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## AN EXAMINATION INTO TEXTILE EDUCATION BY ACTIVE RESEARCH

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### ABSTRACT

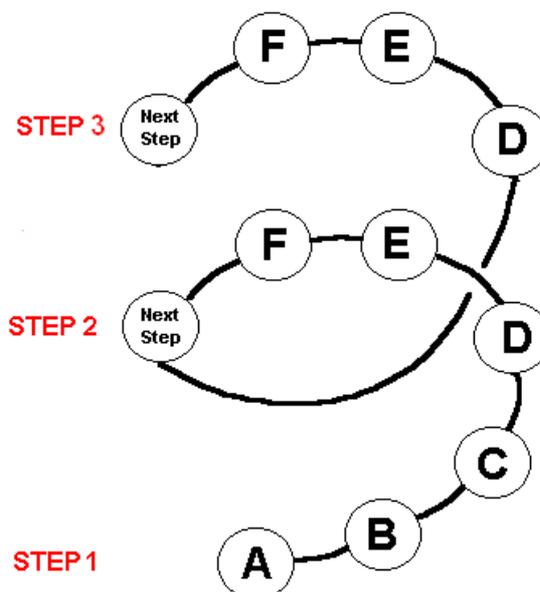
The active research presented, is based upon an adaptation of Kurt Lewin's model, which is known as "the spiral". It demonstrates modifications in the teaching and learning of textiles through practitioner enquiry over a period of three years. The work begins by practitioner reflection, this part of the study illustrates the necessity of continued reflection and its effect with regards to the teaching and learning of textiles. It was found that learners in higher education generally demonstrate more engagement when an active approach to learning is exercised. The study then moves forward into the development of a curriculum, based on the principles of promoting autonomous and self-directed learning, thus, meeting the requirements of the new and vibrant textile and clothing industry. Problems relating to the teaching of a practical subject are identified and suggestions are offered in an attempt to improve the learners experience and engagement. The outcome from this first phase of study was a modified textiles curriculum and resource plan. The second phase of the research was the implementation of the plan over an academic year (level 1 and 2 degree). Reflection on the teaching and learning is measured through formative methods providing both qualitative and quantitative data.

### 1. INTRODUCTION

Active research usually begins with a research enquiry thus fulfilling the "Concrete Experience" as described in Kolb's model. This includes, considering accountability, assessing the needs of others with a responsible attitude and generally evaluating the aspects of good practice (McNiff, 2002). Formative assessment allows practitioners to evaluate and modify their behaviour and offers a new focus to teaching and learning. There are currently many interpretations of action research, which have developed over the years into various models and practices. However, the common factor between all the descriptions and models is that the process of reflection, modification and adjustment should be infinitely continuous to ensure improvement within both teaching and learning and this process should be reflected strongly within an evolving curriculum. Action research in Britain emerged in a variety of forms during the 1970's. One approach that was considered a major influence was that of "continuous self-evaluation" this was strongly associated with the concept of "the teacher as researcher" developed by Lawrence Stenhouse (McNiff, 2002 and Kelly, 2004). Self-evaluation has developed within the academic community over the years, with some individuals concentrating on technical aspects and others examining the values that denote the actions. One common factor identified by McNiff is that "Most people recognise the educational base for action research" (2002, p.7).

The aim of this work was to develop, enhance and advance the teaching and learning of textiles within fashion and clothing courses at higher education level. Active research in the form of a practitioner enquiry was conducted over a period of three years. Kurt Lewin's approach (the spiral) was adapted within this work into a series of steps and stages illustrated in Figure 1. Step 1 established the initial idea; stages A, B and C

covered the exploration, planning, and evaluation prior to the implementation of the action at step 2. Extra stones D,E,F were then added as a direct result of the action to reflect, compare, and amend the research plan. The implementation formed the next action at step 3 and the stones D, E, and F continued.



**Figure 1: Adaptation of Lewin's model of Action Research**

The work conducted is split into four steps, the first concentrates on establishing the idea, the second, third and fourth are the development and implementation of the actions over a period of three consecutive years. This demonstrates the evolving textiles curriculum and highlights problems concerning class sizes, entry behaviour and attendance. It offers solutions relating to the teaching of a practical subject in an attempt to improve the learners experience and engagement whilst developing the autonomous approach to learning.

## **2. BASIS OF THE ACTION RESEARCH (STEP 1)**

There are three core reasons for conducting the active research and publishing the findings, firstly reflective practice of textiles education in this context will contribute to the wider understanding of teaching and learning in higher education. Secondly one of the three courses that contributed to this enquiry was due for a course review in the year 2005 and the remaining two courses in the following year (2006). This opens up a huge opportunity to re-evaluate the requirements of industry and evaluate textiles place within fashion education. The final reason is based in education theory and professional development. In order to become and remain a successful practitioner, constant reflective practice is required to enthuse the subject area, and active research is a recognised technique to employ.

## **2.1 Exploration of the Background**

This research initially reports on the placement of textile education within three-degree level non-specialist textiles courses in Fashion Marketing, Clothing and Fashion (Design and Technology). The element of textiles contributes 1/3 to the 20-credit module of Combined Technologies at both levels 1 and 2 (which amounts to 24 taught hours over a period of 12 weeks). The courses had seen a continued increase year on year regarding cohort sizes. Cohort 2003/04 for the three combined courses amounted to 284 learners at Level 1 and 219 learners at Level 2 (figures at enrolment) which formed two large classes at level one (Fashion Marketing and Clothing/Fashion) in the first term and two large classes at level 2 in the second term. There were of course many implications in terms of the teaching and learning of large group sizes, both positive and negative (needless to say the rooming, accommodation and the low ratio of staff to learners posed initial problems). At both levels each class was timetabled for the textile element for a duration of 2 hours in a fixed seated lecture theatre. At Level 2 the learners had the benefit of two laboratory demonstrations and three self-study periods over a period of four weeks, this was to enable small group demonstrations in the laboratories with the assistance of a technician during that period. Traditionally textiles was a well-established area in the department, however, material resources had run low because of growth in learner numbers. The assessment was assignment based, reflecting appreciation and understanding at level one and knowledge, analysis and application at level 2.

## **2.2 Active Research Plan (2003/04)**

The objective of this active research was to develop a new textile curriculum for the fashion learners to promote a learner centred model, meeting the needs of today's vibrant industry, whilst simultaneously encouraging active learning to enable a deeper subject understanding to be obtained. If the curriculum proved successful in terms of teaching and learning the research strategy and knowledge obtained from this study could be used to further develop specific textile curriculums and teaching methodologies for both fashion, clothing and fashion marketing learners. To enable a new curriculum and teaching strategies to be developed it was essential to reflect on the current curriculum, including learner feedback and establish areas for improvement and further innovation. This began with an evaluation through practitioner enquiry for the year 2003 which formed the actions for step 2 within the overall research plan illustrated in Figure 2. At the end of step 2 the intention was to have recommendations for new developments within the teaching and learning of textiles and a new plan (step 3) to implement for the 2004 academic year. Again the reflective process occurred throughout the academic year resulting in major changes to the curriculum for the academic year of 2005, taking advantage of the course review. Figure two demonstrates the overall research plan.

Step 1 – Establishing the idea (2003/04)

- A) Basis of the action research
- B) Exploration of background
- C) Active research plan

Step 2 – Implementation of the plan - Action 1 (2003/04)

- D) Evaluate on the action (review of the 2003/04 curriculum)
- E) Assess the outcomes against the plan
- F) New plan for 2004/2005 (Recommendations for new developments)

Step 3 – Implementation of the modified plan - Action 2 (2004/05)

- D) Evaluate on the action (review of the 2004/05 curriculum)
- E) Assess the outcomes against the plan
- F) New plan for 2005/2006 (Recommendations for new developments)

Step 4 – Implementation of the modified plan - Action 3 (2005/06)

- D) Evaluate on the action (review of the 2005/06 curriculum)
- E) Assess the outcomes against the plan
- F) New plan for 2006/2007 (Recommendations for new developments)

**Figure 2: Research Plan for the Development of Textile Education****3. EVALUATION OF ACTION 1: TEACHING AND LEARNING YEAR 2003**

The learning at stage 1 across all courses was initially evaluated through a tutor's reflective diary. Generally the diary revealed through practitioner observation that there was less engagement when using a traditional format to deliver the curriculum (i.e. traditional lecture theatre with fixed seats, the lecturer "the expert" and the learner taking a submissive role "the follower"). The learning was extremely varied, some learners were copying verbatim from the lecture notes and others were not taking any record of the event. From a delivery point of view it was difficult to judge the speed and pace suitable for the class because of the varied level of engagement. In later lectures at the same level the focus became more interactive using a combination of learning resources (samples of textile material were issued with problem solving activities), but still remaining in a traditional environment (fixed seating). The class was found to be more responsive to this method of teaching despite the limitations of fixed seats. However, there were serious implications of using textile resources in this environment. The first one being the amount of time required sourcing suitable samples and the second was how to deliver these in a class size of 100+ efficiently so that all learners have the resource at the required time. Through experimentation it was found that passing the samples of textile materials from the back row forward, appeared to be the best strategy.

At stage two the curriculum and delivery method worked better, the class sizes (although still large) were considerably smaller than level 1 (23% less). The group was split into smaller teams over a period of four weeks to enable laboratory classes to occur. The laboratory classes proved to be a useful tool, enabling greater interaction between the learners and the lecturer. However, because of the large class sizes, to enable all the learners to have a single two-hour laboratory demonstration they had a period of three weeks self-study. It was noted that some learners appeared to use this wisely but others just wasted the time engaging in non-academic activity. Thus, in reflection perhaps not the best method to encourage self directed learning. This opens up the question – how

much directed guidance should learners at this level require, to enable them to progress successfully to autonomous learners?

### **3.1 Learner Feedback**

At an early stage (partly due to the varied engagement levels observed during class) the level 1 learners were asked to declare if they had previously studied textiles and their current age. It was found that there were wide variations between the groups. In the largest class size (which appeared to be struggling with the subject) only 33.3% had previous experience of the subject at a lower level (GCSE, A-Level etc). Whilst in the Fashion and Clothing courses the percentage was significantly higher 74.2 % and 84.5 % respectively. It was found that over  $\frac{3}{4}$  of the learners on all 3 courses were between the ages of 18-20 thus any changes in the curriculum should be styled to their requirements. At week 3 and 5 of the 12-week plan the learners were asked to identify (on a scale of minimum, average or maximum), how much they had expanded their knowledge in their own opinion. At week 3 for Fashion and Clothing Learners over 74% and 68% (respectively) of the learners stated average or higher, whilst in the remaining course (Marketing) 38 % stated average or higher. This suggests that the course curriculum or the delivery method was aimed at those learners who have some basic knowledge of the subject. At week 5 (when the curriculum delivery became much more interactive) 44 % and 51 % of the learners in courses Fashion and Clothing expressed average expansion of knowledge or higher (a small amount of learners expressed no expansion of knowledge) and 62 % expressed average or above amongst the marketing learners. This would suggest that because of the differences in entry behaviour and knowledge the courses should have different sets of learning objectives. Perhaps consideration should be given to the development of more technical information for the Clothing and Fashion learners, leaving the Marketing learners to concentrate on basic subject knowledge. One thing that was common across the board was that when the learners were asked to comment on preferred learning style, over  $\frac{3}{4}$  of all learners, irrespective of course preferred being taught using interactive methods and using problem solving techniques.

The second year feedback was informal and gathered during the laboratory classes. The learner valued being taught in smaller groups because they felt more inclined to participate in the interaction and felt less self conscious when asking questions. They also acknowledged that problem solving and laboratory demonstrations during lecture time would have provided a deeper understanding of basic subject knowledge if they had been included at level 1.

### **3.2 Assess the Outcomes Against the Action Plan (2003/04)**

From the evaluation of action 1 it was acknowledge that there were 5 main points to consider in order to develop a learner centred curriculum geared towards the needs of today's industry.

- Device a new curriculum for the marketing learners, which is more in line with their entry behaviour and knowledge level.
- Split the Clothing and Fashion group to assess if their learning requirements were different.

- Continue with small group teaching at level 2 but provide a more guided approach to self directed study.
- Development of more interactive learning material at both levels.
- Resource enough samples to support the interactive learning.

In terms of action plan 1, through active research it was identified that prior to modifying all parts of the curriculum for all courses further investigation was required.

### **3.3 The New Plan: Action 2: 2004/05**

A new unit was introduced at both levels of fashion marketing taking the title Fashion Materials. The fashion material element also increased dramatically to become 67 % of the unit mark at level 1 and 50% at level 2 (this is in line with their entry behaviour, to enable them sufficient time to improve their background knowledge). This provided the opportunity to re-assess the curriculum, delivery method and assessment criteria at both stages, promoting a more interactive learning style. The fashion materials element and the product development unit (separate unit) both focussed their assignment criteria on the same product thus reinforcing the link between the subjects at both learning levels. A decision was made to split the Fashion and Clothing learners which had previously been taught simultaneously, deliver the same curriculum as the previous academic year and re-evaluate the learners needs; this however, had implications in terms of extra staff and teaching hours but it was necessary for curriculum development and learner progression.

At level 2 across all of the courses the textile testing demonstrations (laboratory classes) were planned and thus a period of self-study was allocated over a period of four weeks. In the year 2004/05 the groups for the laboratory classes were split according to individual attendance from their first year (hence, all the learners with good attendance were placed together). A group project was also set to encourage the learners to develop study skills, key skills and further their subject knowledge (thus, providing guidance towards developing, autonomous self directed learning). The findings of the group study were presented to their peers at the end of the laboratory sessions.

To promote interactive learning new learning resources were also developed and uploaded on the faculty intranet prior to the lectures being delivered. The format of the presentation was changed to support learners with disabilities. More samples were resourced to support the learner thus building links with industry. However, it was identified prior to delivery that problems may be experienced with the increase in learner numbers 10% at level 1 and 12 % at level 2 (figures at enrolment), and that this would need to be addressed per activity to establish an overall picture.

### **4. EVALUATION OF ACTION 2: TEACHING AND LEARNING YEAR 2004**

Up loading the learning resources on the faculty intranet prior to the lecture appeared to work well. Learners who had missed lessons found this an easy way to obtain information and to catch up within the allocated self-study periods (hence, taking responsibility for their own learning). The new format of the PowerPoint slides was also

appreciated, not only was the font made easier to read the text on the slide was reduced to form key points – this enabled the learner to focus more on the discussions taking place, and as a direct result interaction improved during class activities.

Splitting the Fashion and Clothing learners at both levels dramatically reduced the class sizes to manageable numbers for these groups, the smallest group being just over 50 learners. However, the marketing course increased its 1<sup>st</sup> year intake by 29% resulting in 168 learners enrolling in 2004. This group size presented problems in itself, the interactive sessions that had been successful previously now became difficult to control and the practical sample distribution that worked prior now became tedious to administer. When looking at introducing new textile resources this again became problematic as many more samples were required, thus taking considerably more effort to resource and prepare.

The difference in the entry behaviour between the clothing and fashion learners (which were previously taught as one group) became very apparent during 2004. At level 1 the fashion learners were very interactive and wanted to relate textiles directly to usage in fashion (they liked lots of activity, discussion and generally exercised care and thought when participating in the seminars). Whereas, the clothing learners required more specific technical information regarding the properties of material to assess its value, the learners excelled in problem solving and took the subject very seriously, including the gathering of extra material for self-study.

New textile resources proved difficult to obtain in the quantities required. The smaller courses benefited from samples being demonstrated at the front of the class and passed around for closer inspection. However, with the large group this proved impossible. A new curriculum was introduced but the class size and the learners' level of maturity prevented it reaching its true potential (during class activities learners were leaving the room and returning later without conducting the problem solving exercises), as it was very difficult to control (traditional lecture formats became more attractive enabling more control over large class sizes to be exercised, but this format was not engaging for the learner).

At Level 2 the laboratory demonstrations worked extremely well for a second year. The keen learners (irrespective of their academic ability) appreciated being grouped together and the learners whose attendance at level one had been low did put more effort into organising and managing the self-study activity, this was especially evident in the fashion and clothing courses. Clothing learners excelled in the group presentation and there was significant development in key skills (presentation, research, team building). Generally during this formative assessment (peer presentation) the attendance peaked for the year, both the Fashion and Clothing learners displayed a good level of professionalism. However, difficulties were experienced within the marketing class mainly due to vast learner numbers and poor attendance prior to laboratory classes – some groups had changed the brief, others had formed their own groups and one learner worked completely on his own. There was not as much enthusiasm or advancements of key skills demonstrated during their presentations, perhaps the exercise was seen as a

hoop to jump though by some learners. The keener learners became progressively frustrated with poor quality presentations, which they were obliged to sit through.

Further problems were experienced during the assessment because of staff-learner ratios. An increased unit weighting from the new unit also had implications on staff resources. Although it has to be stressed that the level one learners benefited from the new assignment related to product development and the level of engagement was proven with the increase in overall marks for the course (average year 03= 55.1% to average year 04= 66.8% at BA Level 1).

#### **4.1 Assess the Outcomes Against the Action Plan (2004/05)**

Although the new structure for the Fashion Marketing learners was implemented successfully, more difficulties were experienced with the interactive sessions than with the previous year (2003), the activities that had worked previously became increasingly difficult to administer due to class sizes; and fabric distribution became more time consuming. Although some problem solving activities are suitable for large class sizes there appears to be a limit in terms of numbers where interaction and problem solving techniques are no longer an efficient learning strategy. A suggestion for further improvement would be to split the group, thus, increasing staff/learner ratios and repeat the taught unit in the session 2005.

The split within the Fashion and Clothing learners enabled interesting tutor observations to occur regarding learner needs. This aided in the developments in 2005 and enabled the curriculum to be modified to meet the specific learner needs (seminar classes were considered thus, creating the opportunity for more problem solving activities to be incorporated into the teaching and learning). The placement of lecture resources on the department's intranet prior to a lecture proved to be a good use of technology enabling all learners to access information at their convenience. This should be continued and perhaps expanded to include lecture notes. The final reflection is regarding material resources; it was found that this still is a good technique to engage the learner and although there becomes a level (in terms of learner numbers) where this is ineffective it is still manageable in class sizes of around 100 learners and perhaps more importantly in group sizes under 50. Regarding building links with industry, many samples were obtained in small quantities and in the smaller learner group (Fashion Learners) using these proved quite successful, however, further investigation needs to occur regarding problem based learning for the new innovative materials that have been sourced.

Finally, the learner centred group project at level 2 was well received by most learners who benefited enormously from a limited amount of study guidance. This demonstrated a strong move forward in key skill development and self initiated subject research. Although it was noted through the peer presentations that the learner tended to opt for the easy research option (investigating a cotton/polyester garment).

#### **4.2 The New Plan: Action 3: 2005/06**

In order to develop a new curriculum for any of the three courses the main issue that required addressing was the learner/staff ratios. The learner numbers again experienced growth at the 2005 enrolment (20.5% at level 1 and 11% at level 2). As a result the marketing learners (which were the largest group, 208 learners at level 1 and 139 learners at level 2) were sectioned off to another staff member and therefore removed from this practitioner enquiry. The enquiry thus continued with the Clothing and Fashion learners. This provided new opportunities in terms of teaching and learning and the assessment format because of the smaller group sizes and significantly lower learner/staff ratios. In addition the fashion course had just undergone a course review and thus gave scope to modify individual units. After informal discussion with industry representatives, it was identified that in order to meet the industries requirements a strong focus should be placed on promoting the development of autonomous learning within textiles. This could be achieved through development of textile-based problem solving activities and re-examining the assessment strategy to discourage surface learning. A decision was made to implement any changes to the fashion curriculum initially (under the title of Fashion Materials), to enable as many activities to be experimented with without the difficulties of having to obtain large amounts of samples. The idea was that this experimentation would be fully evaluated through formative learner feedback and if successful in the group sizes (55 level 1 learners and 31 level 2 learners), the principle would be rolled out into the clothing course following its course review in 2006.

##### **4.2.1 Evolution Changes to Revolution**

Having obtained the relevant background knowledge from the previous two years the fashion materials curriculum was revolutionised to meet the learners and industries expectations. The first year curriculum was designed to encourage the learner to develop subject knowledge and skills both by theory and extensive practical activity. The laboratory was effectively brought into the classroom environment, by a redesign of the delivery. The class learners were split in half for seminars and within each of the seminar's four problem-solving activities are devised, thus encouraging active engagement, the information obtained was then shared at the end of the seminar. In order to implement this curriculum efficiently, the lecture environment was timetabled to be non-fixed seating, with a white board facility to allow observations to be written up during the seminar.

The biggest modification that has occurred in this unit was the assessment for the Fashion Materials element. This has been strongly linked to reflect subject advancement both within lectures and through self-study, by means of continuous portfolio development. This enabled the learners to develop a textile/fashion materials reference file complete with swatches, which will be useful in many of their projects throughout their 4 years of study. The portfolio was intended to reflect knowledge and demonstrates the understanding of applying that knowledge through many problem-solving activities, providing the learner with many opportunities to meet the learning outcomes.

Within the second year the Fashion Material element concentrated on selecting materials based on knowledge of the fabric properties. Its focus was predominantly to support the design realisation element and therefore the textile curriculum had a focus on stretch material. The group activity that proved popular in the previous year was focussed on specific garments, which were purposely selected for their properties. The assessment again was based on an individual portfolio demonstrating the learner's ability to analyse, interpret and select appropriate fabrics. At both levels the learners were intended to leave the subject with reasonable knowledge of new technologies and how they have impacted within fashion.

## **5. EVALUATION OF ACTION 3: TEACHING AND LEARNING YEAR 2005**

At the close of the academic year 2005-06 the learning and teaching was evaluated by tutor observation through a reflective diary and extensive learner feedback. The feedback was split into three sections, the learning, the teaching and general comments. 39% of the group at level 1 completed the survey and 53% at level 2. The feedback at level 2 was probably more informative since they could reflect on their prior years experience (traditional format and assignment) and make judgements regarding their personal learning. Although within higher education there is an emphasis to place the responsibility of learning with the individual, the questionnaire gave each participant the opportunity to comment on the level and quality of teaching. Since the author was of the opinion that as adult learners they should be able to evaluate objectively if the teaching support was enabling the learning to occur.

### **5.0.1 Tutor Evaluation**

The new format of this unit worked much better at both levels 1 and 2 than last years format. The seminars gave the learners the opportunity to experience practical textile experimentation first hand. Most of the seminars were well attended and there was much interaction within the group. Some of the learners engaged at an early stage taking a mature attitude by beginning to network with industry, obtaining different material samples from various companies. From a learners perspective, there appeared to be more engagement with the subject generally and a strong opportunity for self-advancement. The first year learners commented that they would have benefited from more practical experience in textile production (knitting and weaving processes) however, since this is not a textile course this would never be the main focus of learning, however, it is encouraging that the learners are interested in specific activities of this nature. Weaving and knitting were expanded on in this years curriculum and knitting proved to be the most popular seminar, despite its degree of difficulty. At second year level the group activity was more focused on researching garments with specific properties, this encouraged the development of key skills and actively promoted autonomous learning resulting in the learners not only researching and presenting findings, but recording important points from peers presentations and writing a review (these skills are essential requirements in an innovative industry).

Attendance at year one was averaging 63% and at year two 70% for the 12 weeks of term, which demonstrates that there is still room for improvement. If level two learners are considered (which is a combination of degree and HND learners) their average attendance at level 1 was 57%, demonstrating that the groups attendance had improved

significantly over the last year– with 23% of the group achieving 100% attendance. However, it is unclear if moving the teaching block from term 2 to term 1 in the second year had any effect regarding attendance. What is interesting within the first year's attendance pattern is that the peaks correlate with the identified favourite seminars (obtained from learner formative feedback at week 12). This perhaps is an indication that there has been advancement in engagement and deep learning?

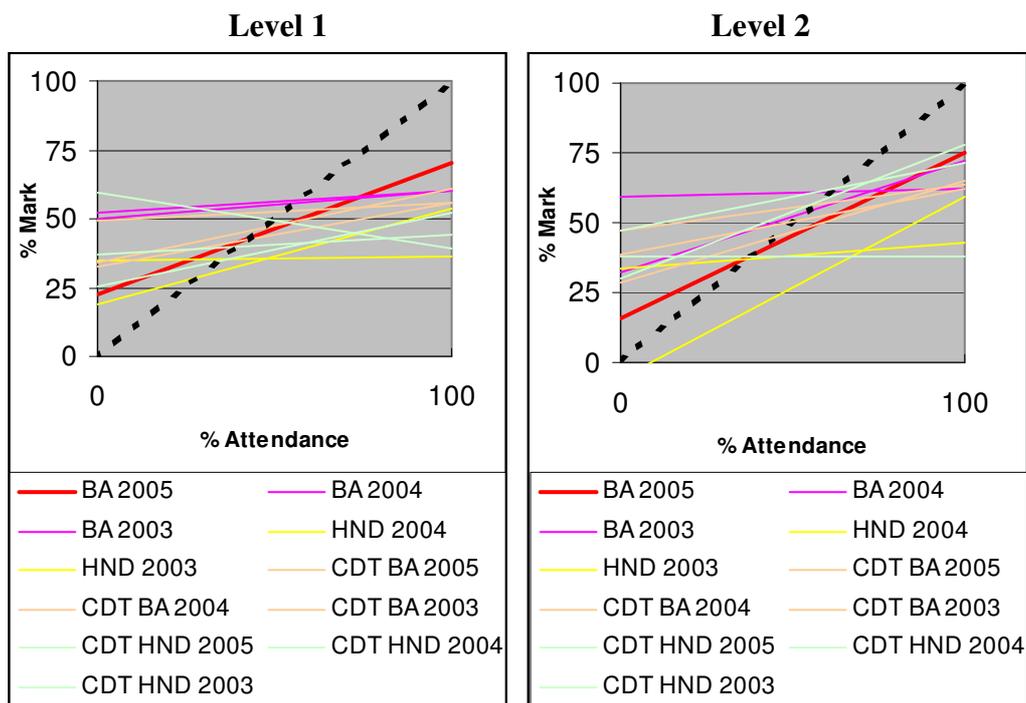
### **5.0.2 Learner Evaluation**

In terms of learning, most learners at level one were satisfied with the level, pace and content – At level two all the learners expressed satisfaction. The 1<sup>st</sup> year learners were asked to comment if they enjoyed the unit structure, disappointingly 1/3 had a neutral opinion however 2/3 did enjoy the unit. The second years were asked if the new unit structure (lectures and seminars) had improved their learning. An overwhelming 88% clearly expressed the view that it had. There were some reservations at both levels, regarding if the portfolio assessment allowed them to display their learning effectively. However, it was unclear at the time of the survey how many learners had completed or even begun work on the portfolio. Reassuringly, many learners put an extra learning evaluation sheet at the back of their portfolio expressing how much they had learnt through this method of assessment. The survey also asked the learner to comment on their wider reading - this is an area that must be developed if they are to fully reach their potential as autonomous learners. At level one 5% had referred to 12-19 articles or books, 26% had used between 8-12 books and the vast majority (63%) had used less than 7 sources, worryingly 6% claim not to have read any related material outside class. Level two painted a more positive picture with 12% reading between 12-19 articles, 41% between 8-12 and 47% less than 7. Considering these figures were for reading undertaken prior to assessment it could be suggested that portfolio assessment was encouraging reading prior to assessment thus demonstrating a move towards autonomous learning. The library loan history statistics provided some interesting data when comparing the years 2004-2005 (12 months) and the academic year 2005+ (9 months). The library loans for the fashion learners reading list were up by an average of 146% in year 1 and 216% year two – unfortunately the data for individual course learners could not be specifically identified.

### **5.0.3 Reflecting on Attendance and Assessment**

When the marks attained for each year were averaged disappointingly there is no correlation between an improvement in mark and the portfolio assessment. Interestingly however, when the marks obtained are plotted against individual attendance for consecutive years there is a relationship between attendance and the final mark at both levels. From Figure 3 it can be observed that if the black broken line represents a true correlation between engagement and deep learning (attendance and academic achievement), the portfolio assessment at both levels (solid red line) demonstrates that the learners which are engaging to a greater degree (have attended the lecturers and seminars) are the ones who are obtaining a deeper learning and knowledge of the subject (academic mark). Whereas, when assignment assessment is used there is little or no correlation between academic mark and engagement (attendance). The move to portfolio assessment appears to be in line with industry requirements – to gain an understanding of any problem there must be some level of engagement and knowledge. Hence, if engagement is represented with attendance (in an academic scenario) and

knowledge is represented by an academic mark, the portfolio assessment appears to be delivering the required knowledge and understanding for the modern textile industry.



**Figure 3: % Attendance V's % Mark**

### 5.1 Assess the Outcomes Against the Action Plan (2005/06)

The decrease in learner/staff ratios in 2005/06 provided the opportunity for a full picture to be gained regarding the teaching and learning of textiles (fashion materials) in non-specialised textile courses. The Fashion course review enabled a teaching and learning trial to occur, which evaluated teaching methods/strategies and assessment methods within large group numbers. Autonomous learning was actively promoted through a range of problem solving activities, which provided the backbone to various topics and enthused the learner to participate in further investigation through independent study. The new assessment strategy encouraged the learner to engage in the activities, thus, participating in the expansion of their personal knowledge and improvement of their understanding of the fashion/textiles relationship. Most of the learners benefited from the new portfolio style of assessment and engagement/commitment to their studies appeared to increase (see Figure 3). It will be interesting to monitor the same group at level 2 to see if the attendance/engagement improves.

Level two's group research was significantly more effective than in previous years. The peer presentations proved a successful method of delivering current information in the fashion materials field. In addition key skills strongly associated with autonomous learning were significantly expanded during this exercise; presentation skills, communication, development of team working and professional skills, research, planning, management, confidence building are some examples. In addition the requirement for continual subject updating was promoted and developed, and through the library loans statistical data it was demonstrated that book lending in this subject

area increased from the previous year by a significant amount, perhaps this is the most significant move to autonomous learning and is worth monitoring more closely in further years.

### **5.2 The New Plan: Action 3: 2006/07**

The developments (problem solving activities and updating resources) within the Fashion learners' curriculum will continue throughout the next academic year. This will allow further evidence to be gained and analysed regarding the progress of the learners when active learning is employed. In addition the principles of active learning will be implemented across other courses, beginning with the clothing learners. The following plan has been drawn up and is intended to be developed during the summer months and to be implemented in the academic year 06/07.

- Devise practical activities using problem based learning and methods of monitoring the level of interaction.
- Examine timetabling to ensure all learners are allocated weekly time for seminar activities.
- Evaluate the learning outcomes and the assessment strategy, to maximise the learners' opportunity of fulfilling the learning outcomes.
- Relate part of the learning to other modules – specifically design, focusing on specific fabrics.
- Focus on promoting autonomous learning.
- Monitoring attendance, unit satisfaction, achievement of learning outcomes and engagement with scholarly activity.
- Establish industry contacts specific to recent textile innovations.
- Through a new curriculum promote knowledge and understanding in textiles and raise the learner's awareness regarding the relationship between textiles and clothing.

## **6. SUMMARY**

The work presented in this paper demonstrates the requirements and necessity for active research to improve teaching and learning in Higher Education. The active research conducted over a period of 3 years illustrates that teaching a practical based subject (such as textiles) is not restricted to learner numbers if the delivery and assessment are carefully considered. Problem based learning appears to be popular amongst the learners, encouraging interaction and pooling of information to enable tasks to be completed effectively with maximum learning opportunity both academically and through the development of key/professional skills. It was found that portfolio assessment strongly promotes self-directed learning – resulting in the learners obtaining deep subject knowledge after 12 weeks and the links between other units became apparent to the learner. It was found that the portfolio assessment positively promotes attendance and engagement, which did have a positive correlation with academic achievement, although this requires further monitoring in subsequent years. Over the initial 2 years of active research the textile curriculum evolved primarily dictated by staff learner ratios and timetabling. Within the final year and the planned fourth year of the active research the textile curriculum was revolutionised to reflect the modern dynamic textile industry. This enabled the fashion learners to fully realise the relationship between textiles and fashion and has been reflected through parts of the

design element being presented within the learner's textile portfolios. Thus, textiles is shown to underpin design, but also lead it by offering advanced new technologies – which can influence and inspire the learners design thoughts and ideas. The fashion learners have become more aware of fitness for purpose and have advanced their understanding of the use of materials. Fashion is no longer solely about the design style lines and colours, for the new breed of fashion designers and clothing designers it is as much about functionality and therefore textiles education for fashion learners is more essential than ever, to ensure our learners mature into well placed designers completely familiar and prepared for the cutting edge technology available to them.

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