

**INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH  
TECHNOLOGY****PREFERENCE OF OBSERVERS BETWEEN OFFSET AND DIGITAL PRINTING****Ms.Pinki\***

\*Ms.Pinki, M.tech (Printing Technology), Dept. of Printing Technology, GJUS&amp;T, Hisar

DOI: 10.5281/zenodo.834522

**ABSTRACT**

The focus of this paper is to compare the offset and digital printing according to the view of the observers. A test chart was prepared and printed by digital and offset printing and after that a survey was conducted on observers and their choice for colour was marked on the paper. And then the data was analysed.

**I. INTRODUCTION**

The huge growth of the digital printing market has brought more options and exciting new features to today's commercial printing. But from our experience it's also brought some confusion. An understanding of the advantages and disadvantages of digital printing and how this compares to traditional lithography is critical in making the right choice for your printing. The choice will always be the best possible process for that particular job and those observers. For most of your printing needs, either offset or digital printing will be best suited. However, there is no single and simple answer to the question which of these two most common printing technologies is better. While it is true that the right choice of printing method for your project can save you time, money and stress.

Offset printing is the traditional and conventional online printing method and has changed very little in the past century. Digital printing is a sector with rapidly evolving technology and new technical advancements every year, so there is a constant growth of new options and features for commercial printing. It has also introduced some confusion for customers and graphic designers on what is possible, better or best practice. Since the right choice of printing method depends on several factors specific to the job or product you want to create, and understanding of the advantages or disadvantages of digital and offset printing is definitely helpful. In the following, we will give you an overview of what you need to know to decide on digital vs. offset.

To the untrained eye, a finished print product of either offset or digital printing can look very similar. As a rule of thumb, some people say that offset printing will offer better quality, but that is only true for some aspects, for example when you do one print run this month and another one month later and need both to look exactly identical. Rather than focusing on quality alone, the choice between the two methods boils down to factors such as material available, time, cost, finishing and custom options. Traditionally, offset printing uses four-color printing machines with a series of four ink rollers, one for each specified ink: Cyan, Magenta, Yellow, and Black. Offset machines can also have one or two rollers for just one or two colour prints and grey scale, or more than four to add special colours, such as gold or silver or even a special finishing, like a varnish or glossy coat. Digital printing does not require the numerous setup steps of offset printing, as there are no plates involved. Laser and inkjet printers use a four-color-matching process and the CMYK colour space. Colour laser printers typically have one toner cartridge per colour, whereas high quality inkjet printers used for fine art prints often have a variety of nuances, for example light Cyan or photo black.

**Digital Printing Pros**

- Shorter turnaround: Depending on the size of your print job, you can expect a finished product fairly quickly. Digital print professionals use high-volume laser printers, and walk-in places can offer you same-day service for a variety of products and print jobs. For products such as business cards or flyers, any quantity below 500 units is typically considered well-suited for digital printing.
- Digital printing is the go-to method for on-demand printing, especially when only a small number or just a single unit of a product is needed. Digital printing can also be used to quickly produce dummies before an

offset print run. For fine art prints, digital inkjet reproductions can be printed (and sold) individually according to demand.

- Fine art printing offers artists new possibilities for mixed-media work. They print on materials such as canvas and further treat or work on the surface, making each print an “original.” Fine art printing also offers reproductions of “archival quality” or “museum quality.”
- Cost: digital printing allows for cheaper low volume printing, both with laser or inkjet printers. Depending on volume, product and material, there are certain constellations where digital printing is able to offer a cheaper total cost than offset printing.
- Time: compared to offset printing, the setup cost per print job is minimal. Digital printing is able to produce a first printed sheet within minutes and it is possible to make on-the-fly adjustments to correct colours.
- Variable data: With digital printing, it becomes possible to customize each printed product. For example, you can insert successive numbers on tickets, print an address on letters, postcards or stickers and further customize print products. Variable data printing is generally used for marketing, customer relationship management and advertising.

### Digital Printing Cons

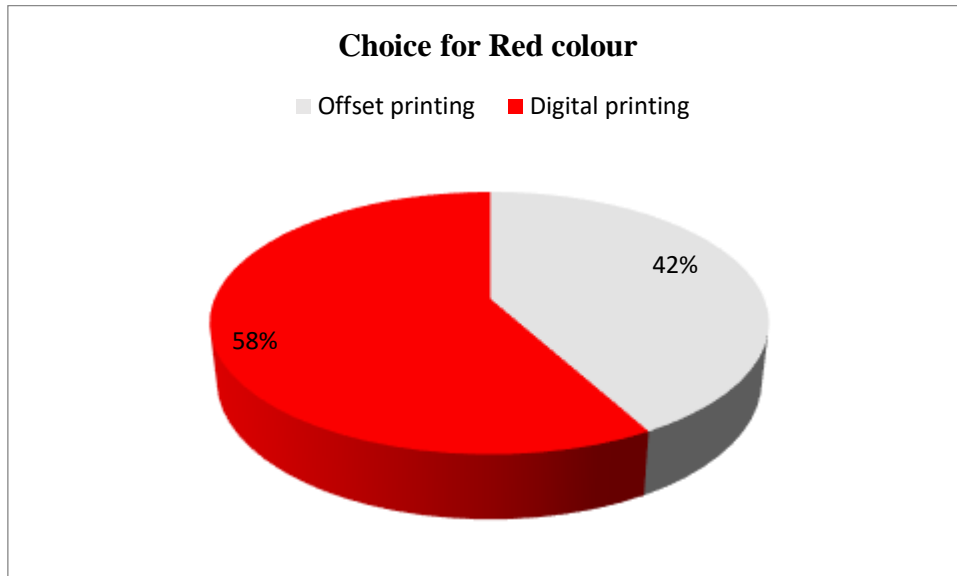
- Cost: Digital printing generally has a higher cost per unit compared to offset printing. This is somewhat offset by the setup costs, and very often, by the time factor. Digital printing is a fast solution. In fine art inkjet printing, reproductions or prints are also more expensive on a per-print basis.
- Limited Size: A digital laser printer can only accommodate individual sheets of about 19 inch by 13 inch. Large format inkjet printers commonly use rolls between 36 inches and 44 inches in width.
- Material: because digital laser printing uses heat to fixate the toner on the paper, a certain warping effect can occur. Generally, this is more for the printer to worry about, but it introduces limitation on the material. Digital printing is not only limited to paper and can print on adhesives or some durable material, but the choice of options is more limited than for offset printing. For best results, laser printers require a smooth surface of the material.
- In digital printing, not every print is the same. In large print runs, a difference or shift can occur, and results can vary depending on paper, machine calibration and even humidity. It requires a skilled printer to ensure quality and continuous results. It is also more difficult to produce two identical print runs on different machines or even the same machine. The varying factor often becomes apparent in large areas of a single color. With offset printing, you can expect a homogeneous single color, but digital printing often displays a certain cloudy effect.

## II. RESEARCH METHODOLOGY & DATA ANALYSIS

A test chart was prepared and printed by digital and offset printing and after that a survey was conducted on hundred observers. All age group of observer were included in this survey and their choice for colour was marked on the paper. And then the data was analysed to get appropriate result.

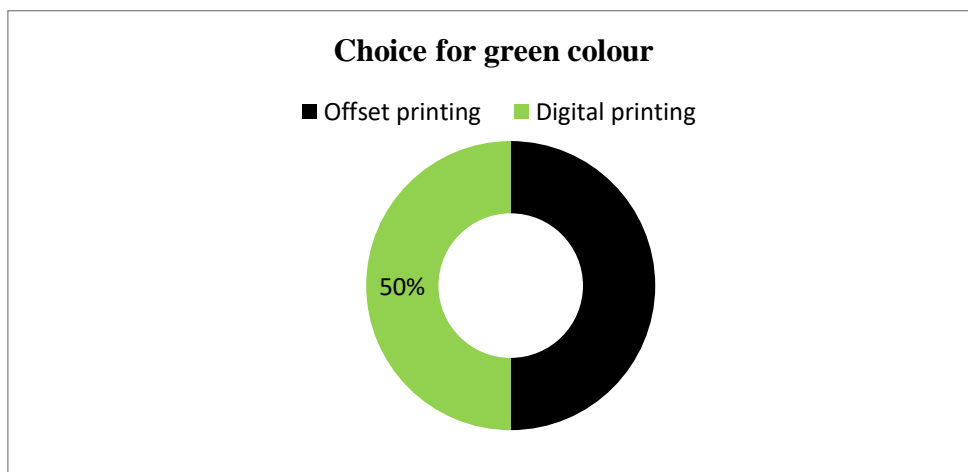
**Data analysis**

**Choice for red colour:** 42% people like offset printing and 58% people like digital printing. (Fig.1)



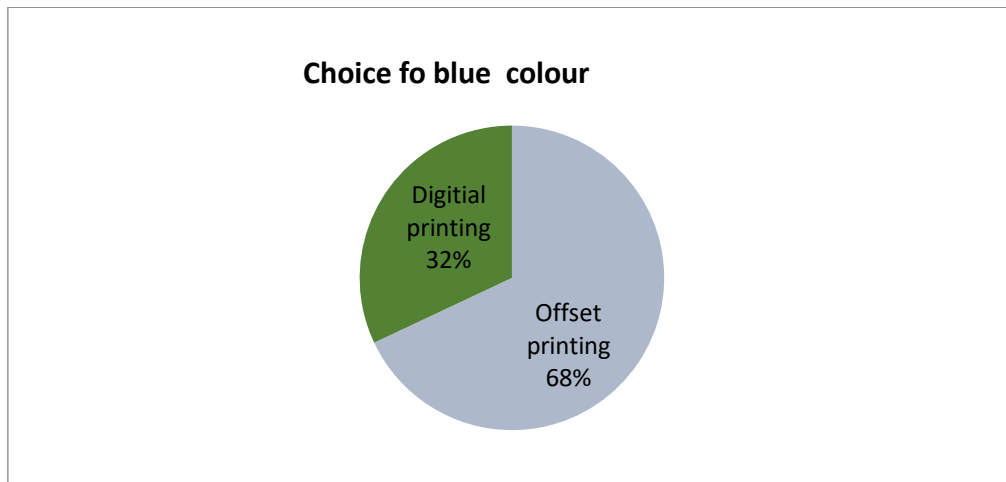
(Fig.1)

**Choice for Green colour:** 50% people like offset and 50% people like digital printing. (Fig.2)



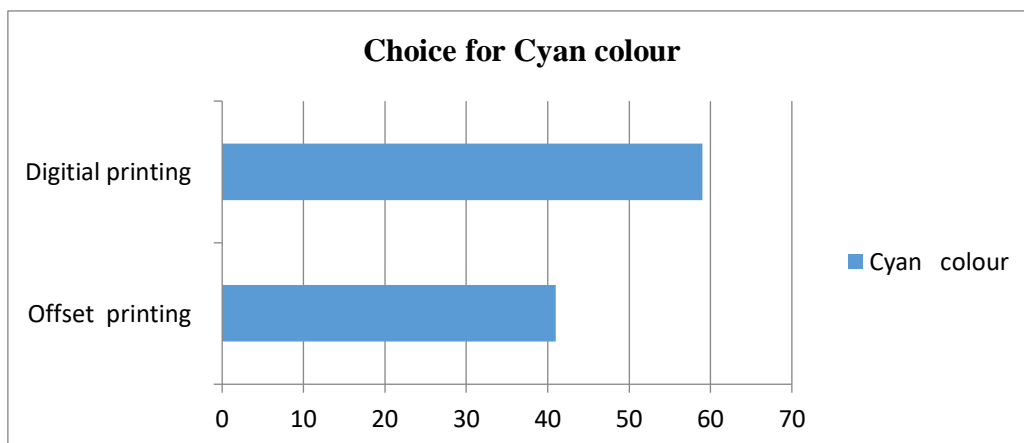
(Fig.2)

**Choice for Blue colour:** 68% observers like offset printing and 32 people like digital printing.(Fig.3)



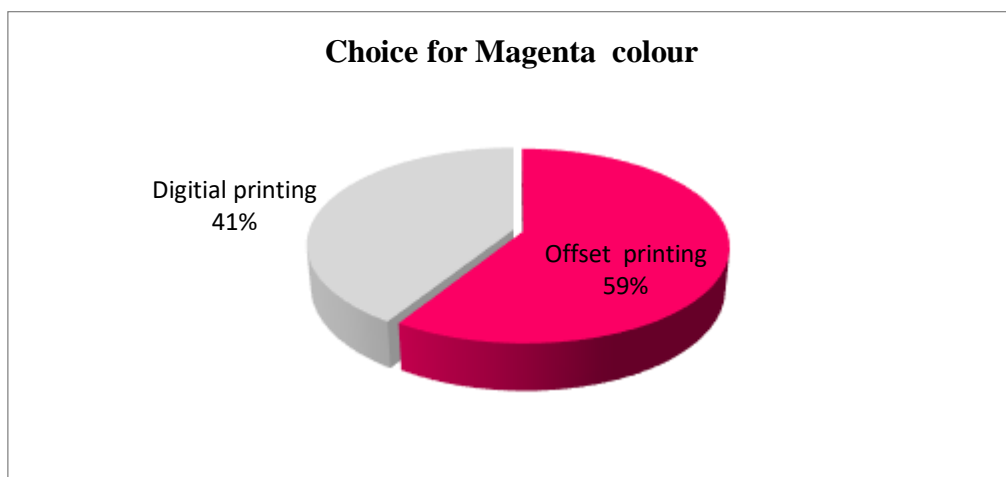
(Fig.3)

**Choice for cyan colour:** 41% people like cyan and 59 % people like digital printing.(Fig.4)



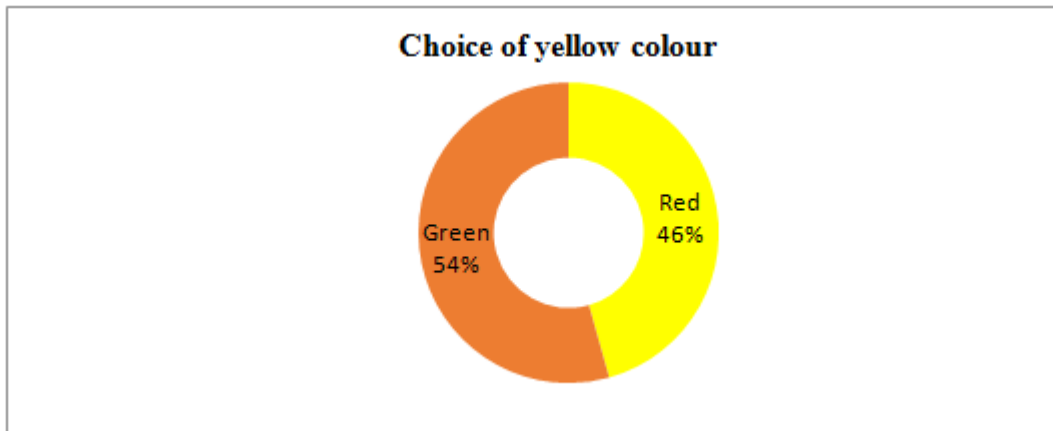
(Fig.4)

**Choice for magenta colour:** 59% people like offset ad 41 like digital printing.(Fig.5)



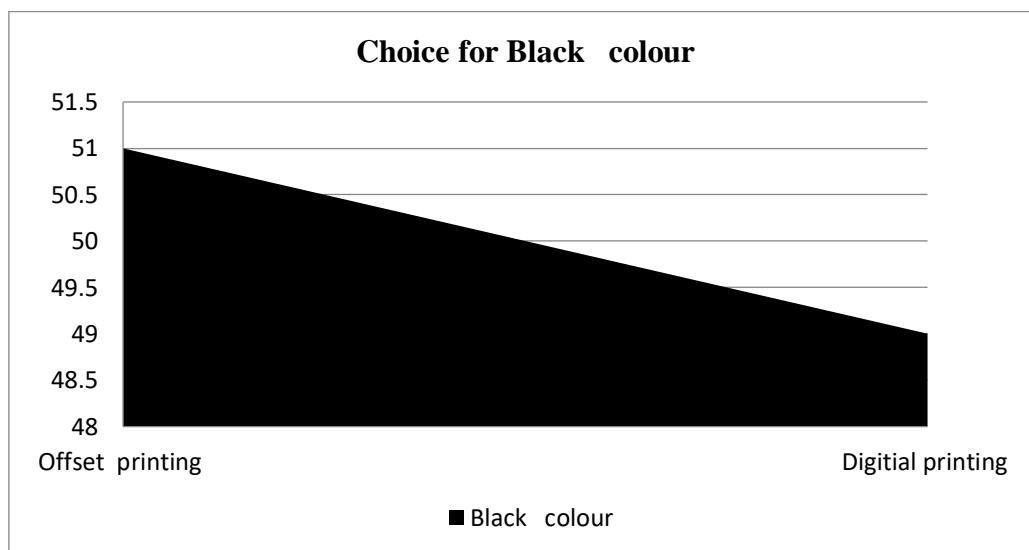
(Fig.5)

**Choice for yellow colour:** 56% observer like offset printing, 44% people like digital printing.(Fig.6)



(Fig.6)

**Choice for black colour:** 51 % people like offset and 49% like digital printing.(Fig.7)

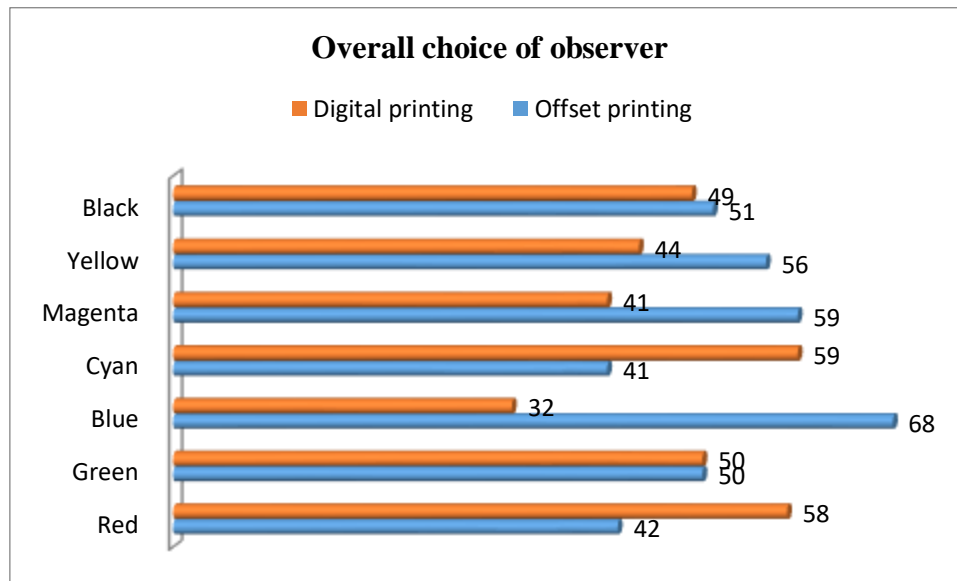


(Fig.7)

### III. CONCLUSION

After the analysis of survey the data shows that a finished print product of either offset or digital printing looks very similar. Some people say that offset printing will offer better quality and some say digital has better quality. Most observers like red and cyan colour of digital printing and green, blue, magenta, yellow and black of offset printing. 52.42% like offset 47.57% like digital printing.

Choice of colour	Offset printing	Digital printing
Red	42	58
Green	50	50
Blue	68	32
Cyan	41	59
Magenta	59	41
Yellow	56	44
Black	51	49



#### IV. REFERENCES

- [1] Bates, T.C. 2007. Fluctuating asymmetry and intelligence. *Intelligence*, 35, 41–46.
- [2] Blount, J.D., Metcalfe, N.B., Birkhead, T.R. & Surai, P.F. 2003. Carotenoid modulation of immune function and sexual attractiveness in zebra finches. *Science*, 300, 125–127.
- [3] Brown, W.M., Cronk, L., Grochow, K., Jacobson, A., Liu, C.K., Popovic, Z. & Trivers, R. 2005. Dance [5] reveals symmetry especially in young men. *Nature*, 438, 1148–1150.
- [6] Davies, T. & Hoffman, D.D. 2003. Facial attention and spacetime fragments. *Axiomathes*, 13, 303–327.
- [7] Ferrera, V.P. & Maunsell, J.H.R. 2005. Motion processing in macaque V4. *Nature Neuroscience*, 8, 1125.
- [8] Fink, B., Grammer, K. & Matts, P.J. 2006. Visible skin color distribution plays a role in the perception of age, attractiveness, and health in female faces. *Evolution and Human Behavior*, 27, 433–442

#### CITE AN ARTICLE

Pinki, Ms. "PREFERENCE OF OBSERVERS BETWEEN OFFSET AND DIGITAL PRINTING." *INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY* 6.7 (2017): 794-99. Web. 25 July 2017.