CONTEXT, PRACTICE AND TECHNIQUE IN THE DEVELOPMENT OF A CREATIVE CURRICULUM

Inga Paterson
I.Paterson@Abertay.ac.uk,

Louis Natanson
L.Natanson@Abertay.ac.uk
Computer Arts Division
University of Abertay Dundee
Bell Street, Dundee DD1 1HG
Scotland, United Kingdom

Abstract

This paper explores ideas in relation to the design and delivery of a university level curriculum aimed at producing computer artists. The essential principle is that the organisation of the film industry is a useful paradigm, and that the paradigm can be used as a tool in the design and delivery of this kind of curriculum. The education of graduates destined for the "new media" industries is complex. A particular problem is to achieve balance between development of technological skills on the one hand and artistic and creative development on the other. The challenge for educators is that many students are motivated by acquiring technical expertise and may not realise the importance of artistic and creative development. Comparisons with the world of film are used to address the problem of balance. The background to this approach is discussed and some preliminary results, in terms of student attitudinal change, are described.

Introduction

The most visible requirements to students for eventual entry into the new media industries, are in the main, specific technological skills. The deeper issue of the transferable, intellectual, artistic and creative skills necessary to allow career development beyond technician level entry is the proper concern of higher education. However, it is not immediately clear, within the new media industries, what these deeper attributes are.

Does it matter? Yes - a major attraction of these curricular areas to students is their perception of their vocational usefulness. Considerable resistance may be encountered in delivery aimed at the deeper skills unless students effectively relate the need for them to their vocational aspirations. In the absence of explicit career structures and paths, students will revert to their superficial interpretation of industrial requirements when mentally appraising the usefulness (to their aspirations) of skill acquisition.

This paper discusses the extent to which the study of the structure, lexicon and techniques of the film world, that has matured over a century, can inform course delivery aimed at the new media industries.

A common vocabulary

An immediate advantage of adopting the film industry as a framework is that a generally understood vocabulary becomes available to educators to discuss skill acquisition, roles and production. At present, there is no apparent standard set of terms used in new media industries. The manner in which these industries express their organisations and methods of working is extremely varied. An indication of the complexity of language used in the new media industries can be seen from the bewildering array of job titles used: interaction designers, interactive media producers, new media architects, site-builders, webmasters, digital content strategists, multimedia professionals and new media consultants (Hirsch, 1999).

The result is that new media industry clients and employers are inevitably going to be confused and even if they know the roles they need to fulfil, it is almost impossible to define accurate, universally understood job titles. The result seems to be an ***"awful lot of over-optimistic advertisements seeking the most unlikely combinations of skills from a single person"*** (Hirsch, 1999).

In contrast, job titles used in the film industry such as producer, project manager, creative director, production assistant all have well defined standardised meanings that are broadly understood. This state of affairs has been cited as a barrier to creative industries development. Christine Atha (Atha, 2002) has identified the impediment to effective communication as the lack of a common language, she recognises ***"a need to develop mechanisms to enhance and facilitate communication"*** and ***"bridge the gap between the languages of studio culture and creativity, and those of business"***. She argues that there is a need to develop a common language that can bridge the divide between the language of creativity and that of business. She states that ***"this common language must include in its vocabulary a broad set of references based in culture, economics, industry, politics, society and technology."***

Given that students attracted to computer arts courses commonly have knowledge of Cinematic grammar and terminology it makes sense to capitalise upon this and deliver their education using terminology they are already aware of. In lieu of a consensus of agreement about the terminology used it is vital that students develop a strong awareness of their strengths and skills so that they can identify the area in which they wish to work. They should be equipped with the confidence and communication skills required to ask pertinent questions in an interview situation to ensure that the job definition is appropriate for the career they envisage for themselves.

Contemporary culture increasingly relies upon the use of audiovisual media for information dissemination. Lev Manovich (Manovich, 2001), writes: ***"A hundred years after cinema's birth, cinematic ways of seeing the world, of structuring time, of narrating a story, of linking one experience to the next, have become the basic means by which computer users access and interact with cultural data."***

Students' prior understanding of cinematic terminology may be intuitive and reside at a subconscious level. There may be an awareness of the terminology but a lack of understanding about its application to the creation of time based audiovisual imagery. Cinema provides a useful paradigm that can be applied at varying levels of the curriculum. Highlighting the correlation between cinema and the new media industries can provide a useful frame of reference for students that will assist and deepen their understanding of the overall process.

Setting a creative agenda

As an example of the application of this principle, consider the difficulty that is often encountered with computer arts courses where course entrants wrongly identify the aims of the course and have a perception that software training will form the focus of student learning. Providing students with technical knowledge and competency in software usage is vital to the curriculum but the development of creative, artistic and intellectual thinking should be the focus of student learning. It is easier to make this case to students by analogy with the world of film: they are in general used to discussing the intellectual (artistic and creative) aspects of film rather than technological issues.

The recent trend in higher education towards modularisation has made it awkward to establish a general coherence to a student's studies, and it is extremely optimistic to assume that the average student doesn't require help to establish an order so they can realise how their knowledge and skills integrate. These problems may be more acute in arts based courses. The curriculum has to operate effectively within the boundaries of the established University modular structure which is not ideal for teaching an arts based course. The modular system requires topics to be taught in discrete blocks and students cannot integrate between modules until a late stage in the semester. Adopting a recurring theme through all modules can improve the students' understanding of the relationship of the modular content. The strategy of using cinematic grammar as the recurring theme is appropriate because it provides coherence to the teaching structure using immediately identifiable and relevant terminology.

New media production is multi-disciplinary

The correlation between the creation of film and computer based imagery can be identified at all levels from the physical constraints, to production concerns, to the moral consideration of content. The fundamental physical similarity is the screen and the resultant ***"rectangular framing of represented reality"*** (Manovich, 2001). The production of both demands a diverse, multidisciplinary range of skills. The creative process necessary for producing a film requires development techniques and stages that are directly relevant to the creation of computer based imagery. A detailed understanding of the chosen audience and the appropriate treatment for that audience is essential to both. At a technical level the terminology of cinematography and editing conventions is already encoded into software and hardware to the extent that it has become the adopted language for navigating computer games and virtual spaces (Manovich, 2001).

The correspondence goes deeper than merely providing an intelligible framework for discourse. The study of many detailed aspects of film production can be used to enable understanding of similar processes in the production of electronic art and so is directly relevant to the modern visual electronic artist.

For example, an essential characteristic of film production is that the success of the whole critically depends on the coherent synthesis of different modes of artistic expression that differ widely in the media and techniques involved in their production. We have in mind, as examples of the skill areas involved in this synthesis, artistic domains such as cinematography, directing, choreography, acting, sound and music, visual art and narrative. Narrative plays a key role in forging this coherence, whereby the different forms of expression come together to produce the totality of the dramatic moment. In addition, the film world's notion of "treatment" ensures that a film's central concept and contextual assumptions are made explicit to the different artistic groups involved in its production. By contrast, other art-based endeavours such as architecture, fine art or music do not depend as critically on the synthesis of such wide-ranging disciplines. From this perspective, it is therefore not surprising that the film world has quickly absorbed and harnessed the possibilities that technological advances have provided, such as digital animation and advanced audio techniques. Indeed, film can be seen as the true stereotype of multi-media productions, despite the lack of interface based interactivity.

Correspondence at the technical level

Software is typically written using terminology that mimics real life traditional processes. Numerous technical issues relating to the production of a film are fundamental to the production of computer based imagery and wherever possible we adopt a "teaching from first principles" approach. This usually involves invited speakers who are experts in their field but may not be involved in the new media industries. For example, creative writers, lighting-engineers, actors and costume designers. Lighting design gives a good illustration of this concept. The lighting components of 3-D modelling software have been encoded to mimic that of film set lighting using the same terminology and principles. It is more effective to teach students lighting design using an outfit of physical lights in a room where the students can experiment for themselves with different set-ups to witness the alterations of mood and effect. The theory of lighting design is reinforced through the use of film analysis where films are deconstructed to indicate the effects of lighting design in operation. Thus, when students come to light their digital models and apply lighting to their 3D animations they have a greater appreciation of the effects they require and find the software more intuitive to use.

Curriculum design issues

A curriculum aimed at the formation of an artist should develop three broad kinds of expertise and knowledge. Firstly, technical knowledge of how to effect and realise an artistic intent within an appropriate medium. Secondly, artistic and creative abilities to devise and form an artistic intent and thirdly "process" understanding so as to be able to detect opportunities for artistic production and deliver and "publish" the artistic realisation into an appropriate larger artistic context.

These three kinds of expertise and knowledge can be mapped onto Gange's 1956 hierarchy of learning and Bloom's 1956 hierarchical classification of the cognitive domain. (Percival, 1993)

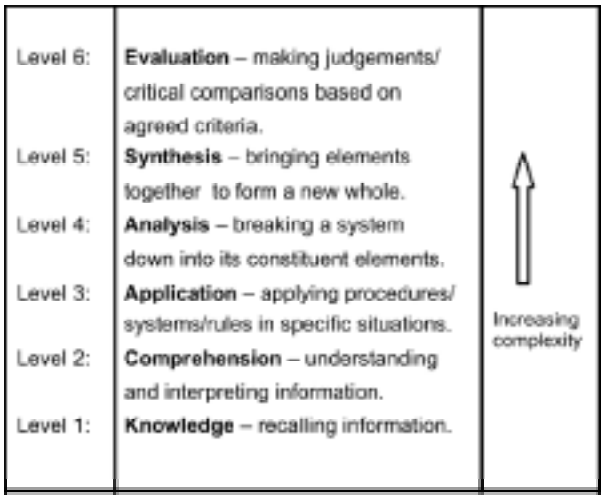

Fig 1 - Bloom's hierarchical classification of the cognitive domain

Lower cognitive	Knowledge, basic understanding and comprehension
Higher cognitive	Application, analysis, synthesis, evaluation. Interpretation, decision making, problem solving and planning.
Affective	Characterisation, organisation, valuing, responding and receiving. Issues relating to feelings, attitudes and values.
Psychomotor	Motor skills, manual dexterity, hand-eye co-ordination and practical abilities.
Interpersonal	Communication (written and oral), listening, working as part of a team, interacting with other people, acting as a leader.

Fig 2 - Scheme for classifying educational objectives and intended learning outcomes.

From this exercise it can be seen that the learning skills required to acquire and apply technical knowledge is a less sophisticated form of learning than those required for problem solving where the ability to think conceptually and abstractly is essential. It is worth noting that on entry to the course the students' natural focus of learning is on the acquisition of technical knowledge, which requires the least involved form of learning and that they have a tendency to resist the creative development and process understanding that require complex cognitive skills.

The task is to design and implement a curriculum that adequately addresses the acquisition of technical skills, develops artistic and creative abilities and paves the way for process understanding. The pedagogic approach taken in the Computer Arts curriculum focuses on a project based, student centred experiential learning approach. This approach accommodates the development of complex cognitive skills by setting the students clearly defined but challenging problems to solve.

A systematic approach to curriculum development and description is generally used for degree level courses within the UK. This approach requires specification of the outcomes of student learning, namely in terms of conventional aims, objectives and learning outcomes. The intended learning outcomes represent the external and observable behaviours that students will exhibit to demonstrate that their learning has been successful, and so they are particularly useful as framework upon which to build assessments.

"The scheme for classifying educational learning outcomes that has achieved widespread acceptance in the last five years recognises five broad types of objectives and learning outcomes" (Percival, 1993)

A common pitfall of adopting a "learning outcomes" based approach is that educators lose sight of the fact that they are merely indicators that assist the definition of minimum standards (Race, 2001). Curricula expressed solely in terms of learning outcomes often degenerate in delivery to mere training. The reductionist approach must be resisted: degree level courses have aims, which transcend and overarch the detailed competences expressed in the learning outcomes of individual course modules.

This is especially true in teaching a subject where the intent is to develop the students' creative individuality, intuitive thinking skills and ability to understand abstract concepts. It could be said that learning outcomes express some aspects of a "micro" curriculum, whereas course aims represent the important "macro" curriculum.

We endeavour to achieve a correct balance (between the micro and macro) by explicitly recognising that the specific learning outcomes should be seen and demonstrated in the context of these grander developmental aims of the programme. Assessment criteria are written in a flexible manner that encourages exceeding the minimum requirements of project brief by, for example, displaying innovation.

Achievement of the learning outcomes is seen to demonstrate minimum competence, acceptable for technician level, but the quality of the performance is assessed against the holistic creative artistic aims of the course.

The BA Computer Arts course aims, along with technical and artistic development, include the development of students' critical self-awareness and understanding of the context of the new media industry.

Writing intended learning outcomes and assessment criteria relating to the lower cognitive and psychomotor attributes to gauge the acquisition of technical competency is relatively easy. Assessing the higher cognitive processes relating to analysis, synthesis, evaluation, interpretation, decision making, and problem solving skills is more complex and requires clear, explicit and meaningful language.

Education to support career progression

The aims that relate directly to the acquisition of affective and interpersonal skills are difficult to assess formally but these aims are an extremely important component and may be the longest lasting and most beneficial aspect of the course. It is our belief that it is the acquisition of these skills that will result in expansive career progression.

Without a structured view of future employment it is difficult to provide students with an established view of career progression within the new media industries. Career progression is more specific in other domains. For example, the architectural profession in the UK has a clearly defined career progression where students, once they have obtained an Architectural degree, enter the profession as an architectural assistant and qualify as an architect once they complete the required professional practice.

Career progression requires three areas of development: technical, artistic and process knowledge. Possession of technical knowledge on its own, however voluminous and sophisticated, is insufficient to give career development any momentum, or direction to a differentiated role. It is argued that career momentum is fuelled by process understanding, and that career specialisation and differentiation is enabled by artistic and creative attributes underpinned by understanding and revelation of context. An analogy can be made with the film industry, where career entry is normally at "runner" level, with further career definition and differentiation eventually leading to positions such as "director", "producer" and "editor" which are more demanding intellectually and creatively. In the new media industries, technical knowledge facilitates career entry since such knowledge has an immediate utility. The acquisition of process understanding provides career momentum for New Media Industry professionals. Equipped with an understanding of the factors influencing the markets they work in, they can creatively adapt to the inevitably changing world . There is much evidence of a shortage of artistic and creative skills in these industries (McLaren, 2002)

Conclusion

Over the last academic year, our course has realigned itself along the lines discussed in this paper. Ultimately the futures of our graduates will provide the evidence of the success of this initiative. However we can make some observations even at this early stage.

Third year students, who had previously exhibited difficulties with understanding the aims of the course and the characteristics of "real world" new media employment were provided with a series of talks by new media professionals who were briefed to explain the nature of their work and also their own personal career paths. The point that more than just technological skill is needed for a new media career had evidently been made: these students original ideas for final year projects were predominantly routine technical exercises. Towards the end of the year, students project ideas had re-oriented to serve as a vehicle to demonstrate their creative and artistic development.

Despite being faced with a steep technological learning curve, second year students clearly articulated that their work was informed by deeper artistic considerations.

In addition, it is a notable benefit that the academic staff have found a coherent philosophy that transcends the diversity of their backgrounds.

References

- Atha, C. 2002 "Language: Developing Communication at the Interface" In Exploring the Interface between Education and the Creative Industries, Edited by Marlene Ivey, pp 51-53. The Lighthouse, Glasgow.
- Hirsch, J. "Job titles are meaningless in New Media" June 1999. www.jon-kirsch.co.uk (31st July 2002)
- McLaren, B. 2002 "Education and Creative Industry: Patterns of Existing Skill Provision in Scotland" In Exploring the Interface between Education and the Creative Industries, Edited by Marlene Ivey, pp 7-9. The Lighthouse, Glasgow.
- Manovich, L. (2001). "The Language of New Media", The MIT press, Cambridge MA.
- Percival, F, Ellington, H I, and Race, P (1993) "Handbook of Educational Technology" 3rd Edition. Kogan Page, London.
- Race, P and Brown, S (2001) "The ILTA guide: Inspiring Learning about Teaching and Assessment". The Institute for Learning and Teaching in Higher Education, York, UK.