



Owens Community College

Quality Team

Student Printing Solutions

Fall 2010

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Improving Procedures for Student Printing
While Implementing a Plan for a Greener Environment

Project Statement

To improve the process of publicly accessible printer utilization as measured by:

1. reduced costs for printer maintenance, printer replacement, and printer supplies including paper.
2. decreased paper print waste.
3. education of the college community about the necessity for managing printer utilization.
4. continuing support of the academic process.

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Background Information

Printing from publically accessible computers located on the Owens Community College campuses and learning centers has historically been provided to both students and the general public at no cost. Students have used this free service to print materials directly related to the classes in which they are enrolled at Owens Community College. In addition to the printing done for academic purposes, printing of documents for personal use has also been frequently and consistently observed in the computer labs. Lab assistants who monitor the Owens Community College computer labs have reported on, and collected documents from, this printing abuse.

The general public is also aware of the easily accessed free printing in the Owens Community College libraries and computer labs. According to library personnel, it is a common practice that students from other institutions of higher education in the area come to print in Owens facilities.

The number of pages of printed material has been monitored over the past several years and found to have significantly increased over time. This increased printing has risen to such a considerable level that concerns have surfaced regarding cost to the institution as well as the environmental impact of the printing practices utilized at Owens Community College.

A number of procedures have been put into place by college officials in an attempt to curb the abuse of inappropriate printing, reduce printing waste, and the corresponding cost to the institution. To increase awareness of the issue, signs have been posted asking those who are doing the printing to limit it to academic, research and class related materials. In addition, computer lab assistants have been trained to monitor and interrupt inappropriate printing.

Research

Several individuals and teams have conducted research prior to the convening of the current Student Printing Solutions Team. The collection of data regarding printing practices at selected institutions was conducted in the summer of 2008. In addition, faculty was surveyed during the fall semester of 2008. Student opinions on Print Solutions were also solicited via a survey in spring, 2009. The existing committee augmented this data by surveying institutions similar to Owens in the fall of 2009.

Printing Practices at Selected Institutions

Data collection regarding the practices, procedures and policies used by other institutions in regards to student printing was conducted in the summer of 2008. Information from two and four year colleges in and outside of Ohio, as well as public libraries was collected. The table below presents information gathered by the Lorain County Community College Library from an assortment of selected institutions where printing is utilized by students and members of the community.

**PUBLIC PRINTING POLICIES AND PRACTICES AT SELECTED INSTITUTIONS
UPDATED JULY 2008**

OHIO COLLEGE	POLICY	SYSTEM	CHARGES	COMMENTS
Columbus Community College	No fees	None	None	Charging is under consideration.
Cuyahoga Community College (Tri-C)	Fee for printing after 200 free prints per semester	Equitrac	5 cents	Must use "My Tri-C" card (no cash or other forms of payment)
Edison Community College	No fees	None	None	Printing is free and a major problem. Charging is under consideration.
Hocking College	No fees	None	None	Academic divisions contribute funds to cover all library printing.
KSU Salem Branch	Fee for printing. No free printing	Pharos Uniprint	7 cents	
Lakeland Community College	Fee for printing. No free printing	"Honor System"	5 cents	Considering Smartcard and increase to 10 cents.
Miami University (and all MU branches)	Fee for printing. No free printing	Pharos Uniprint	10 cents 25 cents for color prints	
Oberlin College	Fee for printing after 300 free pages per semester.	Pharos Uniprint with BlackBoard I-Card system (debit cards, not account-based)	7 cents single; 9 cents for 2 prints double sided.	Value Transaction Stations located in 3 libraries
OSU at Newark (Branch Library)	Fee for printing after 100 free prints each semester. (no carryover)	OhioState U. "Buckeye" smart card with Pharos Uniprint system	6 cents if Buckeye card; 10 cents if cash; 25 cents color	Part of Ohio State Univ. system
OSU at Marion	Fee for printing. No free printing	Not automated; pay at Circ Desk	10 cents	Staff intensive, but small branch campus

OHIO COLLEGE	POLICY	SYSTEM	CHARGES	COMMENTS
Sinclair Community College	Fee for printing after \$7.50 free prints per quarter (approx 150 pgs.)	GoPrint	4 cents single sided or 5 cents for double-sided prints	Will load "Tartan" cards with \$7.50 free printing per quarter allowing approx 150 free pages
Shawnee State University	No fees, but excess printing is an issue, under discussion for years	None	None	Provost subsidizes Library at \$13K/year to pay for printing supplies
Southern State Community College	No fees. College "Technology Fee" partially supports (recovers some costs)	None	None	IT Dept pays for half of Library's supplies expenses, from Tech. Fee.
LORRAIN COUNTY PUBLIC LIBRARIES				
Amherst Public Library	No reply			
Avon Lake Public Library	Fee for printing after 5 free prints per day	No info	10 cents	
Elyria Public Library System	Fee for printing No free printing	No system	10 cents	
Grafton Public Library	Fee for printing No free printing	No system	10 cents	
Lorain Public Library System	Fee for printing after 5 free prints per day	No info	10 cents	
Oberlin Public Library	Fee for printing No free prints	No info	10 cents	
Vermilion Public Library	Fee for printing No free printing*	No system	10 cents	*Free printing of tax forms only
Wellington Public Library	Fee for printing No free printing	CASSI	15 cents	\$ 1.00 color prints
OTHER PUBLIC LIBRARIES IN AREA				
Cleveland Public Library	Fee for printing after 5 free per day	Comprise	10 cents	
Cleveland Heights / University Heights Public Library	Fee for printing after 10 free prints per day	Comprise	10 cents	

MISCELLANEOUS OTHER COLLEGES	POLICY	SYSTEM	CHARGES	COMMENTS
Ferris State University Library(Michigan)	Fee for printing No free printing	Print management system is fully outsourced through local company IKON, which uses Pharos Uni-Print debit card system (like Oberlin)	10 cents	IKON returns some profits to Ferris above a certain print volume.
Central Michigan University	Fee for printing No free printing	Output Control Systems (OCS)	10 cents	
Los Angeles City College (CA)	Fee for printing No free printing	Output Control Systems (OCS)	10 cents	
Yeshiva University (NY)	Fee for printing No free printing	Output Control Systems (OCS)	8 cents	
Niagara County Community College (NY)	Fee for printing after \$40 credit per semester	GoPrint	10 cents	
Howard University	Fee for printing after 250 free prints/semester	Pharos Uniprint	10 cents	
College of DuPage (IL)	Fee for printing. No free printing.	Pharos Uniprint	7 cents	

Print Solutions Survey of OCC Faculty

A Print Solutions Survey of the Owens Community College faculty was conducted by ITS in the fall semester, 2008. The survey was sent to all full time and adjunct faculty. The survey along with the summary of findings is included as Appendix 1.

Commonly, the faculty in favor of a print solutions model noted their belief that students should be cognizant of the environmental impact of abusive printing practices in addition to the implications of costs to the school. The faculty advised that students be educated in ways in which they can accomplish the necessary printing for their academic needs while minimizing abusive printing practices.

Generally, the faculty who did not favor a print solutions model stated concerns regarding learning among students who would be faced with barriers in getting course materials as well as costs to the student for printing. These faculty indicated that college imposed fees should be in place to cover the cost of printing.

Print Solutions Survey of OCC Students

A Print Solutions Survey of the Owens Community College students was also conducted by ITS in the spring semester, 2009. The survey was sent to all students enrolled. The survey along with the summary of findings is included as Appendix 2.

Basically, the data collected from the students did not appear to accurately reflect the printing practices observed in the computer labs, library and other locations of student printing. Additional concerns regarding the survey can be found in the summary of findings included in Appendix 2.

Data Collection – Similar Institutions

To provide additional, current data and make comparisons to institutions most similar to Owens Community College, committee members conducted personal telephone interviews with contacts at institutions of higher education that were viewed as being most similar to Owens Community College. This data collection was completed in the fall of 2009. The following questions were developed by the current Printing Solutions Team and were used as a guideline during the phone interview process.

1. Do students have to pay for computer printing service within the college?
2. If so, what is the policy or fee that is in use? How long has it been in effect?
3. What rationale was used to determine the fee?
4. Based on costs that were considered when printing was free, what savings have been documented by the college? (by percentage)
5. Describe the current procedure in place to monitor # of print pages / charge students.
6. Do students use a card system / network connection to monitor their printing use?
7. Is there access to computer printing for those individuals who are not students, ie. general public in the library?
8. Is there a software package or company that was used to implement this?
9. Please share an appraisal of this package – is the college satisfied – would they recommend it?
10. How is your current procedure working?
11. What are the lessons learned from implementing this program?
12. How did your institution deal with push back from faculty? From students?
13. Any other advice you can share?

Columbus Community College reported that there is no fee added to the students' accounts to cover the cost of printing in the computer labs. The institution has no system in place to monitor the number of pages printed or to charge the student for this service. Due to students abusing this service, the institution has attempted to limit student printing using ineffective methods, such as posting signs. There is no mechanism in place to enforce limits on printing. The institution is considering methods to monitor and cover the cost of printing on campus.

Cuyahoga Community College has implemented a Responsible Print Management procedure on 3 of its campuses and actively communicated such to students, faculty, staff and community patrons. Each registered individual receives 200 free copies and is charged 5 cents for every page beyond this quota via a card system. There is no carryover of unused printing from one semester to the next, though any funds added by the individual to cover printing which exceeds the semester quota remains. A brochure was designed which addressed frequently asked questions to communicate this new procedure.

Northwest State Community College currently does not have any limits in place for student printing. However, they are in the process of implementing a new system which will limit the quantity of printouts for students. The system will track the quantity based on the student's login. The product they are using is called NetIdentity, which is part of Novell. They have not yet decided on a limit or how the limit will be determined. They do not expect there to be concerns from faculty or students.

Sinclair Community College charges students for computer printing service in networked computer labs, in classrooms and in the library. Students get approximately 150 pages free, then are charged 4 cents per page for double sided, B/W printing. Students log in to Windows using their name/ID. When they request a printout, a pop-up window confirms the number of pages and cost. Student can accept or cancel. Sinclair strongly suggests that Print Management be rolled out in all locations at the same time. Otherwise students migrate to any available unsupervised, free print sites. About a month before implementation, they began posting information on the student news-fee in their online portal and put information posters in strategic locations. They focused on the environmental impact.

Terra Community College students and faculty / administration are charged 5 cents per black and white page and 20 cents per color page for printing. Some classes put \$6 out of class fee towards printing costs, as decided by Deans and Chairs. Most faculty and administrators have \$20 added to their accounts automatically by the college. Students are able to add funds to their accounts for more printing capabilities. If they withdraw from the college, their money is not refunded. Terra uses PrintTrac software.

The University of Toledo does not charge students for printing directly, but in some colleges this is part of their tech fee. They use software called PCounter to monitor the number of pages allotted to students. There is a pop up on the computers that are monitored that inform them of how many pages they have left and the size of the document that they are printing. The general public has the ability to print from designated computers in the Library

The University of Findlay charges students only if they exceed the 750 page per semester allocation provided to them automatically at the beginning of each semester. Additional copies incur a 5 cent per page fee for B/W one sided. This has resulted in an estimated reduction in printing of 25-30% in their open labs. The Pharos Uniprint solution is tied to the students' My Accounts tab in their Blackboard Learning Management System. Students must card swipe to get into the open computer labs, however once logged into the computer they simply receive an on-screen prompt any time they want to print. It was recommended that those considering a print management solution should develop highly refined processes and procedures before implementation. They dealt with pushback by preparing all constituents through the use of a pilot project that recorded how many pages individuals were printing. They advertised this program in the campus newspaper, letting everyone know the magnitude of printing being done in the open labs.

Bowling Green State University reports that at this time students do not have to pay for computer printing service within the college. However, beginning fall 2010, students will be charged. BGSU will be using Pharos software when pay for print is implemented. Students will use a network connection and will be charged to their BG1 card. They are currently communicating with all constituent groups as well as individual department meetings to go over the program and plans.

Return on Investment

Category	Annual cost without print management	Annual cost with print management	Annual Difference
Costs			
Print management software and equipment	\$0	\$15,050 ¹	↑ \$15,050
Paper	\$23,100 ²	\$17,325 ³	↓ \$5,775
Print cartridges (toner and ink)	\$30,000 ⁴	\$22,500 ⁵	↓ \$7,500
Revenue			
Charges assessed to students for printouts beyond the limit	\$0	\$0 ⁶	\$0
Non-cash savings / Intangibles			
Lab assistants / technicians staff time	1,440 hours ⁷	1,080 hours ⁸	↓ 360 hours
Environmental	8 – 12% print waste ⁹	reduction in print waste, etc.	not calculated

¹ As quoted by Pharos Systems International, Inc., quote number Q201002477 dated July 26, 2010, the total price for the Uniprint product is \$67,700, which includes an annual support and maintenance cost of \$9,200. The annual cost is determined by taking the costs other than the annual support and maintenance of \$58,500 as a capital expense, dividing those by 10 years for an annual cost of \$5,850, plus the \$9,200 annual maintenance fee, for a total annual cost of \$15,050. A lease option is not available.

² According to Office Max, which supplies paper for the college, the cost of paper purchases for 2008 was as follows: \$17,119.44 for Common Computer Labs Toledo, \$4,210.20 for Common Computer Labs Findlay, \$1,450.75 for Library Toledo, and \$240.02 for Library Findlay, for a total of \$23,020.61. This was rounded up to \$23,100. While these costs are primarily attributable to student printing, there may be a small amount which can be attributed to staff printing. The 2008 data was used because it is the most recent year for which complete data is available.

³ Based on feedback from other institutions, it is estimated that printing volume will be reduced by 25-30%. Based on 25% savings, the estimated cost is determined using the current paper cost of \$23,100 – 25% = \$17,325. Based on 30% savings, the estimated cost using the current paper cost of \$23,100 – 30% = \$16,170.

⁴ According to Office Max, which supplies print cartridges (toner and ink cartridges) for the college, the cost of print cartridge purchases for 2008 was as follows: \$13,834.38 for Common Computer Labs Toledo, \$1,470.40 for Common Computer Labs Findlay, \$2,817.88 for Library Toledo, and \$895.11 for Library Findlay, for a total of \$19,017.77. According to Open Systems, which also supplies print cartridges for the college computer labs, the cost of print cartridge purchases for 2008 was \$10,902.61. Therefore, the total print cartridge costs were \$29,920.38, rounded to \$30,000. While these costs are primarily attributable to student printing, there may be a small amount which can be attributed to staff printing. The 2008 data was used because it is the most recent year for which complete data is available.

⁵ Based on feedback from other institutions, it is estimated that printing volume will be reduced by 25-30%. Based on 25% savings, the estimated cost is determined using the current print cartridge cost of \$30,000 – 25% = \$22,500. Based on 30% savings, the estimated cost using the current print cartridge cost of \$30,000 – 30% = \$21,300.

⁶ While there may be revenue from excess print charges, the goal of this project is to modify behavior so that printing is managed. Therefore, this is not included in this cost analysis.

⁷ According to the Manager of Computer Labs at Owens, the technicians and lab assistants have reported that approximately 120 hours per month is devoted to the printing process (fixing paper jams, loading paper, changing toner, etc.).

⁸ Based on feedback from other institutions, it is estimated that printing volume will be reduced by 25-30%. A similar reduction in staff time is expected. Based on 25% savings, the current 1,440 hours – 25% = 1,080 hours. Based on 30% savings, the current 1,440 hours – 30% = 1,008 hours.

⁹ According to the Manager of Computer Labs at Owens, a survey found that 8-12% of documents printed were abandoned or recycled in the Common Computer Lab.

Communication Will be the Key to Successful Implementation

It was the charge of the Student Printing Solutions Quality Team to “improve the process of managing student printer utilization as measured by reduced printing waste, controlled printing costs, and community satisfaction that educational printing needs are adequately met.” To assure the outcome be a positive one, the faculty and students were surveyed to gather data regarding printing practices utilized by Owens Community College. The survey results from both constituents showed some concern for how a new procedure would be implemented (see “Print Solutions Survey, fall 2008 and spring 2009, Summary of Findings, Appendices 1 & 2). The main concern from the faculty survey is that a printing procedure would cause additional financial hardship for our students who are already hurting with the downturn in the economy. Survey participants are concerned that students would be charged extra for required printing and want to see steps taken to ensure that the determination of costs is fair to students. Some fear the quality of learning among students may be affected if they are faced with impediments in getting needed classroom materials. Many students see class materials via Blackboard, CDs, or other electronic forms as a cause to print the materials out in the computer labs and feel that faculty members are not aware of the amount of printing required for their classes. Some faculty are concerned with the students’ need to improve their thoughtfulness in their use of resources and that students be trained in discerning ways to cut down on the amount of paper they used---for example, how to print PowerPoint as a handout. In response to these concerns and to minimize a “push-back” effect the following recommendations are suggested:

1. Provide clear and detailed information outlining the new “Print Procedure,” using every communication tool utilized on campus to disperse information – Ozone announcements, student paper, posters in computer labs, daily Onews, etc. In order for this new procedure to be understood, it has to be thoroughly communicated. It would also be beneficial for the Computer Help Desk staff to be briefed on the new procedure so they may be able to answer questions when contacted.

2. Develop a brochure which is available to faculty, staff and students throughout the campus. It can be distributed to faculty and staff through inner-office mail and copies made available to students in computer labs, in hallway communication centers, kiosks, department offices, and other key distribution points. This brochure could be developed through our Marketing/PR Department.

It is suggested that the brochure include the following information:

- explanation of how everything works
 - what to do if problems occur
 - specific details related to printing guidelines (students will be able to printpages per semester with an explanation that printing will still be free as long as students remain under the number of pages given each semester, explanation of exceptions if that number needs to be adjusted - i.e., if a specific class has a requirement that is above and beyond normal printing requirements, that instructor can...)
 - Why now? (This printing procedure is part of the College's push to go green and to cut costs. It provides asheet quota per semester for students and faculty who print in any of the computer labs. The procedure is the product of the Print Solutions committee, which found that in fiscal year 2010 alone, nearlysheets of paper were used at computer labs and were unclaimed. (Provide specific data...When tracked,copies are printed per student andexceeded the limit. School X, W, and Z havepages per semester andexceed the limit. We believe this policy promotes environmental responsibility through waste reduction while meeting the needs of our students.)
 - Doesn't my student technology fee pay for printing costs? (No. The fees that students pay go towards the maintenance and upkeep of the computers and the technology that the students use such as software, hardware, networking, utilities and other support items. Printing costs have never been included in the student fee.)
- In a brochure to students, we could give the follow tips on printing.
- Printing Tips (more may need to be added...)
 - 1. For assignments, do your proofreading on the computer screen instead of on paper.
 - 2. Preview your document before printing, making any necessary changes and then previewing again.
 - 3. Keep the document in an electronic format instead of printing it, saving it to a Flash drive or emailing it to yourself.
 - 4. If you think you must have it as a hard copy, only print the final draft.
 - 5. For research, if you want an article from the Internet, save it directly to a Flash drive if it is an option or copy it to a Word document and save it to a Flash drive or email it to yourself.
 - 6. If you are not sure you want the, do not print it.
 - 7. When you do print, claim it from the printer immediately, so other users do not take it by accident.
 - 8. Know what format your instructors expect for your assignments. They may want them turned in electronically on Blackboard, so printing may not be necessary.

This is not an exhaustive list, merely a few ideas of how this information can be effectively communicated and hopefully better understood by those who will be affected by it. We have received examples of brochures and information sheets used by other institutions which could be used as guides as we create our own communication tools.

We believe that the push-back effect can be kept to a minimum if there is an understanding of why this procedure has been developed, how it has been developed, and with the details of implementation clearly communicated. When the procedure is initially being implemented, it is also recommended that a particular office or personnel be identified (listed in all communications and the brochure) as the contact for questions. Communication is key in helping everyone understand this new procedure and successful implementation of it.

Recommendations

To improve the process of publicly accessible printer utilization, this process management team makes the following recommendations:

To reduce the costs of printer maintenance, printer replacement and printer supplies, the team recommends that the college initiate a printing process for students which will incorporate the implementation of print management software. This process should monitor each individual student's printing, therefore creating individual responsibility for printing from publically accessible printers. Printing should be monitored on all publically accessible printers to prevent transfer of printing volume to unmonitored printers. Appropriate procedures for mixed-use printers (ex. classroom and open lab) should be set.

To decrease paper print waste without placing undue financial constraints on students, the team recommends providing a limited quantity of pages for each student at no cost. This team suggests an initial limit of 250 printed pages per semester at no charge and any excess printing above this limit would cost the student 4 cents per page. There should be no carry over to subsequent semesters. A process by which members of the public can pay for printing should also be devised.

To educate the college community about the necessity for managing printer utilization, the team recommends that the college conduct a pilot program of the new printing process. In addition, it is recommended that a campus-wide communications campaign be conducted to increase awareness of the paper waste that was created under our current practices, the effect on the environment and explain how the new process will benefit students by controlling wasteful spending.

To demonstrate continuing support of the academic process, it is recommended that upon completion of the pilot program, the new printing process be evaluated as to its effectiveness. And the results of the evaluation will be made public.

Appendices

Appendix 1 - Print Solutions Survey of OCC Faculty

The following is the invitation sent requesting faculty involvement.

Dear Faculty Member:

We are committed to providing the best service possible to members of the Owens community by making computers and printing services available and easily accessible via several on-campus settings. With rising costs and the need for institutions to be environmentally responsible, we are making plans to more fully control some aspects of these services.

As we move in this direction, we are especially interested in finding out about your opinions in your capacity as a faculty member. Please follow the link below to a short survey that will help us understand your students' needs for printing services within the classroom; as well as your views on some of our proposals.

The survey is now online.

<https://www.owens.edu/direct/survey/printsolutns.htm>

We appreciate your time and assistance in this matter!

Catherine A. Kelly-Lopez
Computer Lab Manager

Owens College Print Solutions Faculty Survey

In an effort to become more environmentally responsible, Owens is investigating some ways in which it can cut down on some of the waste on campus. We are asking for your input in helping us understand the source of some of our paper usage. Please answer the short survey that follows. It should take no more than five (5) minutes of your time and will provide valuable insights into this most important issue.

1. Thinking about your own teaching, how many pages of handouts do you estimate you give out to students per semester?

- Fewer than 5
- 6-10
- 11-15
- 16-20
- 21-30
- 31-40
- 41-50
- 51-100
- More than 100

2. Do you ever ask students to print or make copies of materials for use in your class? Please think about handouts you require your students to provide to other students or to turn in with their work.

- Yes No (Skip to Q5)

3. What kind of materials do you ask your students to print or copy?

- Articles for inclusion with reports or papers*
- Class notes (for instance, from Blackboard)*
- Pages from Internet*
- Multiple copies of their own assignments, reports, presentations, etc.*
- Surveys*

Other (Specify)

4. How many pages, on average, would you estimate that a student needs to produce for your class in atypical semester?

- Less than 10*
- 11-20*
- 21-30*
- 31-40*
- 41-50*
- 51-100*
- 101-300*
- 301-500*
- More than 500*

5. Owens is considering implementing a program where students would be allotted a certain number of pages per semester that they may print with no charge. Any printouts or copies they produced after that allotment had been reached would be charged against a student's account. What would your opinion be of such a program?

- Very favorable*
- Somewhat favorable*
- Neither favorable nor unfavorable*
- Somewhat unfavorable*
- Extremely unfavorable*

6. Why do you say that?

7. If this program were put into place, how many pages would you recommend that students be allotted per semester?

- Less than 10*
- 11-20*
- 21-30*
- 31-40*
- 41-50*
- 51-100*
- 101-300*
- 301-500*
- More than 500*

8. What do you think would be a fair price per page for any printouts or copies produced over the allotment?

- \$.01-\$.02*
- \$.03-\$.05*
- \$.06-\$.10*
- \$.11-\$.15*
- \$.16-\$.25*
- \$.26-\$.50*
- \$.51-\$1*
- More than \$1*

9. Please indicate your level of agreement with each of the following statements.

<i>Strongly</i>	<i>Somewhat</i>	<i>Neither</i>	<i>Somewhat</i>	<i>Strongly</i>
<i>disagree</i>	<i>disagree</i>	<i>agree nor</i>	<i>agree</i>	<i>agree</i>
		<i>disagree</i>		

The state of the environment is of great interest to me

I am concerned about the amount of waste material produced by our society

It is a good idea to teach environmental responsibility to students as part of their total education

I would be interested in learning about ways to cut down on paper usage in the classroom

10. On average, how many courses do you teach per semester?

- 1
- 2
- 3
- 4
- 5 or more

11. Are you . . . ?

- Full time* *Part time*

12. With which campus are you mainly associated?

- Toledo*
- Findlay*
- Both*
- Neither*

Print Solutions Faculty Survey Overview of Findings

Introduction

There is a certain amount of waste at Owens exhibited by students' use of printing in the common computer labs. As of right now, the cost of printing is covered by general and lab fees, but aside from this, there is no control over the content and amount of student printing.

Many other schools, in this area and elsewhere, impose a limit on the amount students can print in a given term before they incur extra charges. In an effort to control waste and hold down material costs, Owens is considering a similar policy.

In August, 2008, a 2-page survey consisting of 11 questions was developed to poll faculty members about their classroom printing requirements for their students and to gauge their reaction to such a policy being put into place.

The electronic survey was sent out to all full time and adjunct faculty members on September 6, 2008. After allowing for a response period, the survey was closed on October 2, 2008 with 164 returns.

Faculty Demographics and Class Practices

The first section of the survey gathered information about faculty class load and campus. It then asked about the amount of printing required for the classes taught and the nature of this printing.

Faculty respondents were fairly evenly divided in number of classes they taught and between full time and part time. The majority was from Toledo vs. Findlay campuses (75% to 21%).

A narrow majority (58%) asked students to reproduce materials as part of their class work. Of these materials, they were most often class notes—for example, from Blackboard (31%), multiple copies of their own assignments (21%), Power Point presentations (18%), pages from the Internet and articles for inclusion with their reports or papers (both 17%).

Approximately one-third of respondents require their students to print less than 10 pages in a typical semester (33.9%). The rest require anywhere from 11 pages to more than 500. The mean number of pages required is 61.

Faculty Views of Printing Solutions

The second section of the survey asked faculty members to provide their opinions about the proposed plan in general and then gave them a chance to offer any thoughts or recommendations about how the program might be carried out.

The slight majority of respondents had a favorable response to the proposal (53%). About one-third had a negative response to it (32%). Faculty, we must read here, are not strongly behind this proposal, though the lack of strength behind those against it may suggest that there is some room to persuade more faculty members.

General Comments about Favorable/Unfavorable Response

After having rated their opinion of the program, respondents were asked to explain their reasoning. We broke down these comments by their overall rating so we could better understand their reasoning behind this rating.

Among those with a *strongly favorable* response, the comments related mainly to conservation and the students' need to improve their thoughtfulness in their use of resources. Favorable implications of costs to the school were also cited.

Those with a *somewhat favorable* response held many of the same views, but they also urged that students be trained in discerning ways to cut down on the amount of paper they used---for example, to print off PowerPoint as a handout. This group was also likely to say that students should not be charged extra for required printing and wanted to see steps taken to ensure that the determinations of costs was fair to students.

Respondents who held a *somewhat unfavorable* view of the proposal expressed concern with the quality of learning among students if they were faced with impediments in getting needed classroom materials. Implications for the students' budgets were mentioned, as the price of gas and books has gone up so much recently.

Those who were *strongly unfavorable* toward the proposal cited the financial hardship that it would cause for students. They stated that tuition and general fees should be sufficient to support the continuation of unlimited copies and printing and cited the current system as a benefit of going to Owens that students would miss. Problems with gathering data and controlling student usage were also often mentioned by this group.

Implementation of Proposal

Respondents were also queried about their ideas for implementing the program in terms of number of copies allowed and suggested cost of copies above the quota.

Responses were fairly evenly distributed across number of pages recommended, with most falling into the 51+ groups (72%). The average for recommended pages was 201.

Beyond the allotted quota, most respondents recommended \$.10 or less as a price per page (86%), with almost half of these suggesting a price of \$.03 - \$.05 per page (40%). The average price recommended was \$.04.

General Comments

The final section of the survey asked respondents to offer any additional thoughts or ideas that they had about the proposal. These largely reflected the comments they had made throughout the survey, though a number of themes were discernable.

Effect on Students

Making students more aware of their printing and more sensitive to its costs was cited as a benefit of such a program.

Several respondents expressed misgivings about the effect of the program on students' education. That is, if they were concerned about the cost, they might hold back on printing everything that they needed for a course.

Using the proposed program as a way to make students more reliant on their own note-taking was suggested as an opportunity.

Administration of Program

Several comments suggested that a flat fee be charged at the beginning of the semester to reduce the need to keep track of each student's printing record.

The importance of allowing some programs or courses some leniency in determining fair prices was underscored; some courses, it was noted, require far more printing than others. Also, students taking more courses should be allowed a more liberal quota.

Costs and numbers for the proposal were deemed hard to determine, especially for a reasonable cost per copy. The cost determination should be based upon actual costs to the school rather than upon an arbitrary number.

It was noted that Owens should not be using a print solutions program to make a profit.

Views on Proposal

Both good and bad overall comments were made about the program with about equal frequency. Some stated that such a program was long overdue. Others decried the plan as putting undue hardship on students and putting Owens into a bad light.

Conclusions

On the whole, there appears to be some neutrality and confusion on the part of faculty toward this proposed solution. While there is a tendency toward a favorable response toward it, it is very slight; and there are also very strong feelings against it among certain members.

Before such a program is put into place, a clear plan should be presented in terms of allowed pages and the cost for printing over and above that quota. Several of the comments suggested confusion about this aspect. If shown a strong and logically-arrived at plan, it is likely that other faculty members may more readily accept the plan.

In short, before moving forward, some effort to educate this group about the plan may be beneficial. It would also be helpful to arrive at the quotas and prices by involving faculty members from several disciplines in discussions about it.

Appendix 2 - Print Solutions Survey of OCC Students

Owens College Print Solutions Student Survey

With the recent economic crisis, colleges and universities across the state have been charged with cutting costs and helping to hold down expenses. Costs of ink and paper for printing have been rising steadily and we are looking to implement some changes to control these. As we contemplate these changes, we would like to hear your opinions about some of our proposed measures. Please take a few moments to complete the following survey. It should require no more than five minutes of your time and will give us valuable insights into the ways that students like you use the computer centers. Thank you very much for your assistance!

1. Please indicate your status at Owens Community College.

- Full time* *Part time*

2. On average, how many courses do you take each semester?

- 1* *2* *3* *4* *5 or more*

3. With which campus are you primarily associated?

- Toledo* *Findlay* *Both equally* *Neither*

4. How would you describe your use of the campus computer labs?

- I use the labs for all of my computing and printing needs*

- Daily*

- 1-4 times a week*

- Once a week*

- 2-3 times a month*

- Once a month*

- Less often than once a month*

- I never use the computer labs*

5. Please indicate how you view lab usage.

Computers are available in the labs for primarily academic use. I mainly use them to print assignments and papers for class

Computers are available in the labs for student use. I use them for email, social networking, and Internet access as well as printing my assignments and papers.

Computers are available in the labs as a benefit to students. I use them for whatever purpose I want, whether academic or personal use

6. What kind of material do you usually print in the computer labs? (Please check all that apply)

- Reports or papers*

- Articles for inclusion with reports or papers*

- Articles to share with other members of the class*

- Class notes or information from Blackboard*

- Email*

- Web pages*

- Power Point presentations*

- Multiple copies of my work*

- CAD drawings*

- Facebook or MySpace pages*

- Personal information such as schedules, income tax forms, etc.*

- I do not print anything in the computer labs*

7. How many pages, on average, would you estimate that you need to print for your class work in a typical semester?

- Fewer than 10
- 11-20
- 21-30
- 31-40
- 41-50
- 51-100
- 101-300
- 301-500
- 501-1000
- More than 1000

8. How many pages, on average, would you estimate that you personally print in the computer labs for any purpose (class-related or personal)?

- Fewer than 10
- 11-20
- 21-30
- 31-40
- 41-50
- 51-100
- 101-300
- 301-500
- 501-1000
- More than 1000

9. If you are taking online classes, how much of the available online material do you print in a typical semester?

- None
- Less than 25%
- 26% to 50%
- 51% to 75%
- 76% to 99%
- 100%

10. Power Point presentations can be printed with multiple slides on a single page. Are you aware of HOW to do this?

- Yes No

11. Power Point presentations can be printed with multiple slides on a single page. When you print them, do you use this feature?

- Yes No Sometimes

12. Owens is considering implementing a program where students would be allocated a certain numbers of pages per semester that they may print with no additional charges other than their general fee or lab fee. Past that number of pages, students would be charged per page for any additional printing. What would your opinion be of such a program?

- Very favorable
- Favorable
- Unfavorable
- Very unfavorable

13. If such a program were put into place, how many pages would you recommend that students would be allotted per semester?

- Less than 10*
- 11-20*
- 21-30*
- 31-40*
- 41-50*
- 51-100*
- 101-300*
- 301-500*
- 501-1000*
- More than 1000*

14. What do you think a fair price per page would be for printouts produced beyond the allotment?

- \$.01-\$.02*
- \$.03-\$.05*
- \$.06-\$.10*
- \$.11-\$.15*
- \$.16-\$.25*
- \$.26-\$.50*
- \$.51-\$1*
- More than \$1*

15. Please indicate your level of agreement with each of the following statements.

<i>Strongly agree</i>	<i>Somewhat agree</i>	<i>Neither agree nor disagree</i>	<i>Somewhat disagree</i>	<i>Strongly disagree</i>
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Faculty are not aware of the amount of printing required for their class

When faculty hand out a CD instead of a textbook or post materials to Blackboard, printing the material in the computer lab is a reasonable thing to do

I stop and think about the need to print before I actually print something

The state of the environment is of great interest to me

I am concerned about the amount of waste material produced by our society

It is a good idea to learn about environmental responsibility as part of your total education

I would be interested in learning about ways to cut down on paper usage in the computer labs

16. Which of the following do you have available for your use? (Please check all that apply)

- Computer at home*
- Computer at work*
- Internet access at home*
- Internet access at work*
- Inkjet printer at home*
- Inkjet printer at work*
- Laser printer at home*
- Laser printer at work*

Those are all of the questions. Thank you very much for your assistance!

Print Solutions Student Survey Overview of Findings

Introduction

The Print Solutions Team approached Institutional Research (IR) to conduct a student survey to determine students' current usage of the computer labs and to gauge their reaction to plans to limit the number of printouts they may produce each semester. The Print Solutions Team drafted a survey to this end and requested IR's assistance in refining it. Upon consultation with the Print Solutions Team leader, IR initially recommended that a survey be administered only to users of the computer labs. Suggestions were made to lessen survey bias and improve question construction. Whether a survey is the most appropriate research method to explore this question was also discussed. As the consultation continued, facts surfaced which caused IR to question whether the survey should be administered at all. Thereafter, the survey was fielded by the Print Solutions Team without IR involvement.

Survey Methodology

A 3-page survey consisting of 16 questions was devised. An invitation was sent out to all students in March, 2009. After allowing for an answering period, the survey was closed on March 15, 2009, at which time there were a total of 885 respondents, representing approximately 4% of the 21,707 students enrolled on the fourteenth day of the semester.

As this is a very low percentage of the total population, care must be taken in making inferences about the entire student body from the sample presented here.

Use of Computer Labs

To begin with, the way that students are currently using the labs was of interest. Students were asked about their usage of lab materials in terms of what they were printing and how much, as well as their attitudes about the role of the computer labs in meeting their needs.

Frequency of Use

Most students (65%) use the labs at least once a week, with 20% of these using it daily or for all of their needs. The labs were viewed as academic in nature, with 60% of respondents seeing them as primarily for academic uses and another 25% viewing them as equally for entertainment and assignment usage.

Material Printed

When they were asked what material they print most often, students' most often mentioned items included reports or papers (82%), class notes or Blackboard information (66%), articles for inclusion with reports or papers (55%), and Power Point presentations (47%).

The students' reporting of non-academic printing was very low: 11% reported printing web pages. 8% mentioned printing personal material such as schedules and forms, and just 2% reported printing Facebook and MySpace pages. As it would appear that there is far more printing of these materials than that reported, based on computer lab observation, one must take into account that the students polled might be whitewashing their usage for survey purposes. Aside from the small sample, this is another reason to look very carefully at survey results before drawing conclusions.

Number of Pages Printed

Students were likewise somewhat conservative in their self-reporting of number of pages printed for class usage: on average, they confessed to printing 180 pages per semester. Only about 10% reported printing more than 500 pages per semester for class-related work.

When asked how many pages they print per semester for any purpose, whether academic or personal, students were even more conservative, admitting to printing just 122 pages on average. Only 7% stated that they printed more than 500 pages for all purposes.

Since the computer labs apparently have seen far more usage than is reported here, one must again view the survey results very critically. Given the nature of the survey and the likelihood of cutting back a student's unlimited use of the computer labs based upon its results, it is in the respondents' best interests to understate their current usage.

Online Class Printing

A student in an online class would presumably be printing course materials from a source other than the computer lab---probably her or his own home system. The majority (62%) printed 50% or less of available class materials.

PowerPoint

Most respondents (77%) know how to print multiple PowerPoint slides on a page. Also, most do print them this way: 66% reported that they did so, with an additional 11% mentioning that they sometimes did so.

Reactions to Proposed Conservation Program

As may be expected in responding to a curtailment of a service that students may feel is owed to them or that they have paid for, reaction to the proposed limitations on printing was met with disapproval: 70% of students had an unfavorable or very unfavorable reaction.

If such a program were put into place, respondents suggested an average limit of about 400 pages per semester. Almost one-third (31%) suggested a limit of 500 pages or more.

The average cost suggested by respondents for copies made over the limit was .037, or four cents per page. The great majority (83%) suggested a cost of 5 cents or less.

Personal Views

Students were queried about their personal views on such topics as printing and conservation. The great majority (90%) stated that they thought about the need to print something before submitting it. Receiving class materials via Blackboard or in CD form or other electronic form was considered cause to print the materials out in the computer labs by 87% of the respondents. Most also felt that faculty members were not aware of the amount of printing required for their classes (76%).

Most students also expressed concern for the environment, with 86% saying they were interested in the state of the environment and 84% expressing concern about the amount of waste in our society. The majority also felt that learning about environmental responsibility was an important part of one's education (78%) and expressed interest in learning about ways to further conserve on waste, specifically in the computer labs.

These are all high-minded responses to a general view of the environment that cannot be demonstrated to affect the print habits of students. Note that the majority also expressed disapproval of measures to limit the amount of printing that they would be allowed to do in the future. It is recommended that no substantial inferences be made from the self-reporting on matters of environmental responsibility---except perhaps as a way to educate students or to soften the blow of an unpopular policy being put into place.

Technology

Students were questioned about the computer facilities available to them outside of the computer labs. Far more respondents reported having access to these facilities at home than at work. The following table shows this comparison.

	Have at Home	Have at Work
Computer	89.3	24.2
Internet access	83.1	23.0
Inkjet printer	58.3	13.2
Laser printer	12.4	12.7

The relatively fewer numbers of printers available compared to computers at home might be part of the reason why students use the labs for many of their printing needs. A program to help students get printers into their homes---perhaps through discounts bargained for through the bookstore---might be one way of selling the planned program or alleviating some of the heavy usage reported by the computer labs.

Limitations of the Study

First, fielding the survey to the entire student body was inappropriate. Polling those who have been actively using the labs over a period of one month may have given more representative results of what is actually going on there.

Second, students were asked questions that would elicit responses about their use/misuse of the printing in the computer lab. As has been noted, the respondents are likely to have responded in a way to understate their own misuses.

Third, the purpose of this survey is not made clear to the students. Rising costs in a crisis economy is mentioned, but the value of the students' opinions on the issue is not made clear.

Fourth, some of the language of the survey is biased to suggest what the correct or more acceptable answers are meant to be, which is likely to affect students' reporting of their actions and goals.

Concluding Remarks

This survey was fielded contrary to the advice of the Institutional Research Department.

Fielding of this survey was discouraged based on the following:

The committee in charge of producing this survey had already reached two opinions: 1) that students are currently abusing the system by printing a great deal of worthless, often personal material, and 2) that a program to curtail students' free use of the computer labs must and will be put into place despite students' protests. It is questionable whether the results of the survey would have any bearing on the eventual outcome to curtail the free use of printing in computer labs.

It is ill advised to survey students about a decision that has already been made with the thought of gleaning their consensus or to find ways to assess blame for irresponsible usage through such self-reporting.

Additionally, and perhaps most dangerously, being asked for one's opinion about an unpopular topic indicates that there may be some chance to allay an upcoming policy by expressing one's opinion of it. In fact, if the policy has already been decided upon, this survey may have seriously compromised students' acceptance of future opinion polls.