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Mr. Speice

ISM I

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Product Design and Development

Research Assessment 4

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Subject: Manufacturing

Works Cited:

Tuteski, Ognen, et al. "New Product Design Development Based on Additive Manufacturing & Rapid Prototyping Methodology." ["RAZVOJ DIZAJNA NOVOG PROIZVODA NA BAZI ADITIVNIH TEHNOLOGIJA I RAPID PROTOTYPING-a"]. Journal for Technology of Plasticity, vol. 40, no. 2, Dec. 2015, pp. 55-54. EBSCOhost, search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=113658287&site=ehost-live.

Assessment:

Throughout this article the author describes the various challenges and differences in designing parts for Rapid Prototyping, Fused Deposition Modeling, and conventional manufacturing techniques. The article presents how orientation can play a factor in how certain shapes are sliced and how accurately they can be produced using these such manufacturing techniques. Certain factors such as strength can also be affected by the orientation of the part and how it is broken up into layers in gcode. The article also states how the modeling process and

design of the parts also changes based on the manufacturing technique. Threads or certain interlocking parts may require looser tolerances in order to fit together properly.

Overall, this article helped to build on my previous sources by providing more reinforcement of the various types of manufacturing techniques involved in mechanical engineering. The article also helped to confirm many of the other articles I had read previously. The article also confirmed that new manufacturing techniques in the realm of rapid prototyping are becoming commonplace being that it was published quite recently in 2015. This article was also vital in providing info which highlighted some of the drawbacks involved with rapid prototyping by explaining how the design process is slightly different. This brought up the question of: do the benefits of rapid prototyping manufacturing techniques outweigh the drawbacks, such as redesigning a part for a specific manufacturing technique, enough that they should be used more often than traditional manufacturing techniques? Prior to reading this article, I had thought that the CAD models for traditionally manufactured products and RP-created models would be the same, but this article provided insight and revealed to me that they are actually quite different, having to modify parts of the design in order to work properly as designed. This was somewhat discouraging as it meant that designers would have to design multiple versions of parts in order to manufacture using various methods rather than just one. However, this article did continue to pique my interest in the field of rapid prototyping which I will be sure to continue research on and possibly focus my original work on as I progress through ISM. The various ideas presented throughout the article are adding on to my previous ideas on this topic and are continuing to refine my topic.

I would say that this article, as a whole, provided a very good comparison between the various types of manufacturing and how product development is affected by whichever manufacturing technique is used to create a prototype. While this article did answer some questions I had previously on manufacturing processes such as FDM and RP, it also presented new questions which I hope to have answered as I conduct further research and begin talking with professionals in my field of study. With this newly found info, I will be sure to focus more on how different manufacturing techniques differ and how their benefits are still influential in the design stage as well as the production stage of prototypes. As I continue my ISM journey and begin to meet professionals, the information presented in these articles will help expand my knowledge and relate that to what those working in the field can teach me.

Annotated Article:

<http://scrible.com/s/gHZQQ>