From digital technologists to computer artists

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Historically, there has always been a strong relationship between the emerging technologies of an era and the practice and concerns of artists. These relationships are complex and form over time, involving phases of technology learning, the testing of the boundaries of the medium, the use of the technology as the subject of art and the creation of an economic context for art of the new medium. These phases presage the emergence of recognisable disciplines. This paper explores what can be learnt from such a historical perspective so as to inform a curriculum aimed at forming computer artists.

Digital Technology, Digital Art, Computer Art

The question of computer art

Computers have been applied to creating visual and auditory experiences since their inception in the middle of the last century (Rush, 1994). In the last decade, the underlying technologies for creating these experiences have improved and converged with the result that the computer has become a major means of production for much of the imagery present in people's day-to-day lives. In addition, computer technologies, such as computer networking, play an increasingly important role in the distribution of imagery.

Does it make sense to talk of "Computer Art" in the same way as one may talk of photography, fine art or sculpture? On the surface the picture is confused. There is, certainly, plenty of activity from web design to animation to interactive multimedia. However, it is not clear how these activities interrelate so as to form a discipline. Neither is it clear how these activities relate to previously existing art disciplines. These philosophical issues (the recognition of an emerging discipline and its relationship to others) have an importance especially in relation to construction and delivery of education programmes.

By examining and characterising the historical impact of technological development on the evolution of what may be considered "traditional" art areas, it is possible to gain a coherent perspective regarding these issues (Walker, 2001).

Historical precedents

The art of Renaissance Europe, allied to the technologies emerging from pioneering science and mathematics, embraced perspective to convincingly portray a three-dimensional world on a two-dimensional surface (Joblon, 1995). Three hundred years later, in the early nineteenth century the amalgamation of three emerging technologies: optics, mechanics and chemistry, inspired the creation of photography. These historical examples indicate how the synthesis of technological and artistic thinking can inspire conceptual leaps, which have a future influence that is impossible to predict. "The story of late twentieth-century media art is inextricably linked to developments in photography throughout the century." (Rutsky, 1999) At the time of the initial chemical experiments with silver nitrate, who could have predicted the ensuing impact that photography, and motion photography, would have on the entertainment of mankind? The film industry has become a global phenomenon in today's society.

It is worth noting that both these technologies encountered initial resistance from the existing art establishments of the time – perspective by breaking the boundary between the human and divine worlds, and photography because it seemed to mechanise the process of art.

The emphasis in the early use of both these technologies was on realism and the development of technique. A principal concern of the Lumiere brothers work was to investigate motion capture rather than

the content of their imagery. Much of the work in the early days of adoption of a new technology can be seen to be exercises in its use or experiments to determine the boundaries of its use.

At the same time that these new technologies were being introduced, new markets for artistic production were created, perhaps most markedly with photography and the motion picture in particular.

Analysis

An analysis of the above can be expressed roughly thus: in the immediate aftermath of the achievement of individual technological developments, artists explore the adoption of the new technology, staying within known boundaries and therefore contemporary progress may seem ineffectual and slow. As an example of this effect, consider, during the early Renaissance, the renewed development in Europe of mathematics after the doldrums of the so-called dark ages. One resulting technique or technology from this was the notion of perspective, which was quickly adopted by artists as a means of approaching verisimilitude in their images. It was only later that perspective was used expressively within art, in the sense of being incorporated into the language and subject matter of visual imagery in for example cubism.

Clearly this model of development is simplistic. Technological advances are not the only drivers that influence the change of art's subject matter, its modes of production or the manner of its distribution. Economic forces are particularly relevant to the impact of digital technologies. . Software Houses will invest in the development of software packages providing there is a viable market to make it profitable to do so and certain industries drive these markets. In particular, the Computer Games market has provided the impetus for extensive research and development into digital art and entertainment.

A computer arts curriculum

The Computer Arts programme at the University of Abertay Dundee aims to equip students with technological skills in a variety of electronic media. It is anticipated that these students will deploy these skills in an artistic context, either auditory or visual. Students are selected on the basis of traditional art portfolios – drawing, painting and sketch books. It has become clear that many students first reaction to a new technology, such as 3D modeling, is to stay within known boundaries often pursuing what they perceive as realism or authenticism, even though the reality they are depicting may indeed be of the cyberworlds to which they are encultured. Students appraisal of each other, as observed by peer questioning at project critiques, betrays this preoccupation with technique rather than concept. Clearly technical skill is important for students' immediate employability on graduation, yet their sustained career development necessitates that the course also matures them as artists. The course is structured to encourage students to go through the full historical cycle of technological innovation followed by artistic exploitation. All work produced by students is devised by them as a response to a project brief. Their proposals for projects are publicly critiqued for artistic merit and industrial figures are invited to many of these events, so as to demonstrate clearly to students that their artistic (as opposed to technical) development is important to prospective employers.

It is mandatory for all students to attend end of project presentations for all years of the course, thus ensuring that students observe more senior students' work and understand that the agenda extends beyond the skill acquisition phase of their early studies.

References

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