

Greener Office: Attitudes of Paper Consumers for Recycled Papers vs. Virgin Papers**Hyojik Charles Lee**

Abstract Quality of recycled paper has been improving and it is becoming more rival with the virgin papers. For about nine years, University of California, Press (U.C. Press) has been using virgin paper. Their previous attempts of switching virgin paper to recycled paper have created constant mechanical problems in copying machines and printers. Employees' continuous complaints about the quality of recycled paper eventually led U.C. Press to forgo its attempt. This study investigates current U.C. Press employees' view of recycled paper and the capability of recycled paper on copy machines/printers in attempt to shape the present attitudes and choices about recycled paper. To examine, all employees were asked to participate in an initial survey of their attitudes toward the recycled papers on subjective and objective views. Then, randomly designated printers and copy machines were loaded with recycled paper blinded from employees for one month. Final surveys were handed out to assess their experience of using the controlled paper. Results showed that the employees were inclined to switch the office paper to recycled papers because they were not able to differentiate two types of papers, and printers and copy machines showed minimal changes in performances.

Introduction

Recycling is an important approach to resource conservation because it requires limited behavioral modification. However, adopting recycling behavior can often prove complicated. From previous research we know that recycling is viewed as positive behavior and that the population embarks on recycling more than other environmental responsive behaviors, such as reuse and reduction (Barr, Gilg, and Ford 2001). Many people claim to recycle to save natural resources, to encourage a good work ethics, to reduce litter, waste and pollutions, and even to encourage creativity (Moledina, 2004). However, previous studies also imply that people's attitudes do not match their behavior (Bratt 1999). This can be observed more frequently with type of paper used on copy machines and printers. Although many consumers are aware of the importance and benefits of using recycled paper, rarely the machines are loaded with them.

In order to promote pro-environmental attitude, it is essential to understand and inspect people's participation in conservation and environmental activities (Johnson, Bowker, Cordell 2004). However, research implies that the frequency of people willing to recycle does not correlate with degree of actual waste reuse or reduction (Barr, Gilg, Ford 2001).

In the last decade, the quality of recycled paper has significantly improved. According to the California Integrated Waste Management Board, previous recycled papers were poor in quality and aesthetics. They were known to have complaints about lint, dusting, picking, limpness, jamming and splotches. The colors that the recycled papers used to come in were tan, brown, and spotted brown. After technological advances in the production of recycled paper, many of the recycled paper compete against the virgin sheets in printing processes, copiers, laser printers, and other paper equipments (Integrated Waste Management Board 2005). The colors of the recycled papers are no longer tan or brown; rather they are bright white or cream due to improved de-inking systems. In some cases, the flecked look of recycled paper is now grabbing more attention aesthetically. (Integrated Waste Management Board 2005). Research done by Conservatree in collaboration with the Recycled Paper Coalition in 2003, states that the paper-producing companies have invested much time and technology in order to create recycled paper with significant amount of recycled fiber which performs in copy machines and printers equivalent to that of the virgin papers for over 20 years (Kinsella 2000).

When I was an employee at U.C. Press working for Information Systems and Supply Management, I noticed that the paper consumption level was approximately 500 reams of paper per month. The paper used for office use only was "virgin" papers from Xerox

Company. Eight years prior, Pamela Wimberly, the Director of Administrative Services attempted to switch the office paper to recycled paper, but the switch created major problems (Wimberly 2005). Paper consumers complained about the feel of the recycled papers, frequency of jams on printing machines, and the deterioration and yellowing of the paper under exposure to light. Since then, U.C. Press has never decided to go back to using recycled paper.

Poor quality of recycled paper impeded efforts to shift to recycled paper in the U.C. Press eight years ago. Because of their fixed mindset on view of recycled paper and relation to their major problems, the U.C. Press had not evaluated current recycled paper products. I wanted to evaluate the employees' view of recycled paper to find out if they are still agree to the previous perception that recycled papers are not as good as virgin paper and whether this attitude creates a barrier to its use. My research asks the question, "After having an unpleasant experience with recycled paper few years ago, do office workers still prefer using virgin paper over recycled paper on paper feeding machines despite significant improvements in the quality of recycled paper?"

My hypothesis is that most of the employees at the U.C. Press may able to distinguish the difference between the recycled paper and the virgin paper by textures and colors. However they may not experience any discomfort of using recycled paper on paper feeding machines (low frequency of jams and splotches). Eventually they may insist on shifting completely toward use of recycled paper because it is more environmental friendly. As analyzed by Susan Kinsella, writer of the Fact Sheet: Buy Recycled Paper!, shows that the recycled papers are now in excellent qualities, meet the same standards as virgin papers, acid-free for longevity, and run successfully on most demanding copiers and printers. She also states that recycled papers are able to have wide range of colors from clean, bright whites to wide palette of colors, and that recycled papers are virtually available in difference grade of paper and available in any stores. The price difference is negligible due to very small difference and for that small fee, using recycled paper saves trees, energy, and water, protects forests and ecosystems, and produces less pollution than virgin paper production (Kinsella 2000).

Methods

U.C. Press a publishing company which has more than 100 employees and more than 14 printers and copy machines. Few different recycling methods have been adopted at U.C. Press over a period of time. Toner cartridges are being sent back to the original manufacturing company for refills, computer supplies are sent back for refurbish, papers and

boxes are dumped into recycling dumpster for the city to transport them to a recycling center (Wimberly 2005, personal communication). Although the U.C. Press already has few recycling programs which conserve resources, there are more to be done.

U.C. Press has been publishing books, journals, and articles for centuries. The employees at the U.C. Press are mainly working on desktop systems revising, editing the upcoming products, designing the cover pages and posters, calculating and organizing the finances for budgets. U.C. Press does not physically print out the books they publish to be shelved in the stores; rather the final drafts are sent to printing company which they do most or all of the multiple copy publications. Although from outside view, the U.C. Press does not seem to consume much paper, it is in fact not true. Within the U.C. Press, before publishing, the material needs to be constantly revised, and filed. Hundreds of copies from the printing machines are produced, and hundreds of printers are made from the laser printers

I conducted a small controlled experiment may show a clear point of view on the attitudes of recycled paper versus virgin paper, and be helpful in understanding responses to many different recycled products. To evaluate the attitudes of employees at U.C. Press of using recycled paper, I conducting my data collection in three parts. The first part involves conducting an initial survey, which is given to all employees at U.C. Press. The second part involves switching the paper from virgin paper to recycled paper in selected paper feeding machines. The switch is made blindly so that employees do not know that there has been a swap in the type of paper. Third part of the research involves compiling data collected from the second part of the experiment and surveying the employees again to compare the initial and final responses of the paper consumers.

Part I: The first part of the project involves conducting a survey on all the employees at U.C. Press. (A copy of the survey included in Appendix A.) To understand the employee's initial response and perspective of using recycled paper, I have formulated a survey that concentrates on two criteria: subjective and objective views about paper. I define "subjective view" as personal opinion reflecting his/her past experience of using recycled paper. This includes their current interpretation on recycled paper, and their concern for the paper currently being used in terms of brightness, performances, smudges, and resistance to tearing. Answers to the questions are analyzed to generalize overall employee's attitudes of recycled paper; what percentage of employees prefers recycled paper, what percentage prefers virgin paper. The survey includes question that assess what percentage of employees would like to keep using the virgin paper or change to recycled paper; percent who prefers recycled paper vs. percent who prefers virgin paper vs. percent who would like to have both accessible.

I define “objective view” as a personal observation not distorted by his/her bias. I am measuring paper users’ “objective view” by asking survey participants to identify two sheets of paper as either recycled paper or virgin. Thirty-five percent of employees receives virgin paper as first sample and recycled paper as second sample (referred as ‘white group’); twenty percent of the employees receives both virgin papers (referred as blue group’); twenty percent of the employees receives both recycled paper (referred as ‘red group’); and twenty-five percent of the employees receives recycled paper as first sample and virgin paper as second sample (referred as ‘green group’). They are asked which one of the paper they prefer using between two sheets, and if they can identify which one would be recycled paper.¹

Part II: The second part of the research involves replacing the paper from virgin to recycled paper on randomly selected machines. This effort has a dual purpose. The first is to collect additional, objective, comparative data on the performance of printers and copy machines using virgin paper and modern recycled paper. Because performance statistics for these machines are logged in the company’s IT system, I was able to collect data on operational performance (i.e. up time, down time, jamming, etc.) The second purpose is to provide office workers with experience using recycled paper without their knowledge. This “blind paper switch” provides a basis for questions in the survey in Part III.

I worked with the Director of Administrative Services to selected and purchase 35% post-consumed recycled paper from Viking Office Products. Viking Office Products recycled paper has similar statistics as virgin paper currently being used (84 brightness, 20 lbs pressed) and is advertised as a high performance, jam-free product. We placed this recycled paper in selected printers and copy machines without allowing the employees to know that it has been replaced. I switched the paper on two floors and left the one of the floor with virgin paper in the machines.

Because the statistics for the laser printers and copy machines are logged through a Help Desk system, once there has been an error or problem with a machine, a user is allowed to submit a request that is reported to the tech-support department. The error logs provide a record of hours of operation for individual machines. I evaluated each problem to determine if the error or problem was related to the type of paper that was being used, or just a machine malfunction.

¹ Each survey was labeled with numerical value so that I can correlate the surveyor’s initial response with the response from the second survey.

One of the drawbacks of relying on Help Desk system is the potential for under-reporting. Because the system depends upon reporting by users, minor problems, such as simple paper jams, may not be reported, particularly if employees fix the problem without reporting it to the Help Desk system. To reduce the number of unrecorded failures, I left a tag on every machine indicating that the machine was under experiment and that if there are any errors or problems occurred, they must be reported or logged. I attached a clipboard to each machine to allow the users to manually report any minor errors and problems or to leave comments.

During the period of this paper switch, I made frequent visits to U.C. Press to check the status of the paper in every machine and eliminate error from employees' loading any other type of paper on their own. I left stacks of unwrapped corresponding paper for the floor next to the printers and copiers to allow users to load incase I do not load it up in time and left a note informing users to use only this paper.

Part III: The final part of the experiment involves conducting another survey. This survey contains the statistical data collected from the second part of the research. It solicits paper consumer's attitudes by asking questions about their overall experience with recycled paper and afterwards, their attitudes about recycled paper. In combination with data from the initial survey, these data were used to determine the extent to which users' attitudes changed.

Results

The initial survey was handed out to all 103 employees at U.C. Press and a total of 60 responses were collected. These data show that majority of the people who tried using recycled paper prefer to stay with recycled paper and prefers to use recycled paper if available. (see Figure.1).

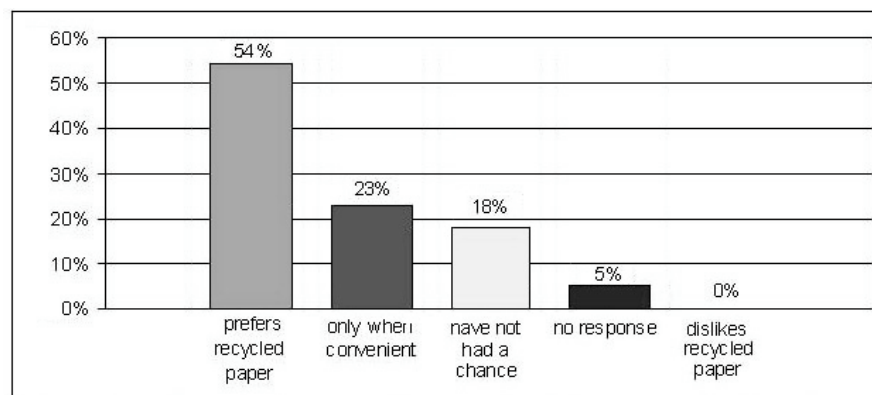


Figure 1. Employee's preference on recycled paper reflecting to their past experience in percentage.

More than half of the employees who responded stated that they actually prefer using recycled paper over virgin paper. There was also no one who stated that he/she dislikes recycled paper for any reason. When employees were asked for the matter of concern regarding the quality of current virgin paper that is being used, 36 out of 60 (60%) of the people responded that they had no concern regarding the current virgin paper. But 23 others (38.3%) showed that the quality of virgin paper was a matter of concern for them. These 23 people were allowed to give a numeric value that correspond to their satisfaction in scale of one to five (1 lowest, 5 highest), on criteria of brightness, performance, resistance, and smudges. I assigned a value respect to the satisfaction level and summed up the values then

divided by the 'most satisfaction' value (5 x total number of response). Table 1 shows the percentage of satisfaction of current paper. It can be

Characteristics	need to improve	1	2	3	4	5	satisfied	Percent
Brightness (no-res=1)		0	2	2	5	13		86.40%
Performance		2	1	9	4	7		71.30%
Resistance		1	1	4	5	12		82.60%
Smudges		0	2	5	4	12		82.60%

Table 1. Chart of employee's response of those who are concerned with current quality of paper and their satisfaction percentage.

inferred that those 23 employees are, taking average of all characteristics percentage, 80.73% satisfied with current virgin paper. When consumers were asked whether or not they were concerned about using certain type of paper, either recycled paper or virgin paper, for their office use, 60% of the replies showed that they were concerned and 38.3% stated that it was no concern (1 person had no response). When employees were asked to show the importance of using virgin paper at U.C. Press, they showed mere 37.6% importance. When they were asked to show the importance of using recycled paper for conservation, they showed over 95% importance. (see Table 2.)

	not important	1	2	3	4	5	important	Percent
virgin paper fitting for work		15	4	1	4	1		37.60%
recycled paper for conservation		0	0	1	5	28		95.88%

Table 2. Employees' persuaded reason for using a choice of their paper

The second part of the initial survey asked questions regarding two types of paper that were attached. This part of the survey was to analyze whether or not the employees are able to tell the difference between two attached sheets of paper. Table 3 shows the chart of four group's responses. Because the sample size was relatively small, and the responses were very scattered and inconsistent, it has been advised that no form of statistical analysis was adequate.

White group		Unsatisfied	1	2	3	4	5	Satisfied					
Virgin	Attachment 1	0	0	2	1	17				beliefs	Virgin	Recycled	Not-Sure
Recycled	Attachment 2	0	3	2	3	12					11	3	6
										1	13	6	
Blue group		Unsatisfied	1	2	3	4	5	Satisfied					
Virgin	Attachment 1	0	0	0	2	10				beliefs	Virgin	Recycled	Not-Sure
Virgin	Attachment 2	0	0	2	1	9					8	1	3
										1	8	3	
Red group		Unsatisfied	1	2	3	4	5	Satisfied					
Recycled	Attachment 1	0	0	0	3	11				beliefs	Virgin	Recycled	Not-Sure
Recycled	Attachment 2	0	0	1	2	11					0	1	13
										1	2	11	
Green group		Unsatisfied	1	2	3	4	5	Satisfied					
Recycled	Attachment 1	0	1	2	1	10				beliefs	Virgin	Recycled	Not-Sure
Virgin	Attachment 2	0	1	2	7	5					6	6	2
										6	6	2	

Table 3. Chart of four different group's response to two attached sheets of paper. White group received virgin and recycled. Blue group received both virgin. Red group received both recycled. Green group received recycled and virgin.

White group received attachments of virgin paper as first and recycled as second. The White group was able to distinguish the two types of paper accurately. Majority of the employees in this group were more satisfied with the first attachment, the virgin paper; 95% of the responses stated that virgin paper quality was satisfying to them. Fewer employees were happy with the second attachment, recycled paper; 84% of the responses stated that recycled paper was satisfying to them. When they were asked to guess for the type of paper, whether it is virgin, recycled or not sure, majority of people were able to accurately guess the type of paper. The Blue group showed interesting response. They were given both virgin papers and were asked same questions. Although high percent of group were satisfied with sheets that were attached, first sheet 97% and second sheet 92%, they were unable to conclude that the two attachments were same type of paper. They concluded first sheet was virgin, yet second sheet was recycled. Red group showed confusion in their view of the attachments. They were given both recycled paper as attachments. Employees in Red group were as satisfied as the Blue group, first sheet 95.71% and second sheet 94.29%. But they were unable to predict whether these papers were recycled or virgin. Majority of the responses were "not-sure". The last group, Green group, also had different response than those of the other groups. Green group received first sheet as recycled and second sheet as virgin. Their response shows that 88.57% satisfaction on the first attachment, and 87.14%

satisfaction on second attachment. Half of the respondents believed that first was recycled, yet the other half believed that second was recycled.

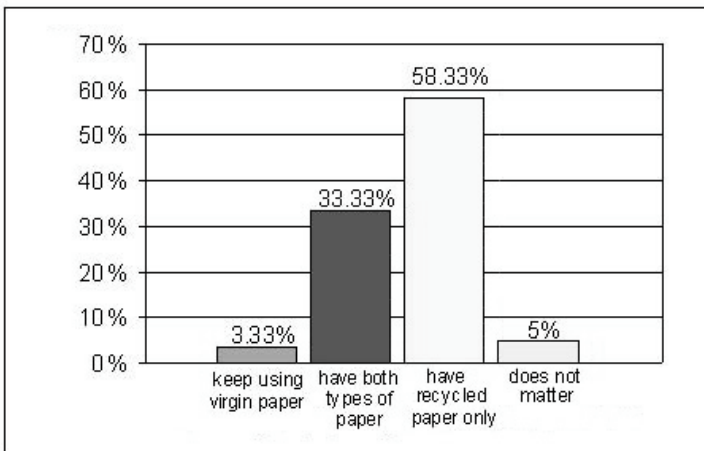


Figure 2. Employee's preference on choice of paper to be used at U.C. Press

Survey also asked for their preference on the type of paper to be used in future. 58.3% of the responses voted for using recycled paper only in the U.C. Press. 33.3% wanted to have both, recycled and virgin paper available. Only 3.3% wanted to stay with virgin paper for office use. (see Figure 2.)

The last part of the survey asked regarding problems they would anticipate using recycled paper on the printers and copiers. Only 22 responded to this part of the survey, and 9 of the responses showed that they anticipated on having much more frequent jams and 7 of the responses showed easier tearing of the recycled paper.

The second part of the experiment was replacing the papers on copy machines and printers. In February, I collected baseline data about the performance of virgin paper in the copy machines and printers. The report shows that the operation time has been almost unaffected. All of the machines, except one, were 100% available without reating any problems for the employees to use. (see Table 4.)

February

Machine Name	# of problems	Down Time (Hours)	Up time (Hours)	Total Hours	Percentage Available	Reported Jams
1st floor Konica Copier	0	0	180	180	100.00%	0
1st floor Business	0	0	180	180	100.00%	0
1st floor Ed-North	0	0	180	180	100.00%	0
1st floor Ed-South	0	0	180	180	100.00%	0
1st floor EMS	0	0	180	180	100.00%	0
2nd floor Lanier Copier	0	0	180	180	100.00%	0
2nd floor Publicity	0	0	180	180	100.00%	0
2nd floor EMS	0	0	180	180	100.00%	0
2nd floor Design	0	0	180	180	100.00%	0
3rd floor Lanier Copier	0	0	180	180	100.00%	0
3rd floor Payroll	0	0	180	180	100.00%	0
3rd floor DevNew	2	0.5	179.5	180	99.72%	2
3rd floor Morge	0	0	180	180	100.00%	0
3rd floor Publicity	0	0	180	180	100.00%	0

Table 4. Statistical report of copy machines and printers for month of February, 2006

In March, I carried out the paper switch. Table 5 shows that, relative to February, the percent available has decreased compared to that of the previous month. The number of

reported jams are also has increased by six times. Notice that 3rd floor printer, DevNew, has fallen below 90%.

March

Machine Name	# of problems	Down Time (Hours)	Up time (Hours)	Total Hours	Percentage Available	Reported Jams
1st floor Konica Copier	0	0	180	180	100.00%	0
1st floor Business	0	0	180	180	100.00%	0
1st floor Ed-North	0	0	180	180	100.00%	0
1st floor Ed-South	0	0	180	180	100.00%	0
1st floor EMS	4	4.5	175.5	180	97.50%	7
2nd floor Lanier Copier	1	1	179	180	99.40%	2
2nd floor Publicity	0	0	180	180	100.00%	0
2nd floor EMS	0	0	180	180	100.00%	0
2nd floor Design	0	0	180	180	100.00%	0
3rd floor Lanier Copier	3	13	167	180	92.80%	0
3rd floor Payroll	0	0	180	180	100.00%	0
3rd floor DevNew	3	20	160	180	88.88%	3
3rd floor Morge	0	0	180	180	100.00%	0
3rd floor Publicity	0	0	180	180	100.00%	0

Table 5. Statistical report of copy machines and printers for month of March, 2006

During the second part of the experiment, I was able to obtain not only the statistical data but also to learn about attitudes that employees had against the recycled papers. As shown in Figure 7, 2nd floor Lanier Copier indicated two incidents of paper jams. Pamela Wimberly approached and informed me that two employees were agitated with the frequency of jams occurring in the 2nd floor copy machine and they pointed the problem must be the quality of recycled paper. However, note that the 2nd floor was a floor that used virgin paper on copy machines and printers.

For final survey, 60 surveys were handed out to those who participated with initial survey. 40 responses were received; 14 responses from first floor, 13 responses from second floor, and 13 responses from the third floor. Responses from each of the floors were very similar to each other. On all floors, 7 consumers were mutually satisfied with the quality of the paper that was used during the month of March, 6 consumers were very satisfied, and only one consumer felt unsatisfied from the first floor. The paper consumer from first floor and third floor felt that the most frequently occurring problem was paper jams on printers and copy machines; 3 consumers experienced paper jams from first floor, one consumer experienced from second floor, and 7 consumers experienced paper jams from third floor. When asked regarding the quality of paper for each floor, only one person from first floor felt that the texture of the paper was an issue; all the other responses had no problem regarding the quality of the paper. Assessing the opinions made from the floors that used recycled paper, we can notice the shift in the perception of preference on choice of papers to be used for U.C. Press. (see Figure 3.) Comparing to the preference on choice of paper compiled from the initial survey, we can see that more percentage of people have shifted to use virgin

paper; initially 3.33% has increased to 21%. Slight increase in the preference on having both virgin and recycled paper can be noticed as well; from 33.3% to 37.5%. Noticeable decrease in the preference of using recycled paper has been also noted; from 58.3% to 41.5%.

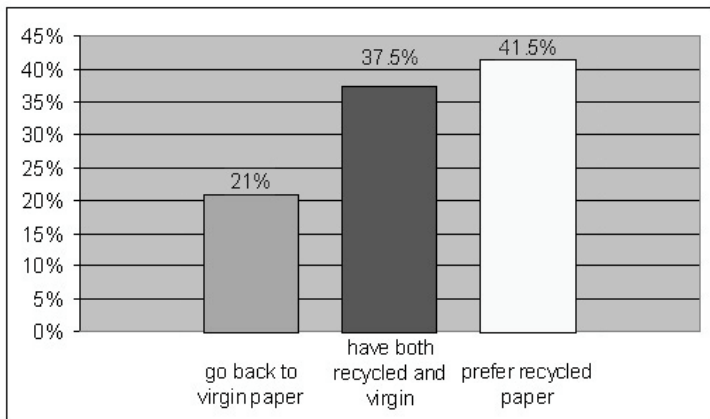


Figure 3. Employees Preference on choice of paper used at U.C. Press after using recycled paper for one month.

The survey was handed out with the charts, figure 6 and figure 7, for comparison. 22 consumers felt there was noticeable decrease in the percentage of operation time and 18 consumers felt that the difference was insignificant.

As a final part of the survey, employees were asked to predict which type of paper they have been

using in the month of March. The first floor responses were that 11 consumers predicted that the paper was recycled, one person believed it to be virgin, and two consumers had no idea. The second floor showed more interesting results; 10 consumers believed it to be recycled, and three people stated not sure, and no one thought it was virgin paper. The third floor showed that eight consumers predicted it was recycled, two consumers believed it to be virgin paper, and three consumers were not sure.

Discussion

From the results of the initial survey shown above, I infer that employees at U.C. Press prefers to use recycled paper even though they perceive it as lower quality than that of virgin paper. The employee’s main were least satisfied with the performance of the previous virgin paper that was being used. Brightness of the paper was considered least worry to their matter of concern. Employees had fixture of idea that recycled papers are less bright than that of the virgin paper and many of them stated that on recycled paper, fine grains and streaks can be visible under light. Initial survey proved that it was rather difficult to identify the difference between recycled paper and virgin paper. White group were the only group who identified two attachments to the survey correctly. Blue group seemed to have fixed idea that first attachment and second attachments has to be different, therefore making assumption that second attachment is recycled paper. Red group was most confused in identifying the types of paper that they concluded by stating “not-sure” as their choice. I expected that Green group to successfully identify two attachments; first as recycled and second as virgin. But

they also were unsuccessful in that half of the group believed first was recycled and the other half believed second was recycled. I have concluded that when people are given a sheet of paper, they are unable to identify whether the paper is recycled or virgin paper.

The second part of experiment shows that there is slight level of decrease in over-all operation time of copy machines and printers. I have made an effort to keep up with the demand of required paper on the floors by making everyday visit to U.C. Press. But it was inevitable to see a wrong type of paper being loaded to a copy machine or printer. Even though I have left notes on each machine stating not to load any type of paper, I found mismatching ream of paper stacked next to the machine. I have continuously removed the mismatching paper away from the machines, but it was difficult task to keep up with.

During the second phase of my research, I observed the two machines, 1st floor EMS printer and 3rd floor DevNew printer, which has much more incidents of jam reports and complaints from the employees. I have noticed that two machines were similar models, and that they were one of the oldest printers. I have observed that two printers were under-maintained; each machine required a maintenance check up every 350,000 prints but the number of prints since last check up was near 1,200,000 copies on both machines.

The final survey results shows that in general, employees still preferred to use recycled paper over virgin paper. But comparing the results from the initial survey, the percentage of those who preferred virgin paper has increased while the percentage of those preferring recycled paper has decreased. Judging by the results that majority of employees believed the type of paper used in March was recycled paper, I believe they had a bias view of paper that experimental paper has to be recycled paper. This fixed thought of believing that experimental paper is recycled paper would have given them a bias view that the frequency of jams occurring on second floor is triggered by the poor quality of recycled paper.

I believe that my experiment at U.C. Press proves that the paper consumers have bias view of recycled paper as poorer quality than that of the virgin paper, even though they are unable to distinguish the difference between virgin paper and recycled paper. Although the results from second phase of the experiment shows that the jamming has occurred more frequently, these jams are concentrated on two printers that are seem to have poor maintenance issues. If two of the machines in the U.C. Press is causing majority of the jams and problems, I feel that it may be a better choice to replace the old, problematic machines and continue to use recycled paper. I feel that it is very difficult task to defy the view of the employees' attitudes toward the recycled paper, but I believe it is possible to replace the

current use of office paper to recycled paper for conservational purposes with proper maintenance of printers and copy machines.

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Appendix A. Survey Phase 1

Please put an “x” in the boxes for your response.

1. Please indicate your closest past experience of using recycled paper for office use:

- ? I have tried using recycled paper, (go to A.)
- ? I have never tried using recycled paper (go to B.)
- A. What is the closest response of using recycled paper?
 - ? I prefer using recycled paper over virgin paper
 - ? I use recycled paper only when convenient
 - ? I do not like using recycled paper
- B. What is the closest response of not using recycled paper?
 - ? I do not like recycled products
 - ? I have not had a chance

2. Has the quality of paper at the UC Press been a matter of concern for you?

- ? yes
- ? no

If yes, please indicate areas and degrees of concern below

Characteristics	need to improve	1	2	3	4	5	satisfied
Brightness		?	?	?	?	?	
Performance (jams on the machines)		?	?	?	?	?	
Resistance to Tearing		?	?	?	?	?	
Smudges (from inks/toners)		?	?	?	?	?	

3. Does it concern you what paper, either recycled paper or virgin paper, is used in the paper feeding machines, such as printers and copiers reflecting your office work?

- ? yes (go to next question)
- ? no (skip next question)

4. Referring to question 3, what persuades you to prefer to use that type of paper? (please circle the degree of importance)

- using non-recycled paper is more suitable, and necessary for my job
 - Not Important - 1 - 2 - 3 - 4 - 5 - Important
- using recycled-paper to aid in conserving resources
 - Not Important - 1 - 2 - 3 - 4 - 5 - Important
- others (please specify:

5. Attached with this survey are two blank sheets of papers. Are you satisfied with the quality of the paper for each attachment?

Attachments	unsatisfied	1	2	3	4	5	comfortable
Attachment 1		?	?	?	?	?	
Attachment 2		?	?	?	?	?	

6. There are two attached sheets. Please circle:

“I believe the attachment 1 is: recycled / non-recycled / not-sure”

“I believe the attachment 2 is: recycled / non-recycled / not-sure”

7. What, if any, differences do you perceive between the two attached sheets?

8. Currently, UC Press uses non-recycled paper. Would you prefer that UC Press:

- ? Keep using non-recycled paper
- ? Have both recycled and non-recycled paper
- ? Switch to using recycled paper only
- ? Does not matter to me.

9. Do you anticipate that you would encounter problems if you used recycled paper in the printers or copiers? (please indicate all that applies)

- ? Frequent jams in the machine
- ? Smudging of the inks
- ? Faster yellowing of the paper
- ? Easier tearing of the paper
- ? Other (please specify:

Thank you for your participation. If you have any questions regarding this survey, please send e-mail to hyojiggy@hotmail.com

Appendix B. Survey Phase II

Please put an "x" in the boxes for your response.

1. Which floor do you primarily use the copy machines and printers for your office work?

? 1st floor ? 2nd floor ? 3rd floor

2. During the month of March, how satisfied were you with the quality of the paper in copy machines and printers? Please circle.

Unsatisfied Mutually Satisfied Very Satisfied

3. Please indicate the problem(s) you experienced regarding the paper used on copy machines and printers in the month of March?

- ? Frequent jams in the machine
- ? Smudging of the inks
- ? Creasing from the machine
- ? None of the above
- ? Other (please specify:

4. What was the main problem you experienced regarding the quality of the paper that was used in the month of March?

- ? Easier tearing
- ? Faster yellowing of paper
- ? Poor texture of the paper
- ? None of the above
- ? Other (please specify:

5. Your commonly used printers and copy machines may have been loaded with different type of paper than that of previous month. Please check one of the boxes below that you mostly agree.

- ? Printers and copy machines worked fine and I like to stay with the experimented paper
- ? Printers and copy machines had problems and I like to go back to using previous virgin paper
- ? Either type of paper worked fine and it does not matter which type is used in future.

6. The following charts show printers and copy machines reports of past two months, February and March. These charts represents the available operation time of individual machines that were under the experiment.

February						
Machine Name	# of problems	Down Time (Hours)	Up time (Hours)	Total Hours	Percentage Available	Reported Jams
1st floor Konica Copier	0	0	180	180	100.00%	0
1st floor Business	0	0	180	180	100.00%	0
1st floor Ed-North	0	0	180	180	100.00%	0
1st floor Ed-South	0	0	180	180	100.00%	0
1st floor EMS	0	0	180	180	100.00%	0
2nd floor Lanier Copier	0	0	180	180	100.00%	0
2nd floor Publicity	0	0	180	180	100.00%	0
2nd floor EMS	0	0	180	180	100.00%	0
2nd floor Design	0	0	180	180	100.00%	0
3rd floor Lanier Copier	0	0	180	180	100.00%	0
3rd floor Payroll	0	0	180	180	100.00%	0
3rd floor DevNew	2	0.5	179.5	180	99.72%	2
3rd floor Morge	0	0	180	180	100.00%	0
3rd floor Publicity	0	0	180	180	100.00%	0

March						
Machine Name	# of problems	Down Time (Hours)	Up time (Hours)	Total Hours	Percentage Available	Reported Jams
1st floor Konica Copier	0	0	180	180	100.00%	0
1st floor Business	0	0	180	180	100.00%	0
1st floor Ed-North	0	0	180	180	100.00%	0
1st floor Ed-South	0	0	180	180	100.00%	0
1st floor EMS	4	4.5	175.5	180	97.50%	7
2nd floor Lanier Copier	1	1	179	180	99.40%	2
2nd floor Publicity	0	0	180	180	100.00%	0
2nd floor EMS	0	0	180	180	100.00%	0
2nd floor Design	0	0	180	180	100.00%	0
3rd floor Lanier Copier	3	13	167	180	92.80%	0
3rd floor Payroll	0	0	180	180	100.00%	0
3rd floor DevNew	3	20	160	180	88.88%	3
3rd floor Morge	0	0	180	180	100.00%	0
3rd floor Publicity	0	0	180	180	100.00%	0

Do you perceive any significant difference in data? Please check

? yes

? no

Reasoning of your answer:

7. Please circle:

“I believe that the I was using **VIRGIN** / **RECYCLED** paper during the experiment”

Thank you for your participation. If you have any questions regarding this survey, please send an e-mail to hyojiggy@hotmail.com