Teaching Industrial Design Criticism

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Abstract

This paper presents a methodology that allows students to learn criticism as a conceptual tool. Expertise is built up incrementally through the utilisation of lectures, seminars, debate and student presentations. I intend to show how this method can facilitate productive thought about many aspects of design, therefore fostering a more mature approach to criticism than many undergraduates may otherwise achieve.

This is brought about through considering together the aspects of a design that third year undergraduate students will already know or can readily infer about a product. They are not required to accommodate much new knowledge, but are shown a way of rearranging aspects of their existing knowledge of diverse subjects such as design history, design theory, materials and manufacturing technology and ergonomics in order to allow critical thinking to take place. The methodology can also be further adapted to allow for criticism of various types of design commentary.

Various methods of assessment are proposed, and the most effective ways of both facilitating critical thinking during assessment and judging the development and quality of that thinking are discussed.

Keywords

Design criticism
Design education
Assessment
Critical thinking

Introduction

This seven week criticism module is taught to third year undergraduates within a unit named History, Theory and Criticism 2. The unit is intended to build on History, Theory and Criticism 1 which is taught in the second year of the course. Students have had previous experience of criticism mainly comprising review of texts and evaluation of design methods and paradigms. This module introduces a complete methodology for criticising designed objects, which can also be adapted and used for criticising texts or ideas.

In this paper I detail the methodology used to criticise design and discuss the learning that has taken place through the module, considering pulling together strands of diverse knowledge, learning styles of the students and the applicability and relative success of various assessment methods.

My objectives in teaching criticism to industrial design students are:

- Developing students' skill at evaluating other designs during the research phase of the design process.
- Developing students' skill at objectively criticising their own designs.
- Assisting students in deconstructing and learning from others' work.
- Enabling students them to conduct mature and informed discourse about design.

In addition to these goals, Walkner and Finney (1999) see the development of a student's critical ability as a means of empowerment. They claim it is a way of fostering lifelong learning and also as a goal of lifelong learning, and they discuss the idea of critical thinking as an ongoing way of being and thinking. They believe "the spirit of critical thinking is that we take nothing for granted or as being beyond question" (Walkner and Finney, 1999). Therefore there is a generic life skill also acquired by the students through learning about critical thinking.

The Methodology

Obviously, at an early stage students need to be made aware that criticism is not just a negative term. It comes from the Greek work *kritike* – to judge. The dictionary definition of the verb to criticise is; "to consider the merits and demerits of something, especially a literary or artistic work, and judge or evaluate it accordingly" (Allen, 2000).

The methodology I use follows the pattern of the dictionary definition of criticism. In other words, first one needs to consider the merits and demerits of an object and then one can judge it. Like Walkner and Finney (1999), I subscribe to a wide interpretation of critical thinking that includes both subjective and objective aspects. I did not invent the method but it was taught to me by Jeremy Myerson, then visiting Professor at De Montfort University in Leicester (UK), where I did my Masters degree, and now Director of the Helen Hamlyn Research Centre at the RCA. I have adapted it slightly for use with undergraduates and to suit my students. The unit is delivered as five one hour lectures, four two hour seminars (three assessed) and a final assessed group project prepared with tutorial support and presented in front of peers. Recommended readings and lecture notes are also placed at the students' disposal.

The basic components of the criticism methodology are description, analysis and critique and they are broken down in the following way:

Description
What can be seen - factual observation.
(eg shape, line, colour, material, use, product type, etc)

Analysis
What the elements add up to, how they are organised. Their context.
(eg use of manufacturing processes, target market, historical reference, etc)

Critique

Subjective judgement. Critique can be separated into two parts:

Interpretation - what the object means or what secondary purpose it may have. (eg symbolics, symbolism or metaphor).

Evaluation - how it measures up to personal or other criteria or standards. (eg social, historical, cultural, economic, environmental, etc).

This methodology therefore involves looking at a product in ever more complex layers. Each stage is more involved and more thought-provoking, so each time we revisit the object we consider it more closely and in more detail. Finally we are able to make an informed subjective evaluation of the product's worth or usefulness. The framework allows an informed judgement as a design can be seen for what it is, without the publicity, reputation or other associations that surround it.

After learning the basic methodology and practising it in groups through two seminars (one for practice and one assessed), students are introduced to more complex aspects of parts of the methodology. For example, the four types of historical reference form part of the analysis of the object. The four types I have used are:

1. Quotation - almost a copy, close to plagiarism
2. Mimicry - working in the manner or style of an artist, school, designer or movement
3. Transformation - assimilating the influence and making the style one's own.
4. Evolution – where a product is continuously developed by the same company and often under the same name and changes can be seen in each incarnation.

The fourth type was developed through interaction with this year's class, who felt that transformation did not go far enough to explain continuous refinement of a product. A further assessed seminar is used to encourage students to research in advance the historical influences of a product and then, in small groups, to explore these influences and which of the four types they might involve.

At this stage, the interpretation phase is also expanded using a matrix (figure 1) which enables us to map the artifice or honesty a design might entail, and where in the social scale it could be aimed, and therefore tells us whether it is "about" the future or the past. Using this matrix enables students to compare different products or to compare original designs with those that are quotations or mimicry of them and I have found that in most cases the matrix succeeds in predicting accurately the degree to which the design is forward or backward looking.

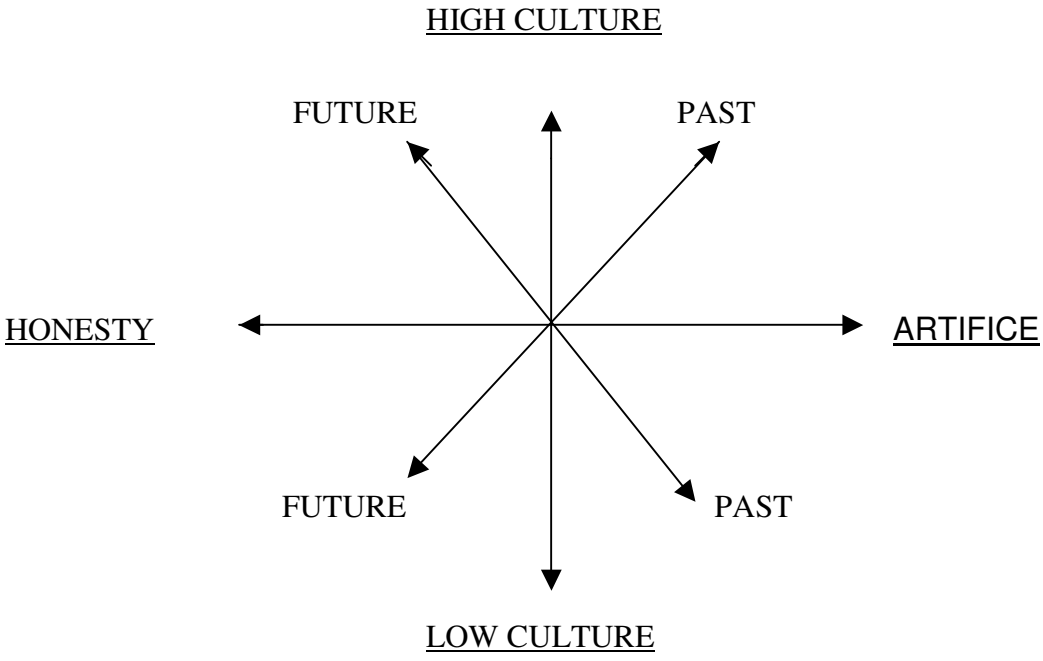

Figure 1 The interpretation expansion matrix

This matrix is useful as it is a visual projection of quite abstract ideas and allows an immediate comparison of two or more different products (figure 2). A grid, table or matrix can be understood much more quickly and easily than prose that presents the same information (Norman, 1993), and designers are visual people (Sommer, 1978), who should be able to easily relate to a graphic representation of where products stand on the matrix in relation to each other. The students have taken this on as a tool and

employed it well in explaining their points of view. Some students have even adapted this matrix to show how they consider the same product would be viewed by society in the past, presently and in the future (figure 3).

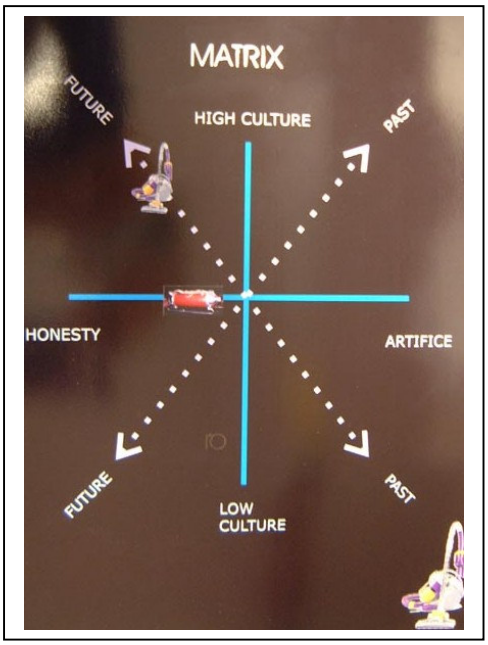

Figure 2 Student work showing the matrix used to compare two products

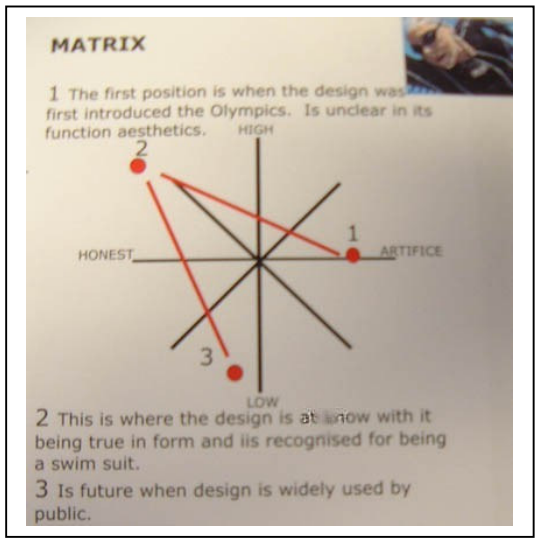

Figure 3 Student work showing the matrix used to show how a product may be viewed in the past, present and future

Design writing and commentary is investigated and criticised by applying the same methodology. As design is rhetoric in a realised form (Buchanan, 1989), the methodology works well into a way of criticising written rhetoric. An assessed seminar is again used to allow students to compare writing on the subject of design aimed at designers and non designers and composed by designers and non designers. They find it challenging to apply the methodology to something less concrete than a product, but all groups succeeded in criticising the text quite successfully and made valid points and mature judgements. Assessing the way people write and talk about design is important because the realisation of design is in the public domain and design has become a popular subject that is much discussed in many different circles by different people with varying degrees of knowledge of the practise of design. Students will be able to apply this skill to judgements they need to make about design commentary and the motives and meanings behind it during further study and their working lives.

To further develop a mature and thorough approach to criticism, I also cover moral issues, considerations of national identities projected by designs, components of aesthetics such as visual perception, bisociation, complexity and familiarity in styling and product symbolics, semantics and symbolism. This content was delivered through the lectures and whole class discussions and developed as part of the expected contents of the debates during seminars.

The main assignment (comprising 50% of the marks) involves small groups working to thoroughly criticise one design using all the tools and techniques they now have at their disposal. The assignment was completed in groups of 5 or 6 and students had three weeks in which to complete the assignment with five hours of tutorial support provided during that time.

Pulling together strands of diverse knowledge

As educators, many of us have experienced the frustrating situation of students failing to apply knowledge that we know they already have from a different area of the curriculum to a new area or problem. Holyoak (1985) discusses research that suggests American college students often fail to apply solutions to one problem to an analogous problem. Indeed, he estimates that only about 20% of students in a cited test conducted by Glick and Holyoak (1980) actually spontaneously noticed and applied the analogy.

Some researchers have suggested that this may be due to the way in which people categorise their knowledge (De Bono, 1967). De Bono (1967) claims that the mind divides the world into discrete units – this allows people to understand things by breaking them down into familiar parts. So, do students see the course they do as a series of disconnected subjects or can they apply the knowledge from each to the others as required? Lakoff (1987) claims we could not function physically, socially or intellectually without the ability to categorise, but it could cause some problems when applying knowledge across domains, even for experts. Unless identifiable common elements or opportunities for transfer are present the expert is likely to perform only a little better, or no better, than the novice (Richman et al., 1996).

One of the purposes of the criticism methodology I have been using is to give students the opportunity to bring together much of the material they have learnt during the past two and a half years and apply it to criticising design. The methodology provides a framework to follow and by suggesting the sorts of things that should come into each stage, I can encourage students to apply their existing knowledge as required at each of the stages. This includes knowledge from differing areas of the curriculum such as materials, ergonomics and usability, design theory and history, design practice, manufacturing technologies and design for society and the environment. Their research and investigation and presentation and discussion skills have also been used and further developed. Therefore, as the unit utilises knowledge they already have, they are not required to accommodate new facts late in the course.

Accommodation takes place when people learn something new - a schema is changed or constructed for that context or activity. However, it is possible to assimilate information into an existing schema without having to change it, although people may have to alter their interpretation of the world somewhat (Mandler, 1985). Therefore, students should begin to see criticism (and indeed the design process) as a framework that requires the application of all their relevant existing knowledge, not just some of it, but they are not required to learn new knowledge. So, they get practice at considering all the angles and factors relevant to a design rather than just the ones that seem important to them at a particular time, and will go away with skills they can use during their further studies and future careers. Walkner and Finney (1999) claim that most learners neither value nor practise active, critical reflection. They are too busy studying to stop and think. This module aims to gives students the opportunity to stop and think and reflect using their existing knowledge rather than requiring them to digest more new knowledge.

Learning Styles

During the module, the students were asked to anonymously complete the learning styles questionnaire developed by Honey and Mumford (1992). Out of the 37 students who completed the questionnaire, the majority (19 or 51%) were “activists,” while a

significant minority (10 or 27%) were “reflectors.” Two students (5.4%) came out as “theorists” and two (5.4%) as “pragmatists,” and the remaining 4 students (10.8%) had a mixed profile with no particular preference apparent.

Honey and Mumford (1992) define an activist as a person who involves themselves in new experiences, enjoys the here and now, is open-minded and therefore enthusiastic about anything new. They tend to act first and consider the consequences afterwards and thrive on the challenge of new experiences. A reflector on the other hand likes to stand back and ponder experiences from many different angles. They collect data and prefer to think about it thoroughly before coming to any conclusion. They tend to be cautious and thoughtful and usually listen to discussions and get the gist of the arguments before making their own points.

It is possible that the majority of the students came out as activists because of their stage of life (it would seem likely that young students are living more for the moment than older people with jobs and other responsibilities), but also the enthusiasm and involvement in new experiences they demonstrate would seem to be characteristic of designers. Honey and Mumford (1992) suggest that activists tend to have a low preference for reflection, although 10 of the activists showed a high or moderate reflection preference, while only 9 of them showed a low or very low preference. It is possible that the previous study of criticism has already helped to develop reflective skills in these activist learners. Also, students on this industrial design course are often asked to produce reflective journals as part of the assessment requirements. This activity could also help to develop reflective thinking (Beveridge, 1997).

The requirements of the criticism process demand a more reflective than activist style of learning (although the open-mindedness of an activist would be an advantage). Honey and Mumford (1992) suggest that practice at a particular style can strengthen it. The criticism module has allowed structured practice of reflection to take place, and, despite the early tendency on the part of many students to jump to conclusions and fail to consider all points of view and aspects of a product before making a subjective evaluation, most if not all of them have learned to be more reflective in their criticism of products.

Assessment approaches

Last year during this module, the seminars were not assessed and instead there was an exam at the end of semester. This meant that busy third years were much more reluctant to do the research required each week to prepare for the seminar so the discussions were much less in-depth and less valuable and there was not so much evidence of increased understanding and application of the methodology.

The assessed seminars have worked well in terms of increasing quality of learning as well as allowing a more accurate assessment of that learning than an exam, but have been more labour intensive in terms of marking. It was not possible to assess all the work during the seminars as I was busy facilitating discussion and the research each student had done was in many cases very thorough. Therefore, each seminar entailed several hours of marking both the research they had done and also the notes on the discussion that took place during the seminar. A solution to this may be to put more emphasis on group work from the beginning of the module.

When the students were asked to complete an evaluation form at the end of the module, 50% indicated that they thought the seminars were a good assessment tool, while 39% thought some of them were. However, only 24% said they would have attended all the seminars if they were not assessed, with 3% admitting they would have attended none, 46% saying they would have attended some and 37% saying they would have attended when they had time. Therefore, it would seem to be necessary to put assessment into the seminars as a way of ensuring that students benefit from the cumulative practice at criticising that occurs week by week through preparing for and participating in the them.

Because the final assignment was done in groups, it was necessary to check that each group member had pulled their weight and would deserve the same mark as the rest of the group. A simple declaration form was issued to each student during the presentation session and they confidentially recorded the names of any fellow group members that they felt had put in more or less work than the rest of the group. This

system has been used for other projects within the School and works quite successfully.

Overcoming Challenges

In the early stages, students seemed to expect that there would be right and wrong answers and looked to me to tell them if their opinions were correct or not. It was therefore necessary to emphasise that there was no exact answer to the sorts of questions we were asking during criticism, but the quality of their arguments depended on how well they could support them. The students embraced this well, possibly because they are already used to the idea that there is no right answer to a design brief.

At first students were likely to be too subjective too early and one of the main hurdles to overcome was getting them to be objective during the description and analysis stages and save their subjective opinions for the critique. Through practice and guidance they have achieved this.

Conversely, some students were sticking too closely to the exemplar lists of factors to be included under each heading, even if they were not relevant to the object they were criticising. Similarly, they would miss out a specific point that could have been relevant but was not on the exemplar list. This was one of the factors that made the criticism of texts so challenging for many of them. After it had really been brought home to them during that session that it was acceptable to miss out list items that were irrelevant to the object of their criticism, they completed the assignment well and learned that the methodology could be flexible according to their needs.

With some groups of students, it can be difficult to get them all participating and making their own comments, particularly in a whole class discussion situation. To overcome this, I have used examples of design that they already know something about (for example, some of the products I used as examples when teaching them design history the previous year), or that will hopefully provoke them into making their opinions known (for example unusual and controversial pieces). This tactic,

coupled with the fact that the students were also practising voicing their opinions in the seminars each week, when they were criticising designs they themselves had chosen, got them actively involved in class and small group discussions from an early stage.

Evaluation of Learning

The students showed a good progression from basically following the lists of things to be put under each heading, to interpreting the methodology for the product they were looking at and including relevant points under the right headings, in a more logical order according to their needs, and applying the necessary knowledge from elsewhere in the curriculum. I believe that this progression was largely brought about through the practice and feedback obtained during the seminar sessions, and the cumulative nature of the skill base they were building. The seminars allowed me to give the students guidance at implementing the lecture material and monitor their progress each week. Therefore I could pitch the following week's work at a suitable level.

Because the seminars were assessed students have done research in advance which has allowed them to think on the issues covered each week and apply them to their next assignment. Therefore, during the seminars they have succeeded in having valuable discussions and learning from each other during debate. For the three assessed seminars, 28 students out of 41 (68%) have shown an increase in marks between seminars 1 and 3. For the first two seminars (both assessed individually), 27 out of 41 (65%) showed an increase between seminars 1 and 2.

During the final assessment all the groups produced work of a high standard and covered all the aspects required in the three weeks they were allowed to do this project. The work shows good progression from the that produced during the smaller seminar-based assignments. There is evidence of thorough research and deep critical thinking, building on the foundations laid earlier in the module. For example, some groups have gone beyond exploring the existing products and other factors that have influenced their product and addressed the issues surrounding the products that the subject of their investigation has influenced in turn. The conclusions reached were all

well presented graphically and very clear. The assignment does seem to have achieved its objective, which was to encourage students to bring all that they had learnt to bear on a single product and get a real feel for applying their new skills.

There is some evidence from the assessed seminar and project work to suggest that some students tended to rely a little too much on information they had gleaned from various non-scholarly websites. In most cases this would be the most suitable way to find out about a product that is currently on the market and that has got people talking. However, in some cases students may have been too credible of the information presented on the internet by the makers or sponsors of those products. This may be related to the fact that words look authoritative once they are written down and published (albeit electronically), and the fact that students have begun to see the internet as the first point for research of any sort. It would have been nice to see some scholarly and reviewed writing (whether published electronically or on paper) related to some of the products criticised, and also more rigorous use of referencing. There are implications here for the teaching of the criticism of writing section in the future. This could include emphasising to students that the writing they use during their research as part of the criticism process should also be criticised to determine its applicability. The internet is an area that could be explored in this context.

Student Evaluation of Module

The students were asked to complete an evaluation form at the end of the module and the response was generally very positive. 79% of respondents believed that their criticism skills had improved during the module and 87% felt that the methodology used was an effective way of criticising design, while only 5% believed it was not and 8% were undecided.

Feedback during the module and on the evaluation form also indicated that the students found the criticism of a text difficult. However, despite their initial difficulties with this exercise, most of the groups analysed well the writing they found relating to the products they were criticising for their final assignment. Therefore, this

factor and the issue of reliability of written material for research purposes that needs to be covered would suggest that the criticism of texts is still a worthwhile activity. In response to the feedback, some changes could be made to the content and assessment procedures so that less time is spent by the students on the criticism of texts and instead they spend more time debating the moral issues relating to design and how those issues interact with their own personal belief systems. This was an area that was discussed as a class but students indicated they were eager to develop these discussions further in their groups during a seminar, and some of the groups were interested enough to cover it in depth during the final assignment. Therefore, it may be sensible to discuss the criticism of texts in the class context (where more guidance can be provided) and debate moral issues in groups during an assessed seminar.

Some students also commented that they found the lecture covering aesthetics and semantics very useful. This feedback suggests that it would possibly be beneficial to include more of this sort of information, maybe quite early on in the module, for the students to ground their criticism in.

Conclusion

The feedback provided by the students, coupled with the high standard of work produced, suggests that the methodology has been successful in facilitating students in thinking critically about a whole range of different products and design issues, both objectively and subjectively and from a variety of angles.

The methodology has proven flexible in terms of the designed objects it is used to criticise, the age and experience of the students (it has successfully been transferred from Masters to Bachelors level) and the format of the learning situation (it has worked well in lectures and whole class discussions, short seminars with small groups and longer and more detailed project work). Therefore, it would seem to be a sound framework on which to base the criticism of many incarnations of design.

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