METAL FORMING PROCESS TREE

A Visual Aid Tool to Help Student in Identifying Metal Forming Process

ABSTRACT

Metal-forming process is one of the main manufacturing processes. To be a good manufacturing engineer, a student should be exposed to all processes involved, and memorising is not a good option. The metal forming process can be divided into sheet metal forming and bulk forming processes. The variations from these two main processes are a long list of specific processes, and to remember them is almost impossible. Therefore, a tool that can assist the student in identifying the process name needs to be developed. Metal part features are one of the methods to differentiate those processes. As a result, features that are organised in hierarchy were developed. Students need to identify the part features, then follow the stages arranged in hierarchy until, at the end, a metal forming process name for that specific part can be identified correctly. Based on the student survey, they found the tools helped them identify the process faster and more accurately.

OBJECTIVE

Main use of the MPFT is to help student in identifying the metal forming processes based on the product features.

STUDENT FEEDBACK

This is because, most of them found that the processes are the same and too many names to be memorized as shown in Figure 1.
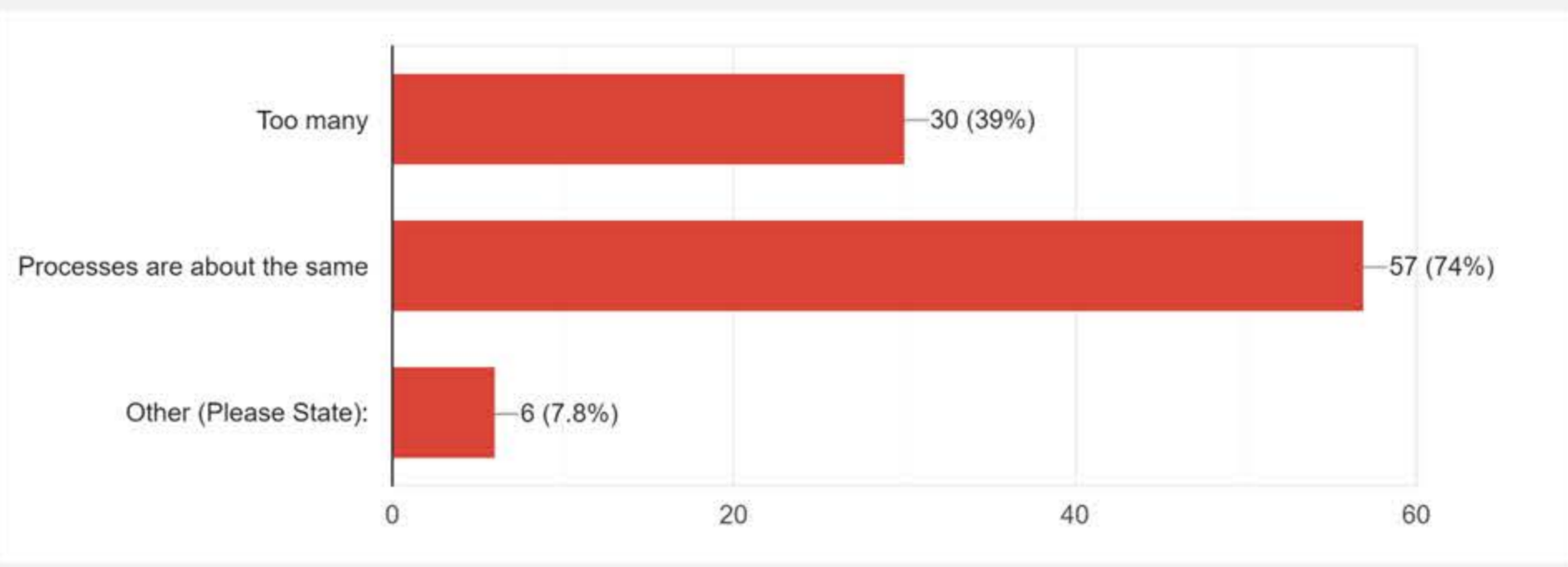.

Figure 1 Students perception about the process

Figure 2 lists all the student's perception and their views about the teaching and learning aid format that may help them understand better about certain topic.

Figure 3 shows the tool, that contain process classification, part features and end with specific process name.

ADDED VALUES

The use of visual aid may boost student understanding, enhance audience's senses and help to convey important points.
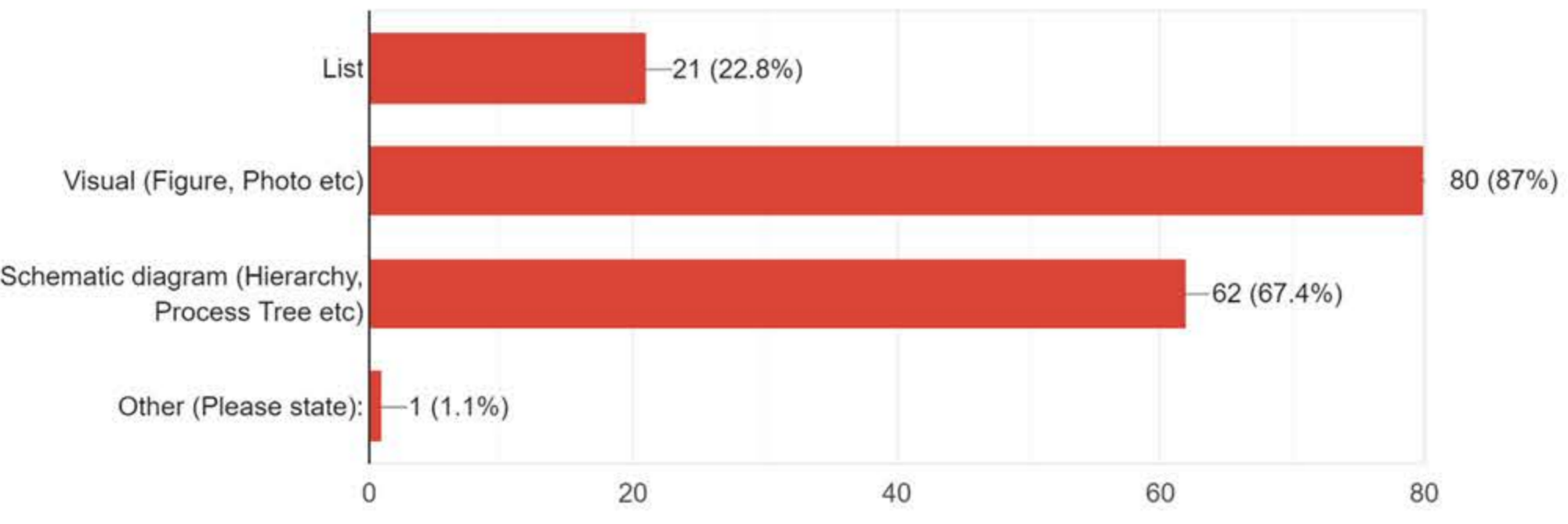

Figure 2

USEFULNESS

This tool may extremely help student in naming the process to produce metal forming parts.

COMMERCIALIZATION POTENTIAL

This tool had huge potential for commercialization. However, it should be presented in more user-friendly way like Apps.
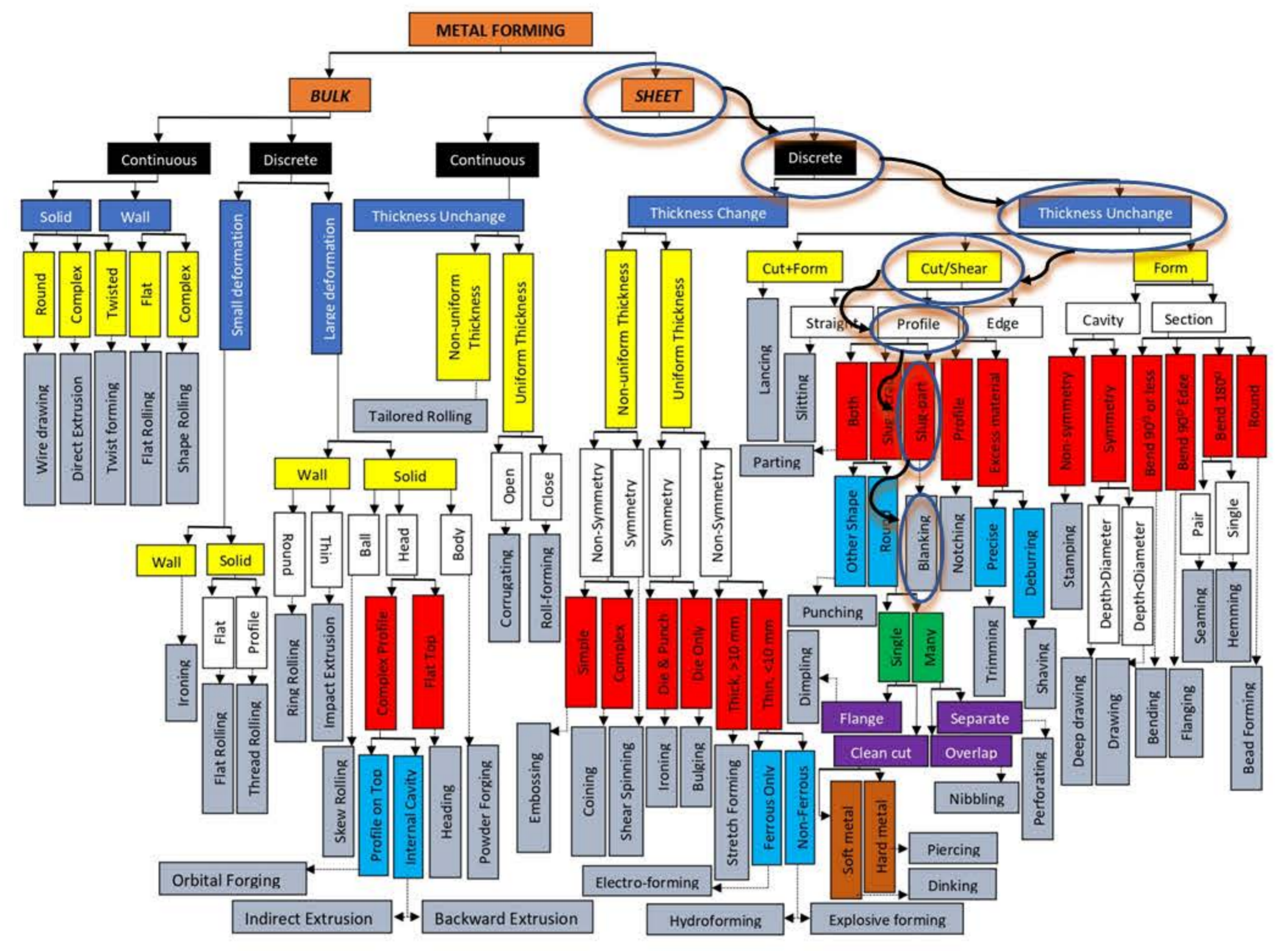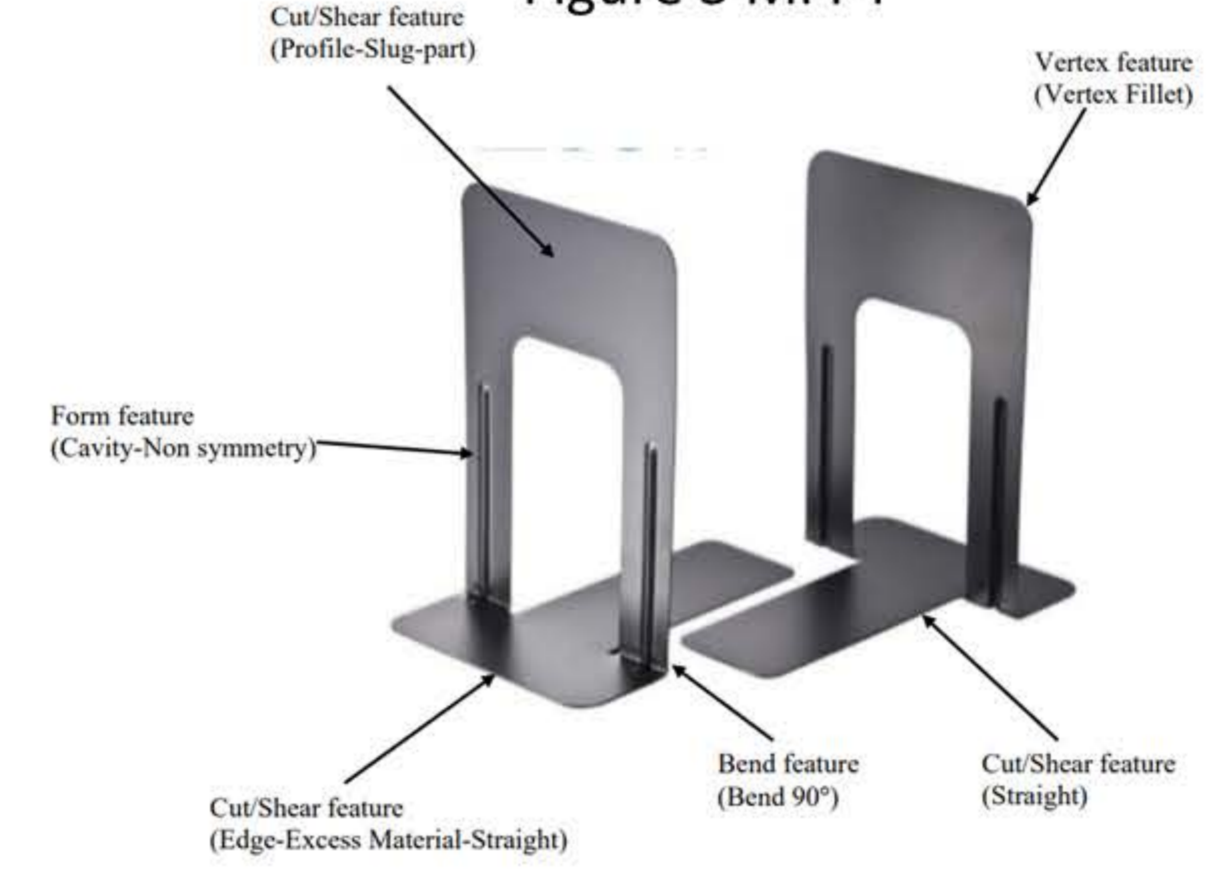

Figure 3 MFPT

Figure 4 Example of product

Sheet ➔ Discrete ➔ Thickness Unchanged ➔ Cut/Shear ➔ Profile ➔ slug-part ➔ blanking.

RECOGNITION

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