Feasibility Report on “Corkscrew Paper Plane”

Purpose

This report assesses the feasibility of “Corkscrew Paper Plane”, a set of instructions depicting the creation of a paper airplane that spins perpendicular to the direction of motion when flown. The instructions were created by Bryan, Calvin, Collin, and Edie. The last names of the authors are kept omitted for privacy reasons.

Problem

The typical paper airplane that every student bored in a class knows has been, well, thrown into the ground over time. Every plane is approximately the same, and flies straight for a marginal distance into an unsuspecting classmate or professor. Advanced planes used by professionals and origami connoisseurs can often be more difficult to make than they are worth. To find an interesting plane that does something other than the norm, our group tested the feasibility of a more unique flyer, the Corkscrew Plane. The plane was tested as to whether it flies as it claims, and to whether the instructions are sufficiently informative without being grossly complex.

Scope

This report evaluates “Corkscrew Paper Plane” by Bryan, Calvin, Collin, and Edie as to the presentation and functionality of the instructions. The seven criteria for grading can be found in the *Criteria* section next in this report.

Criteria

The instructions were graded by thirty-two (32) college aged individuals against the following divisions of criteria. Each sampler was asked to give a one to five rating based on each criterion. One indicated that the document or product failed the criteria entirely and five indicated that it succeeded with flying colors. Secondary analysis is provided in addition to the population data collected, this analysis is based on a larger amount of exposure to the document rather than heightened jurisdiction with regards to instruction creation.

- Functionality of the plane, whether the product spins as the instructions promise
- Format of instructions
- Visual appeal of the instructions
- Proper and clear language usage
- Proper usage of visual aids
- Length and clarity with regards to the number of steps included
- Overall satisfaction with the instructions and creation process

Each sampler completed the instructions alone, but while in various public environments near other samplers. Group assistance was mitigated however, by the active monitoring of the instruction proctors.

Data

Plane Functionality

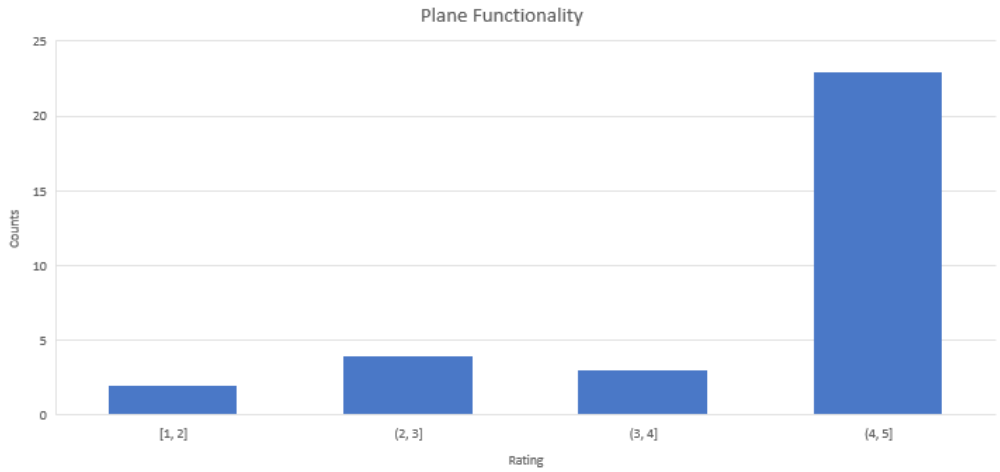

Figure one: Plane functionality with respect to spinning as intended

Instruction presentation

Table 1: Criteria average values

Criteria Question	Average Value (rounded)	Samples
Unused Space validity	3.9	32
Figure Visual Appeal	4	32
Figure Formatting	4.4	32
Consistent Instruction formatting	4.5	32
Professional usage of language and grammar	4.2	32
Instructions had enough steps to complete	4.2	32
Instructions did not have extraneous steps	4.1	32
Instructions overall clarity and presentation	3.7	32

Discussion

Plane Spin and Functionality

Unlike the average paper airplane, which relies on distance and smoothness to demonstrate validity, the *Corkscrew Plane* aims to spin at least 360º during its flight. Therefore, the samplers were instructed to rate the functionality of the plane based on this goal. A rating of five indicates that the plane spun more than 360º, while a four indicates it spun approximately the desired amount. Anything less than four implied a less than ideal spin, with a one translating to no spin

at all. The data collected on this concept is displayed in Figure one in the *Data* section of the report, where each bar indicates the first respective value listed under it. The average value within the thirty-two samples collected was 4.4. It can be determined from this that the plane on average performed as desired, with a consistent chance of performing beyond the minimum requirements. Additionally, testers were instructed to rate the plane on its design. Although this is a subjective question independent of its performance, the average rating of 3.9 for the design lends support to the overall success of the product itself. The product thus has succeeded within this criterion.

Visual Appeal of Instructions

Moving from the plane towards the instructions, the first criterion analyzed was the overall visual aesthetic and appeal of the documentation titled “Corkscrew Paper Plane”. Visual acuity was divided into the documentations usage of unused space, figure usage, and consistent formatting. As for unused space, the instructions rely on a format of pictorial step by step processes with limited written instruction as a supplement. This means that unused space is a large aspect of the overall presentation of the report. The average rating for space usage was 3.9 out of 5, while consistent formatting was ranked at 4.5, and figure usage was rated 4.4. The higher ratings for figure usage helps indicate that the unused space on each page may have been a minor issue in the division of the instructions into steps. More on this will be discussed shortly within the *Steps* section. The formatting of the instructions plays a large role in the visual appeal of the document, and in this aspect the instruction decently succeeded. The nuances and details of the formatting will also be discussed later. Overall the instructions succeeded at being visually pleasing, but some altering to the relationship between the figures and unused space is advised.

Formatting and Figures

The document overall is formatted well according to the samplers, with various consistency ratings shown in table one, but some inconsistencies and minor points should be addressed. Firstly, black and white dotted lines are used to delineate fold lines within the instructions. This is not inherently a mistake, but the usage of a dark background within the plane images in addition to the dotted lines creates some visual ambiguity. Additionally, the plane is occasionally rotated between images with no instruction of how. This may initially seem minor, but when following instructions closely or by a younger audience than was sampled for this report, it could become an issue of clarity. Finally, the image shape and rotation are not consistent between steps or even within singular steps of the report. On a large scale the images are generally consistent, it is just a few individual choices that take the document down from exceptional to sufficient.

Language Usage and Grammar

The language usage in the document yielded a rating from the samplers of 4.2 out of 5. This can be extrapolated to mean the document is readable and generally pleasant to read. The first of two small caveats to this would be the consistency in punctuation, font color, and size between steps. The second is that the instructions often feel plain and lack integration with the process and audience. This does not detract from the creation of a successful airplane, but it does not add any entertainment to a process that is intended for fun.

Steps

Lastly, the document uses the often-seen step by step process, where images of the plane to be being folded are supplemented by written directions. Samplers were asked whether “Corkscrew Paper Plane” allowed them to create the plane in a “goldilocks” number of steps. The average rating for if there were enough steps was 4.2 out of 5, as shown again in Table 1. The corresponding rating for if there were not too many steps was 4.1 out of 5. Comments left by more vocal testers indicated that on average the step by step process was sufficient, but that some steps seemed drastically simpler than others. The plane however is not entirely complex, so simpler steps are warranted. An additional note to the complexity of the craft is that it requires scissors to complete in its ideal form. This does not make the craft or instructions worse in a vacuum, but does impact how likely a bored student is to go through with creating the plan rather than its scissor-less competitors. The small cuts made to the wings can be done by hand, but it does minorly affect performance.

Conclusion

The “Corkscrew Paper Plane” has been evaluated based on the planes ability to deliver a 360º or more spin in flight, the instructions visual aesthetic, formatting, language usage, and step divisions. These criteria were used to determine whether the plane was sufficient to rival the traditional paper airplane for excitement, without being too complex. In these regards, despite minor improvements that could be made, the plane and its instructions have been deemed feasible by a group of thirty-two testers and this report.

Recommendation

The “Corkscrew Paper Plane” by Bryan, Calvin, Collin, and Edie has been approved as feasible both as a craft and an instruction set.

Contact

For further inquiry concerning this report, please contact Jane Doe at janedoe1@iastate.edu. Thank you.