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ISM I

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Lots of Progress Made with Lots More to Come

Assessment 17 - Final Product Progress

Date: 3/24/2021

Subject: Interventional Radiology

Assessment:

The amount of work done in the early stages of the completion of the Final Product was impressive, to say the least. Usually, any long-term project assigned to me is procrastinated to the last minute; however, this time, that was not the case. Overall, lots of visible progress was achieved over the course of the last few months and the goal of this assessment is to assess that progress. In addition, a plan will be made for the next month, detailing what needs to be done before the Final Product submission in late April.

The first goal of this assessment was to assess the progress made regarding the Final Product thus far. The first thing that must be acknowledged is the large amount of work done in the earlier months of the project. The beginning stages of the project were spent on research based off of information learned in the mentor visits, including procedures that Dr. Kim recommended be implemented into the design of the Final Product. Some of the procedures he mentioned were angioplasty, stent placement, and embolization. Additionally, further research was conducted on procedures implemented into the design of the original work project, including transjugular liver biopsy and percutaneous transhepatic biliary drainage. Gaining a deep

understanding of all of these procedures was essential in order to keep elements of the procedure in mind when designing the mechanism for the Final Product. One crucial part of designing the mechanism was ensuring that all of the procedures and their potential needs are completely implemented into the design of the mechanism, which is why a complete understanding of the procedures was vital. After all of the research, an extensive understanding of the procedures and topics researched was successfully gained through research techniques gained throughout the year. The understanding being gained demonstrates the great progress made in research skills and the overall understanding of interventional radiology as a whole. Each procedure learned adds to the overall understanding of the career, so with a deep understanding of many procedures gained, the knowledge of the career was greatly widened.

After a good amount of research was completed, it was time to begin designing the mechanism. There were major changes made to the design of the mechanism, which will be discussed later in the assessment, but the main part of the design that will be discussed is the transfer of the hand-drawn designs to the computer. Lots of obstacles arose when downloading the programs and learning how to use them. One of the main obstacles that needed to be overcome was finding out how to get the programs for free. It took a long time figuring out how to get verified as a student and how to find my old Autodesk account in order to get the programs for free. Luckily, after lots of critical thinking and problem solving, the programs were successfully downloaded and ready to begin learning. The next obstacle was learning how to use Inventor. It is an extremely intricate and detailed program that was difficult to learn. After hours of learning, a basic understanding of the program was achieved and it was then time to begin working on the designs. Learning the program was a major achievement, personally, because of the fact that I never thought learning a program like that was possible. Throughout the past few

months, learning the program and how to use it was a dreaded thought. However, after learning it, lots of relief was felt and a sense of accomplishment and confidence was gained. A major obstacle was overcome with sheer determination and a willingness to learn. The last part remaining was to begin designing the mechanism, which is the current state of the project. A basic design of one of the joints was created after a couple of hours of work, but it is only the beginning of the design process. Overall, I am proud of the progress made so far and the current status of the project. The programs are learned and basic designs have been made on it. So far, lots of obstacles have been overcome and the work achieved is substantial.

The second goal of this assessment was to compare the work done in the Final Product to the work done in the Original Work project in the fall. The main difference is that a level of urgency was established in this project earlier than it was in the last. Lots of progress has been made in the earlier stages of the project this time around, whereas last time, a high level of progress was not made until later in the project. A level of maturity and responsibility has been attained throughout the course of this year and it is demonstrated through the earlier start on the spring project compared to the later start in the fall project. Another difference between the Final Product and the Original Work was the designs. The design has been changed to coming out from under the feet of the patient and hovering over the operating table, whereas before, the mechanism came out from under the side of the table and did not hover over the table. These were changes recommended by Dr. Kim and are necessary in order to increase the effectiveness of the mechanism in making procedures more efficient, as well as to reduce the risk of contamination, which can lead to infection of the patient. Furthermore, these changes have been successfully implemented into the design of the project and will be kept in mind when converting the designs into digital designs. The last difference between the Final Product and the

Original Work was the procedures researched. New procedures are being researched this time around, as described earlier in the assessment, and more of a focus is being placed on complex vascular procedures, compared to the emphasis on drainage procedures in the Original Work project. These procedures were recommended by Dr. Kim, who has been a big part in assisting with the design and research for the Final Product.

The last goal of the assessment was to create a plan for the ultimate completion of the project. All that is really left to do is to create the designs of the project in the Inventor and AutoCAD programs, as well as to do some extra research regarding the procedures being implemented into the design of the project. At least one to two hours should be dedicated every other day to the project, and if any days are missed, then it should be made up for in future days. Weekends should encompass at least a total of five to six hours of designing and researching for the project, and future mentor visits will also be a big part of gaining information and advice from Dr. Kim in order to perfect the design. A visit to the angiography suite in the hospital with Dr. Kim will also occur in the future and will be necessary in order to see what the suite actually looks like and how the mechanism can be implemented into angiography procedures.

Overall, it can be confidently stated that the Final Product is going well and that the progress made is substantial. I am extremely impressed with myself and the work done so far in the early stages of the project, and lots of excitement and anticipation is being built up for the ultimate completion of the project in late April. The plan created will be followed and confidence is high going into the final stretch of the project.

NOTE: All supporting documentation for this assessment is contained in the link below.

[Final Product Google Drive Folder](#)