

A COMPARATIVE METHOD FOR TEACHING PERSPECTIVE PROJECTION TO BEGINNERS

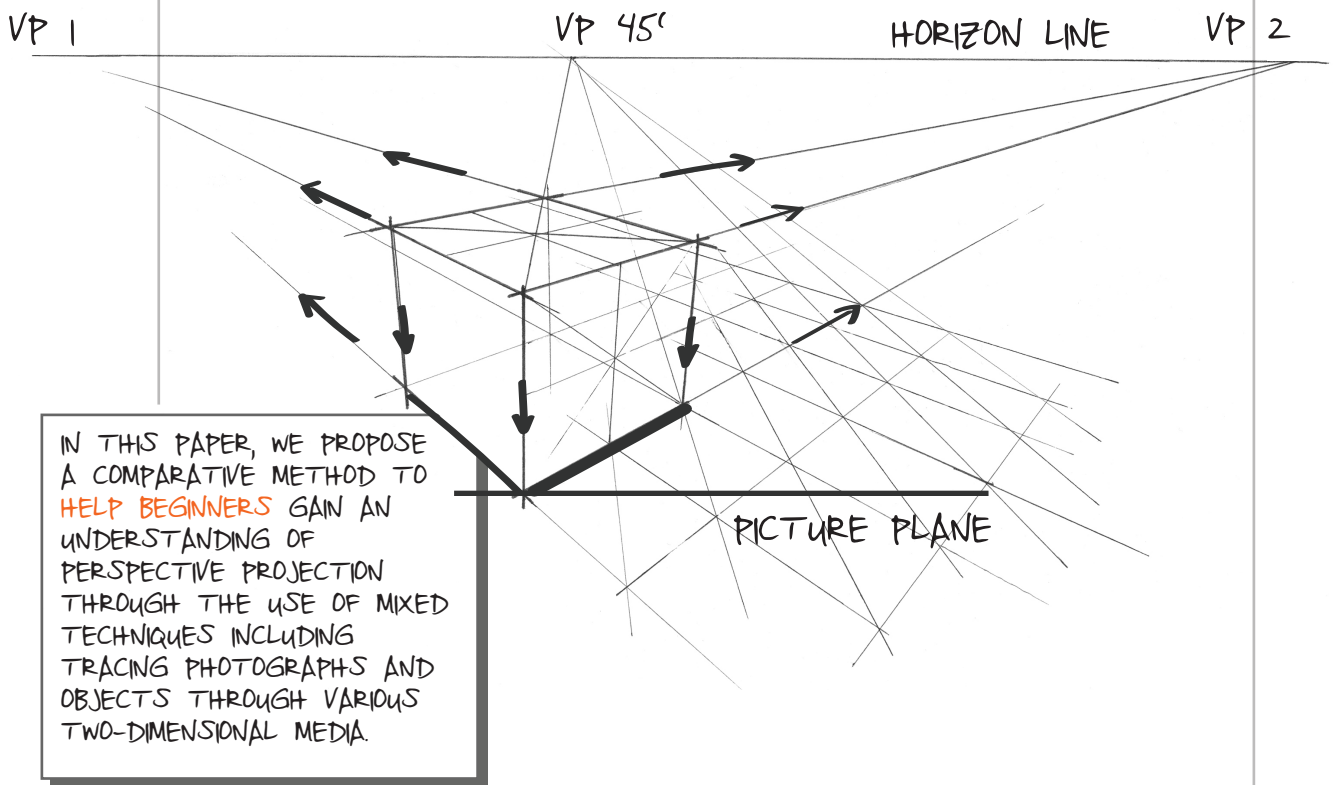
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ABSTRACT

PERSPECTIVE PROJECTION IS A DIFFICULT SUBJECT TO GRASP WHEN LEARNING HOW TO SKETCH. ALTHOUGH THE FUNDAMENTALS AND RULES ARE STRAIGHTFORWARD, THEIR RELEVANCE TO HOW WE EXPERIENCE REAL WORLD IS OFTEN OBSCURE IN EDUCATIONAL DESIGN SKETCHING METHODS.



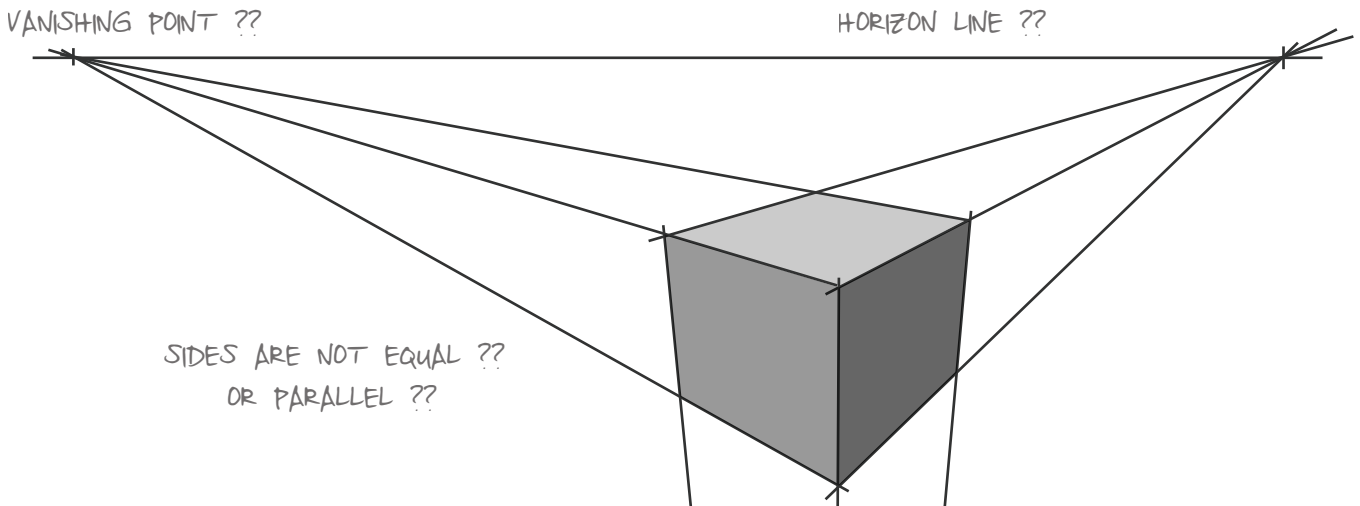
IN THIS PAPER, WE PROPOSE A COMPARATIVE METHOD TO HELP BEGINNERS GAIN AN UNDERSTANDING OF PERSPECTIVE PROJECTION THROUGH THE USE OF MIXED TECHNIQUES INCLUDING TRACING PHOTOGRAPHS AND OBJECTS THROUGH VARIOUS TWO-DIMENSIONAL MEDIA.

THE UTILIZATION OF THIS TECHNIQUE IN FIRST YEAR SKETCHING CLASSES HAS SHOWN AN INCREASE IN THE COMPREHENSION OF THE CONCEPT OF PERSPECTIVE AS WELL AS PERSPECTIVE CONSTRUCTION ELEMENTS SUCH AS VANISHING POINTS, HORIZON LINE, GROUND LINE AND PICTURE PLANE.

Keywords: Perspective projection, comparative methods, design sketching, design education

PROBLEM:

PRINCIPLES OF PERSPECTIVE PROJECTION SUCH AS CONVERGENCE AND FORESHORTENING ARE DIFFICULT AND COUNTER INTUITIVE FOR BEGINNERS. ELEMENTS USED FOR CONSTRUCTING PERSPECTIVE DON'T CONNECT REALLY WELL TO OUR REAL WORLD AND ACTUAL PERCEPTION.



RESEARCH QUESTION:

HOW CAN WE SUPPORT BEGINNERS LEARNING PROCESS OF PERSPECTIVE PROJECTION THROUGH NEW METHODS THAT UTILIZE MIXED TOOLS AND TECHNIQUES?

DESIGN DIRECTION :

WE EMPLOYED A COMPARATIVE METHOD TO ALLOW STUDENTS TO TRACE BACK THE OUTLINES OF A REAL LIFE OBJECT IN ORDER TO DISCOVER THE ELEMENTS OF PERSPECTIVE USING TWO DIFFERENT TECHNIQUES.

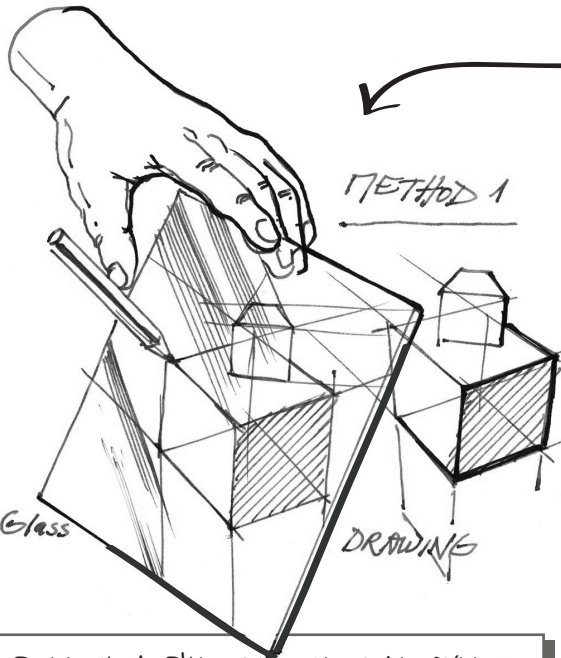
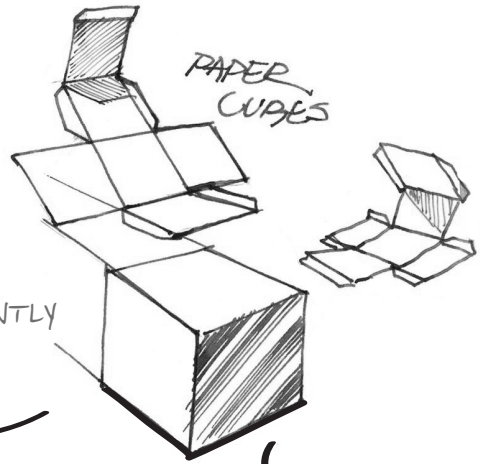
COMPARE !!

- TECHNIQUE #1: TRACE THROUGH A TRANSPARENT SHEET
- TECHNIQUE #2: TRACE A PHOTO PRINT OUT

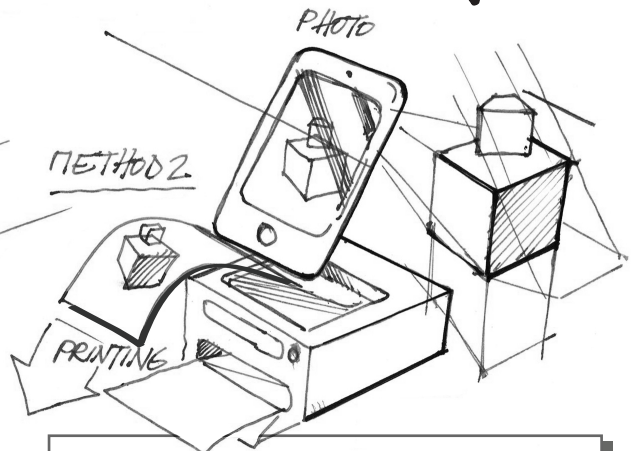
METHOD:

STEP #1: MAKE A CUBE OUT OF PAPER (OR USE A READYMADE ONE)

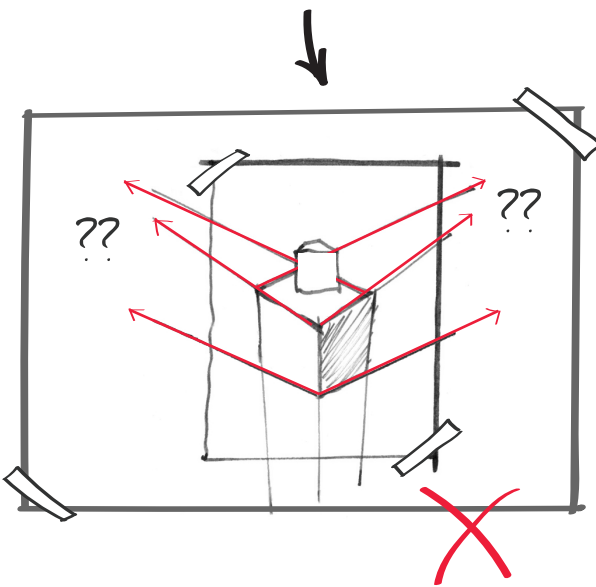
WE USED A CUBE IN THE EXERCISE AS WE INHERENTLY KNOW ITS SIDES ARE EQUAL AND PARALLEL.



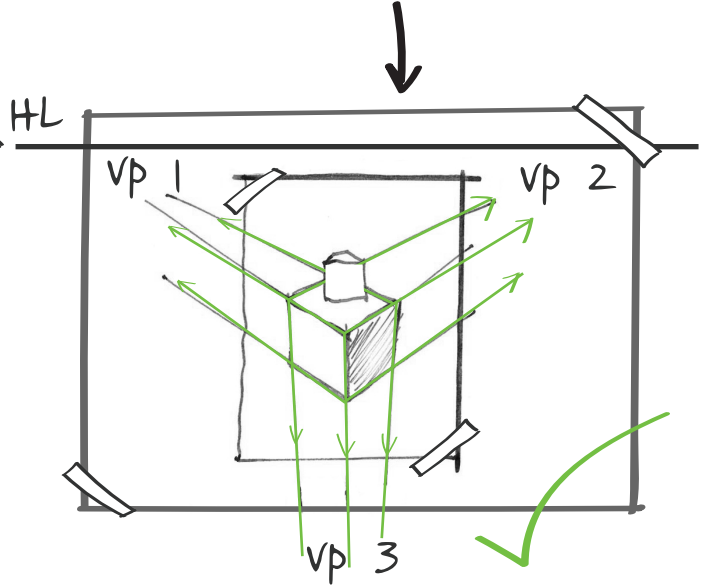
STEP #2A: SKETCH THE CUBE OVER THE TRANSPARENT SHEET AS YOU SEE IT



STEP #3A: TAKE A PHOTO OF THE CUBE AND PRINT IT OUT (TRY MULTIPLE VIEWPOINTS!)

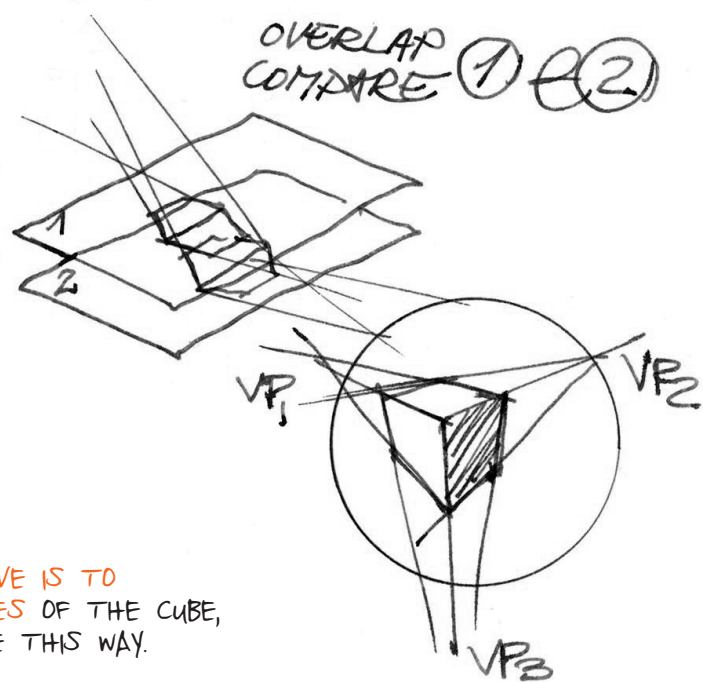


STEP #2B: USE A TRACING PAPER OVER YOUR SKETCH AND EXTEND THE SIDES BACKWARDS



STEP #3B: USE A TRACING PAPER OVER THE PRINTOUT AND EXTEND THE SIDES BACK

STEP #4: COMPARE THE OUTCOMES



THE NATURAL TENDENCY PEOPLE HAVE IS TO EQUALIZE AND PARALLELIZE THE SIDES OF THE CUBE, AS THEY KNOW THAT IT SHOULD BE THIS WAY.

IN SKETCHES ON TRANSPARENT SHEET, THE LINES USUALLY TURN OUT PARALLEL, OR GO TOWARDS DIFFERENT POINTS, AS BEGINNERS TEND TO "STRAIGHTEN,, OR CORRECT THE LINES.

BY TRACING FROM PHOTOS, STUDENTS FIND OUT THAT THE LINES ACTUALLY MEET AT SPECIFIC POINTS, THE HORIZON LINE IS THEIR EYE LEVEL AND CAN BE FOUND BY CONNECTING THE HORIZONTAL VANISHING POINTS.

RESULTS :

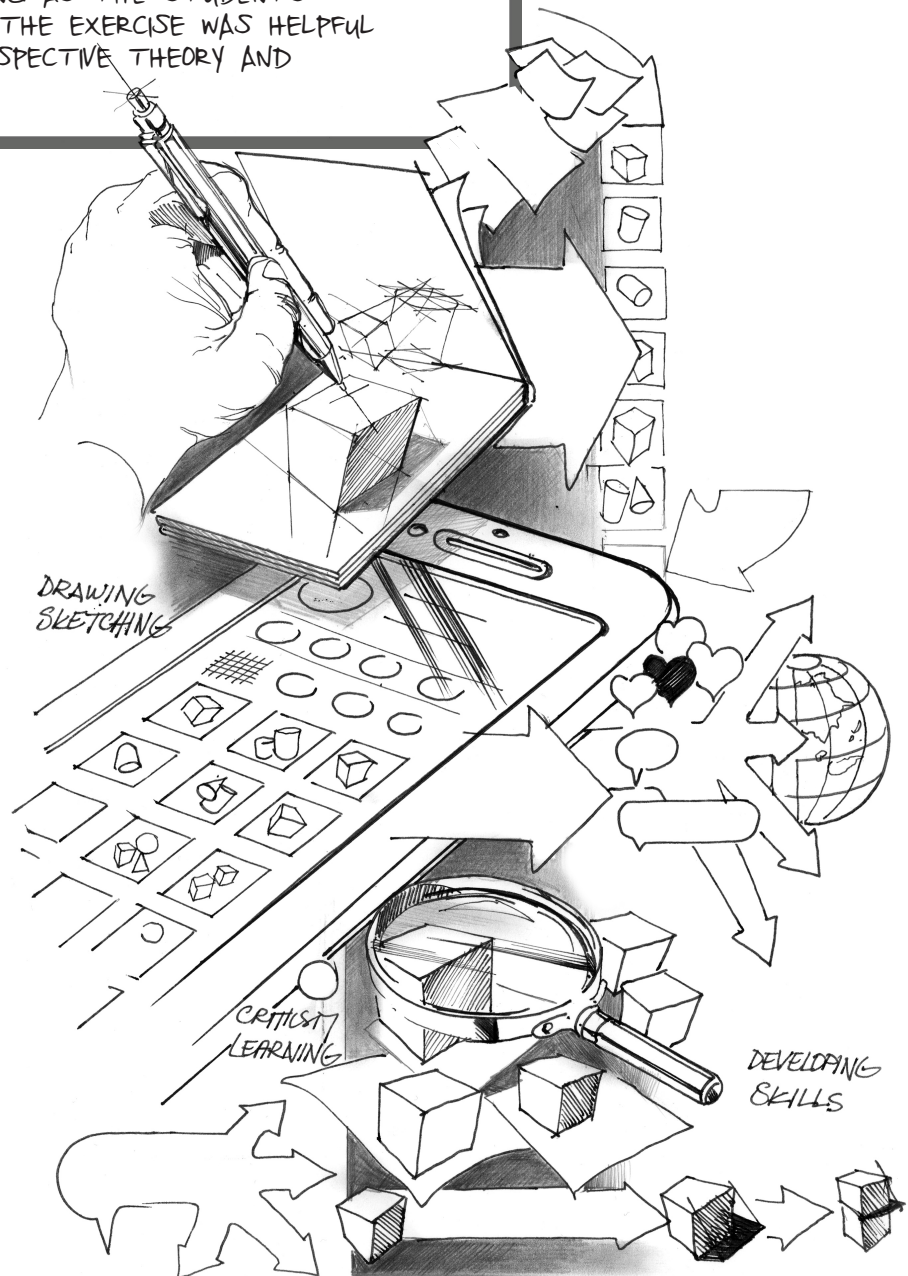
BY COMPARING THE TWO TRACING LINE WORK, STUDENTS GAIN INSIGHTS INTO HOW PERSPECTIVE WORKS IN THE REAL WORLD, AND HOW THE PERSPECTIVE PROJECTION METHODS CARRY OVER TO OUR PERCEPTION.

THEY START TO NOTICE EQUAL DISTANCES ARE NOT EQUAL AND PARALLEL LINES CONVERGE TOWARDS VANISHING POINTS. FROM THIS POINTS ONWARDS, STUDENTS ARE ENCOURAGED TO TRY DIFFERENT ANGLES AND VIEWPOINTS TO EXPERIMENT.

CONCLUSIONS

PERSPECTIVE PROJECTION IS ONE OF THE FUNDAMENTAL TECHNIQUES THAT IS NECESSARY TO LEARN HOW TO SKETCH AND REPRESENT OBJECTS AND ENVIRONMENTS IN A BELIEVABLE, ACCURATE WAY.

WE TESTED THE PRESENTED TECHNIQUE IN OUR FIRST YEAR CURRICULUM FOR OVER THREE YEARS. THE INITIAL RESULTS ARE PROMISING AS THE STUDENTS COMMUNICATED THAT THE EXERCISE WAS HELPFUL ALONG WITH THE PERSPECTIVE THEORY AND PROJECTION METHODS.



WE BELIEVE IT IS ESSENTIAL TO DEVELOP PRACTICAL TECHNIQUES TO TEACH SKETCHING AND DESIGN COMMUNICATION TO THE BEGINNERS AND EVEN NON-DESIGNERS SO PEOPLE CAN BENEFIT FROM THIS SKILL AND EXPRESS THEIR IDEAS. AS DESIGN EDUCATORS, WE CAN LEVERAGE THE TOOLS OFFERED BY TECHNOLOGY AND DIGITAL MEDIA TO EXPERIMENT AND BUILD NEW WAYS TO TEACH THE ESSENTIALS OF SKETCHING.

ACKNOWLEDGEMENTS

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