Survey on the benefits of a 3D computer model

The following are comments from students who were shown a 3D computer model to assist them in solving a problem. They were asked “Do you think the computer model would have been helpful to a student who might have had difficulties in understanding the concept of direction cosines?” Thirty students indicated ‘Yes’ and one student responded ‘No’. Some of their comments are shown below. The student who responded ‘No’ indicated that the presentation without the computer model was just as effective. Other students made comments but their responses were not relevant to the question that was asked. Therefore, they are not presented here.

*It is sometimes hard to determine the position of the angles on a paper with only one view. The 3D model allows for multiple views.*

*Sometimes people need to see things in different ways to understand them*

*Again the rotation makes it easier to visualize where the angles are*

*Allows students to better see the sketch (the 2D sketch on the lecture worksheet)*

*The student can see exactly where the angles are when the object is rotated*

*Illustrates the concept more clearly for someone who has trouble with 3D visualization*

*Visuals are a lot better for me at least.*

*They might be able to focus more on understanding them on visualizing the drawing being rotated*

*Seeing it from every direction is a great way to explain this problem*

*Yes, a lot of people have trouble visualizing objects from different views.*

*2D is quicker and easier for a lot of people so relating knowledge is useful*

*On a chalk board, the instructor cannot rotate an object as in the computer model*

*It shows the diagram better and also while the instructor talks about it you can see exactly what portion of the diagram is being used etc. for the formula*

*3D allows you to see the angles the force creates with all the angles*

*Much easier to visualize what is going on*

*It provides a better view of the force and the coordinate axis*
The computer model is helpful in reinforcing the concept and visualizing the graph.

Because you can manipulate the rotation of the model to view only two axes, which is helpful when given a confusing 3D model.