promote leadership skills in students; and engage in research that addresses real world problems.

Service-learning as a strategy gives students the opportunity to exercise problem solving, critical thinking, and analytical skills. The students learn how to organize information, resources, and people in order to improve the community through project development, implementation, and reflection (www.paservicelearning.org; www.nyle.org; www.servicelearning.org).

High Quality Service-Learning Projects

Students prepare for their service by learning about the issue of concern and develop an action plan for service. The characteristics of high quality service learning projects are as follows:

1. Integrated learning: Projects have clearly defined goals; knowledge, skill sets of value mutually beneficial; content service learning and academic learning; and life skills learned are incorporated back into class;
2. High quality service: Service response to actual community need; well organized; and beneficial for students and community;
3. Responsibility: Promotes student responsibility to care for others and contribute to the community; and students understand how they can impact communities;
4. Collaboration: As many stakeholders as possible; and beneficial to all;
5. Evaluation: Students involved in evaluating projects; and this evaluation measures progress; and
6. Reflection: As reflection, teachers enable students to analyze and make sense of their experience through

discussion, journalizing, and presentation opportunities; and connect student service to academia before, and during after project. (www.nyle.org; www.yscal.com.)

Service Learning Project I GCS 585–Print Production Management

The goals of the Service-Learning Project I class were to generate funds for scholarships, community service projects, and the graduating seniors' luncheon by producing, marketing, and selling a product produced by the students enrolled in the GCS 585 course.

The Service-Learning Project I example allowed the students hands on field experience, combined field experience with direct instruction, partnered with community stakeholders, and fostered initiatives between teachers, students and the university community. This example also allowed for measurable results; the projects had clear goals as well as opportunities for collaboration among stakeholders internally and externally.

The Service-Learning Project I class acquainted the students with project based service-learning, entrepreneurship, and management skills related to various areas of a graphic communication company. The concepts presented in the class were learned through practical application. Students were motivated to learn when they saw what they were learning was applicable. The structure of the class was set up to operate as if the class was a company, and consisted of an executive board and departments, with each department having a departmental chairperson. The class members elected the executive board. The executive board consisted of a president, vice president, secretary, and treasurer. The class was divided into four departments. The departments were as follows: design, marketing, production, and estimating. Each department had assigned responsibilities. The executive board managed the operation of the company.

The company became organized as a student organization and was registered on campus. When the student enrolled in the class, the executive board was the officers and the departments were members of the organization. This allowed the students to establish their own bank account. The class met bi-weekly for 160 minutes a week.

The number of students that were assigned to a department was determined by the number of students in the class. The design department designed several products, and the members of the company voted on the product that they were going to sell. The estimating department determined the cost of the product, calculaed the breakeven point, and did the cost analyses. The marketing department determined the market strategies to market the product. The production department produced the product, determined the schedule for the departments to produce the product, and distributed the product to the departments. The executive board formed a partnership with a local company named Graphic Impact. This company allowed the class to work at their place of business for one day to produce a product. Graphic Impact's fee was the cost of the product at wholesale.

The class president called the company (the class) to order and started the meeting. The secretary of the company (the class) called the roll. There was a presentation at each class period by a member of the company (the class), a manager, CEO, or a president of an external company/industry. Each person in class had to give two presentations. One was to critique a management book and give a presentation; the other presentations were assigned to the students. The first 30 minutes of the class were devoted to the company (the class). The rest of the class period was devoted to presentations followed by a question and answer segment. The individuals of the company (the class) were assigned one of the following topics: the role of technology in the creation of wealth; critical factors in managing technology; management of technology: the new paradigms; technology life cycles; the process of technological innovation; competitiveness; business strategy and technology strategy; technology planning; the acquisition and exploitations of technology; technology transfer; the manufacturing and service industries; the design of organizations; the changing game of management; how America does it; how to schedule a product; how to delegate; management by objectives; and determining breakeven point. The number of students assigned to a topic was determined by the number of students in the class.

The planned schedule for the class was as follows:

GCS 585. Graphic Communications Production Management CREDIT 3 (3-0)

Day	Assignment
Day 1	Introduction
Day 2	Group assignments
Day 3	Group organization assignment (Reference list of Management Books and Articles) in APA Style
Day 4	Company meeting Introduction Executive Board
Day 5	Company meeting Oral presentation: The Role Of Technology In The Creation Of Wealth
Day 6	Company meeting Oral presentation: Critical Factors In Managing Technology/Group Meeting
Day 7	Group meeting Assignment: Read And Critique A Management Book
Day 8	Evaluation
Day 9	Guest speaker
Day 10	Company meeting Oral presentation: Management Of Technology: The New Paradigms
Day 11	Guest speaker
Day 12	Company meeting Oral presentation: Technology Life Cycles
Day 13	Guest speaker
Day 14	Company meeting Oral presentation: The Process of Technological Innovation
Day 15	Guest speaker Oral presentation: Competitiveness
Day 16	Visit a company to produce a product
Day 17	Company meeting Oral presentation: Competitiveness
Day 18	Company meeting Oral presentation: Business Strategy and Technology Strategy
Day 19	Company meeting Oral presentation: Technology Planning
Day 20	Evaluation
Day 21	Company meeting Oral presentation: Delegating
Day 22	Company meeting Oral presentation: Scheduling
Day 23	Company meeting Oral presentation:Breakeven Point
Day 24	Company meeting Oral presentation: How To Manage By Objectives
Day 25	Company meeting Oral presentation: The Acquisition And Exploitation Of Technology
Day 26	Company meeting oral presentation: Technology Transfer
Day 27	Company meeting Oral presentation: The Manufacturing And Service Industries
Day 28	Evaluation
Day 29	Company meeting Oral presentation: The Design Of Organizations
Day 30	Company meeting Oral presentation: The Changing Game Of Management
Day 31	Company meeting Oral presentation: How America Does It

The presentations provided insight on students' understanding of how to produce, market, and sell a product. During the academic year 2006–2007, the students supplied the funding for scholarships. The students provided eight (8) $500.00 scholarships, contributed to an agreed community service project, and sponsored the seniors' dinner. In 2007–2008 and 2008–2009, the students provided funding for four (4) scholarships.

Upon completion of the class, the students were able to: conduct demonstrations; interpret, and apply entrepreneurship skills in a real world setting in an industry and classroom environment; demonstrate understanding of print manufacturing strategies, break-even point analysis, forecasting, planning, scheduling, delegating, production, and inventory control by producing a product for marketing; function effectively in a team environment, aware of leadership and group dynamic issues; exhibit a level of cooperation that allows for team productivity by being placed in a group setting; chat in a classroom setting whereby students share their experiences; and demonstrate effective communication skills including oral, written and electronic means by giving a presentation to the class using PowerPoint or other visual aids. Through group presentations, seminars workshops, or individual presentations, students shared their experiences and demonstrated an understanding of contemporary issues encountered in the technology profession on issues

related to diversity, society, global readiness, global awareness, global community; and competitiveness that impact technology. The instruction enabled the students to analyze and make sense of their experience through discussion and presentation opportunities; demonstrate creativity, problem solving skills, and critical thinking by the design of a product or processes to meet desired technical, production, and management criteria; identify, analyze, and apply accounting principles and tools related to design, estimating, production, mathematics, technology, and marketing concepts to systematically solve production related problems by applying principles in a classroom setting to produce a product; demonstrate knowledge in various aspects of processes including product design, production, marketing, business management, and distribution by producing a product for market; demonstrate ethical behavior consistent with discipline, self, society, and the global business environment by participating in a classroom project; utilize the techniques, skills, and modern tools necessary for technology practices by demonstrations in a classroom setting; demonstrate understanding of leadership and managerial skills by determining organizational objectives; and creating venture capital plans for entrepreneurship opportunities and demonstrate knowledge of quality concepts in graphic communications by critically judging work and the work of others within the frame work of contemporary practice and current thinking in graphic communications.

University general education (UNST) objectives were also addressed by the course: Effectively communicate in diverse settings and groups using written, oral, and visual mean; effectively employ critical thinking skills in written and oral communication; interact effectively with people from diverse cultures; use analytical thinking skills to evaluate information critically; and apply multiple modes of inquiry, including quantitative and qualitative analysis, to formulate, describe, evaluate, and solve problems.

Service Learning Project II—GCS 133–Introduction to Drafting

The Service-Learning Project II class was designed to give the students an opportunity to engage in real world problem solving as the basis for a semester-long group project which would culminate with a research paper, a group presentation, and a project demonstration. The students were allowed to work in groups of two to four students.

Some guidelines students received relative to the project were that the topic of research must be:

1. Professional: related to the student's career and/or experience on campus and suitable for discussion and/or inclusion in professional settings such as job interviews and/or resumes;
2. Marketable: the topic must be beneficial to a target market and must demonstrate its financial feasibility and/or potential for profit;
3. Tangible, the assignment must yield a solution that can be described both verbally and graphically i.e., not just a good idea; and
4. Feasible: this assignment must be something that the student can actually accomplish in one semester and bring the finished product into the classroom for demonstration during final presentations.

In the Service-Learning Project II class, the students had to bring to class a problem solving model to be used as a guide. A typical model could include six steps such as:

1. Identify a problem: relative to university experience;
2. Gather data related to the problem: Basis for a research paper (10 citations minimum);
3. Brainstorm potential solutions: group brainstorm (10 item minimum);
4. Select the most feasible solution: must get teacher approval before proceeding;
5. Implement the solution: out of class assignment, include results in paper; and
6. Evaluate the outcome: bring final solution and paper to class for final presentation.

One group of students came up with a potential solution to parking, which is a problem that practically every individual on campus has encountered. The idea seemed a bit farfetched at the time, but it met the professional, tangible and marketable criteria; however, it was not feasible to construct this project in one semester. These students requested permission to provide all the other requirements and build a model of their solution. They were granted approval to proceed with their project. These students gathered data from students in the class and on campus relative to their problems related to parking and how these problems could be solved. These students also met with the campus engineers to discuss the requirements for building this structure in addition to gathering data from the library, and the internet to be included in their literature review.

The most outstanding project for that semester was the parking lot model. These students had examined a problem that had plagued the campus for generations and arrived at a solution. Several years later the university did actually build a parking deck.

Benefits to Students

The strengths of the projects for students were as follows: the students learned to meet deadlines, improved technology skills, learned how to delegate, organized and planned, respected others, improved self confidence, compiled portfolios, practiced critical and reflective thinking, learned to accept multiple perspectives, made appropriate decisions, thought creatively, promoted intellectual curiosity, and sought greater understanding. All of the above characteristics confirmed Burke (2007), assessment of service-learning. Affective benefits to students include a positive attitude and demeanor. Some of the characteristics developed included: attending scheduled activities and meetings, regular communication, sought help as needed, and developed professional habits and good work ethics. All of these characteristics were confirmed by NSLC, (1994).

Management

The instructor of record of the class serves as the facilitator. Service-learning activities can be accomplished by either verification of sufficient insurance coverage or by the execution of valid liability waivers as provided by university attorneys or release forms that are appropriate for field trips. To accomplish the tasks, the instructor needs a mixture of flexibility and structure. The instructor must keep in mind that the university may or may not provide financial support, such as transportation expenses, necessary supplies, or start-up funds. Therefore, the faculty must establish a partnership with industry or use creative means if funds are needed to accomplish the service-learning project.

Benefits to Faculty

Service-learning produces positive teaching and learning outcomes because students become more involved in the class, participate more fully in class discussions, and develop a better understanding of course material. Service-learning also contributes to the service component of a faculty member's responsibilities, particularly given the acknowledgement of a university's substantial role in being a valuable resource and contributing member of the local community (Burke, 2007). In addition, it provides a way to test and implement knowledge from textbooks, and creates better relationships with students because of the greater emphasis on student-centered teaching. Service-learning also presents additional research and publication opportunities.

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Manuscript Guidelines

Eligibility for Publication
Members of the International Graphic Arts Education Association, or students of IGAEA members, may publish in the *Visual Communications Journal*.

Audience
Write articles for educators, students, graduates, industry representatives, and others interested in graphic arts, graphic communications, graphic design, commercial art, communications technology, visual communications, printing, photography, journalism, desktop publishing, drafting, telecommunications, or multi-media. Present implications for the audience in the article.

Types of Articles
The *Visual Communications Journal* accepts four levels of articles for publication:

1. Edited articles are accepted or rejected by the editor. The editor makes changes to the article as necessary to improve readability and/or grammar. These articles are not submitted to a panel of jurors. The decision of the editor is final.
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All manuscripts must be received by the editor no later than December 15th to be considered for the spring *Journal* or by June 15th to be considered for the fall *Journal*. Include digital copies of all text and figures. Prepare text and artwork according to the instructions given in these guidelines. Be sure to include your name, mailing address, e-mail address, and daytime phone number with your materials. E-mail all materials to the editor (address shown below).

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- Submit a Microsoft Word document, maximum of 10 pages (excluding figures, tables, illustrations, and photos). Do not submit documents created in page-layout programs.
- Word documents must have been proofread and be correct.
- Call out the approximate location of all tables and figures in the text. Use the default style "Normal" on these callouts. The call-outs will be removed by the designer.
- Use the default Word styles only. Our designer has set up the page layout program styles to correspond to those style names.
  - Heading 1
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- Be sure that submitted tables and other artwork are absolutely necessary for the article.
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- Electronic artwork is preferred and should be in PDF or TIFF format.
- Send all artwork files and hard copies of these files with your submission.

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- Set up tables in separate documents, one document for each table.
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- Get the correct information into the correct cell and leave the formatting to the designer.
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Artwork

- Scan photographs at 300 ppi resolution.
- Scan line drawings at 800 ppi resolution.
- Screen captures should be as large as possible.
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