**Role of graphics tools in the learning design process**

Graphics tools are now part of the capacity of design professionals. It is therefore apt to reflect on their integration into the technological education. Has the use of intermediate graphical tools changed students’ performance, and if so in what direction, in phase of seeking solutions through a design activity in a situation of teaching and learning?

The influence of Computer Aided Design (CAD) tools on design professional activities has been the subject of much research, but little has focused on student activity. Thus, analyzing student work through an experimental device, we ask that students produce more solutions without using CAD tools. Do CAD activities encourage the modelling of a particular solution? Does drawing by hand before CAD activities support the production of various solutions and define them more precisely? Through the analysis of solutions developed by students, including traces of their activity (sketches, digital files), we test our hypotheses.

The activity of students when faced with situations which require solving design problems. We focused on the role of graphical tools. More specifically, the paper considers the relationship between sketch realization (hand-drawing) and the use of CAD tools in the activity of students, especially in the early stages of research. Through analysis of drawings made by students as they use or do not use CAD tools, we try to understand the creative process they employ. The findings of this study relate to the fact that it is important to consider the introduction of these tools in promoting and facilitating the process of finding solutions. Our results confirm our hypothesis that hand-drawing – as is the case for architects and designers – favors a broader search for solutions. The introduction of a second phase, CAD tools, provides a model of the object that is

enriched due to the assistance the tools provide to students. As such, CAD is required in the process of object design. The scope of this research and its findings is contingent to situations, problems and specific tools. But we consider that it is possible to consider a few factors that contribute to the understanding the teaching-learning of design process.