Active Learning and the Development of Employability Skills for Apparel Students

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Abstract
In a globalised environment there is high competition as well as significant opportunities. It is essential that university graduates are industry ready, equipped with the necessary professional and technical skills. This study investigates the relationship between active learning strategies and the development of employability skills within apparel. The curriculum development encompasses a variety of cutting edge technologies including 3-D scanning/body morphology, material science/FAST objective testing, seam engineering/material cutting technology and 3-D virtual garment simulation (utilising V-stitcher). The teaching and learning strategies incorporate the principles of active learning to promote critical thinking, analytical and self development skills to ensure graduates are industry ready. The effectiveness of embedding active learning into an advanced product development curriculum was analysed using five independent tools. The findings of the study concluded that many employability skills, in particular critical thinking, self management, communication and problem solving were developed and these were attributed directly to the teaching and learning strategy. Further to this the majority of students recognised that active learning strategies would benefit them in their employment. This study will have far reaching benefits; firstly in the development of pedagogy within the field of apparel; and secondly in the integration of cutting edge technology, virtual simulation within apparel product development is an area which is attracting much commercial interest, introducing this into the curriculum will enhance graduate employability.

Keywords: Action learning, employability, apparel

1. Introduction

Clothing and fashion has become increasingly global with evermore complex supply chains (Walter et al., 2009). No longer are garments designed, manufactured and retailed in local environments. A garment purchased in one location may consist of materials sourced globally. In a globalised environment there is high competition as well as significant opportunities which university graduates in the fields of apparel need to be prepared for. It is essential that graduates are industry ready, equipped with the necessary employability skills to ensure they are competitive in the workplace (DeLong et al., 1997; Fiore et al., 2005; Eckman and Frey, 2005; Hawley, 2005; O'Neal, 2007; BIS, 2010). It is a constant challenge for educational establishments worldwide to provide quality educational programs that meet the requirements of an increasingly multifaceted disciplinary business world (Eckman and Frey, 2005; Foire et al., 2005). It is no longer enough for Higher Education (HE) graduates to have passed assessment they must have developed life skills of problem solving, teamwork, communication and enthusiasm for their selected career (Carpenter and Fairhurst, 2005; Hawley, 2005; Kimmons and Spruiell, 2005; Fiore et al., 2005). It became apparent though evaluation of literature that four statements provided the key to unlock the industry ready graduates, with the necessary employability skills, that the global apparel industry desires (Kimmons and Spruiell, 2005; Downing et al., 2007, 2009; Power, 2010); The development of technical competencies (knowledge and understanding); The expansion of life skills (key and professional skills); The advancement of high order cognitive skills (analysis, synthesis and evaluate); and, the appreciation of metacognitive strategies (learning how to learn and

appreciating skill development).

A report by Yorke (2006) stated that in the main, employers have been happy with subject knowledge, but less satisfied with graduates' generic skill development. Fiore et al. (2005) and Hawley (2005) acknowledged it is easy to blame the student for poor performance in terms of skill development, when in reality it is the fault of a passive teaching system. Educators need to provide opportunities to encourage skill development appropriate to the cognitive development of students. Hawley (2005) acknowledged the shortcomings of a traditional passive teaching system and recommended that opportunities to encourage skill development needed to be embedded into the curriculum planning. When devising any curriculum, creating the right learning environment must be given a high priority, since it must support the activity of the student (Mayes, 1998; Downing et al., 2007, 2009; Power, 2010). Factors to consider are the cohort size, the environment, the students past experiences, the resources available, the assessment and previous learning methods. It is not within the instructor's powers to guarantee the learning will be deeply embedded. However, it is within their remit to provide a classroom environment to support the activity of the student.

It is reported that the apparel sector as a whole is lagging behind in its willingness to adopt new technology to aid the product develop process, despite there being many innovative products on the market (Walter et al., 2009). Whilst the transition from 2D to 3D design occurred over fifteen years ago in other manufacturing industries, modelling garments appeared to be inhibited by two factors, the accurate computer representation of the human form, and the realistic simulation of material drape. During the last few years developments have occurred in virtual garment simulation that make the software more user-friendly and intergratable with other technologies currently on the market. Virtual 3D garment simulation offers opportunities in apparel in four distinct areas; speed to market, custom made garments, e-commerce and in the development of sportswear/intimate apparel, where the garments could be designed with accurate mapping in terms of comfort and support. It is clear from research that virtual garment simulation is set to play an important role within apparel product development in the future (Power et al., 2011) and it is essential that apparel graduates have an understanding of the benefits this technology can bring.

A final year unit of twenty-credits at level six (National Framework for Higher Education Qualifications (FHEQ)) was devised to enable the apparel students to consolidate their prior knowledge from design, pattern and garment technology within extensive research into novel, emerging and new technologies to realise a specific end product. The unit provided a unique opportunity to embed active learning principles to support the development of employability skills and advancement of technical competencies. The curriculum design is discussed extensively in a prior publication (Power, 2010a). This paper discusses the relationship between active learning and the development of employability skills.

2. Methodology

Active learning is not a new concept since active projects have origins in industry where tasks are identified in order to increase knowledge of a specified problem (Knowles, 1980). Various studies have demonstrated that students prefer active engagement enabling them to secure a concrete learning experience at the point of delivery (Hawley, 2005; Power, 2007, 2010; Eskrootchi and Oskrochi, 2010). Within an educational context Knowles (1980) identified two learning models. The organic approach defines the learning objectives but the student devises a suitable method of achieving them, whilst the operational process provides a more structured supportive framework. Independent of the learning model one feature is

common, the student is actively engaging in the task. Therefore, it is essential that activities are designed to support both group and individual working. Active learning provides opportunities for the development of higher order cognitive skills and encourages deep learning, especially if employed in team working scenarios (Kember, 2000; Hawley, 2005; Power, 2010; Eskrootchi and Oskrochi, 2010).

The unit was an advanced product development module and the learning objective was to synthesis, critically analyse and evaluate novel, emerging and new technologies in relation to a specific end product. The unit was delivered over a period of twenty-four weeks across two terms. The assessment outcome was a combination of coursework and a thirty minute team presentation (with ten minutes for questions). Active learning was selected to promote the development of metacognitive and higher order cognition, it provided the scope for integrating different teaching methods, a variety of technology and it has been proven to promote enthusiasm and skill development through direct engagement (Hmelo et al., 1997; Kimmons and Spruiell, 2005). The number of students enrolled on the unit was seventy-seven; twenty-six per cent were direct entry (completed earlier levels at another institution), twenty-five per cent were direct progression from level 5 of the same programme and the remaining forty-nine per cent had previously completed level 5 of the same programme but had fulfilled a placement year. It can be confirmed that all students irrespective of entry route had studies similar subject areas. Those students which had completed level 5 of the same programme had experienced similar learning styles including action learning using an operational model. However, it was not investigated if the direct entry students had ever engaged in this model prior to the unit commencing. Therefore, it was essential to provide support throughout the project. All students were provided with 2 formal academic support sessions, the first focused on the benefits of active learning and the second was related to the development of employability skills; in addition to this, informal group tutorials were held on a weekly basis (during term 1). Peer support was arranged by careful group selection. Twelve groups were formed which consisted of a combination of members from each of the 3 entry routes. This was to ensure that every group consisted of some members that had experienced active learning and were familiar with the available learning resources. The relationship between active learning and the development of employability skills was evaluated using five independent tools for analysis (the practitioner journal, student formative feedback questionnaire, student skills audit, attendance records and assessment grade).

3. Curriculum development

Innovation in virtual garment simulation software is now moving at a rapid pace; it is therefore essential that graduates have an understanding of what is available commercially and the implications of its use within advanced product development. The simulation of a garment involves the integration of knowledge from different disciplines including body morphology, material science, design, pattern, seam engineering and garment technology. The project was geared to sportswear since this was considered a high-tech area for innovation across all the disciplines. The first delivery of this unit was 2009–2010 to a specialised apparel technology programme. Under the operational model guidelines for active learning, the students were split into groups of between 6–9 individuals and provided with a project brief. The brief requested that the students produce a collection of functional outfits (menswear) for the Summer Olympic Games (2012) for an event of their choice.

A project of this size and nature could not be delivered by a single academic nor was it ever intended to be so. The actual unit was supported through a series of guest speakers, learning support, team teaching and master classes. It involved input from eight academics, various

technicians, industry contacts and learning support. The operational framework for learning is presented in Table 1.1. Each session consisted of 2 hours contact time; during term 1 this consisted of 1 hour tutor input, thirty minutes to discuss the implications in relation to their own project and thirty minutes to devise a strategy to move the project forward. During each session the students critically reflected on the project in relation to the previous weeks actions, discussed and negotiated how they should move forward in light of their analysis and devised a new strategy for progression.

Table 1.1 Operational framework for active learning

TERM 1		**TERM 2**	
Week		**Week**	
1	Introduction to the unit	**13**	Introduction to innovative technology
2	Active learning strategies	**14**	Four groups rotating on a 2 weekly basis between 4 technology seminars a) 3D scanning b) Fabric objective testing (FAST) c) Advanced joining and cutting d) 3-D virtual garment simulation (V-stitcher).
3	Performance materials	**15**	
4	Technical seams (guest lecture)	**16**	
5	Employability skills (guest lecture)	**17**	
6	Anthropometrics (guest lecture)	**18**	
7	Virtual garment simulation (guest lecture)	**19**	
8	Assessment guidance	**20**	
9	Poster presentation guidance	**21**	
10	Group tutorials	**22**	External guest lecture (technology)
11	Peer meetings	**23**	Group tutorials
12	Peer meetings	**24**	Assessment guidance

The second term focused on the integration of technologies and the effective communication of these in relation to the functional sports range. Four technologies were incorporated into the curriculum over a period of eight weeks; 3-D body scanning, fabric objective testing (FAST), advanced joining and cutting methods, and 3-D virtual garment simulation (V-stitcher). The technology selection was based on the requirements for successful virtual garment simulation (Walter et al. eds, 2009) and the available advanced technology in the department. This involved the 4 groups of students rotating between various staff members. This approach took a great deal of planning since each group began at a different location on the cycle therefore all the practical activities required pretesting to ensure they functioned independently of the other activities. It was up to the students to make the integration between the technologies and evaluate the benefits and limitations. At the end of the eight weeks an external speaker synthesised industry innovation in relation to the global market, focusing specifically on sportswear and skills for employment. The final two weeks were devoted to providing academic support sessions.

The unit was split into 3 phases. Phase 1 was the research and design development, the assessment was in the form of a group portfolio containing a series of individual critical reports demonstrating the ability to source information on novel, emerging and new technologies in relation to the groups range. The second phase of the project was the communication stage, which involved the product development teams synthesising all the technologies utilised in their functional range and communicating this though professional posters. The final phase evaluated the technologies and reflected on the functional outfits, the assessment was a group presentation followed by a series of questions related to technical competencies and skill development.

4. Evaluation of the practitioner journal

The practitioner journal was completed by the instructor during term one. The journal was a combination of general observations and an overview of the group's weekly activities taken from their reflective feedback. The journal consisted of eleven inserts and was analysed for evidence of autonomy, technical competencies, life skills, higher order cognitive skills and metacognition. The findings have been summarised in Table 2.1.

Table 2.1 Practitioner journal summary

Week	Student dependant on the tutor	Student working autonomously	Skills and Knowledge Development			
			Technical Knowledge	Life skills	Higher Order Cognitive Skills	Development of Metacognition
1	X			X	X	X
2	X			X	X	X
3		X	X	X	X	X
4	X	X	X	X	X	X
5		X	X	X	X	X
6	X	X	X	X	X	X
7		X	X	X	X	X
8	X			X		
9	X			X		
10	X	X		X	X	X
11	X	X		X	X	X

It can be seen from the table that in the first 2 weeks of the project the students were dependent on the tutor for guidance, from the journal it can be ascertained that lots of questions were asked in relation to; the project, the groupworking and the planning. This demonstrated the development of; life skills (as the team began to function effectively), metacognitive strategies (as students initially focused on the process used to tackle the problem, examples included brainstorms, SWOT analysis, studying the assessment requirements, planning and allocating tasks to ensure they maximised their learning), and higher order cognition (all the tasks identified for action during the discussion were synthesised at the end of each session). During weeks 3–7 there was a clear move to autonomy within most groups, however, some groups still utilised the supportive framework for approval which shows that there was some uncertainty regarding peer support and taking full responsibility for steering the project forward. During this period a series of subject specialist lectures were provided (see Table 1.1) to enable technology specific knowledge to be developed in addition to life skills, high order cognition and metacognition as students learned from each other's style of study. During weeks 8–9 the students completed the cycle and returned to dependency on the tutor, as assignment guidance was provided. There were lots of questions related to the composition of the assignments which demonstrated a lack of confidence in their own ability to interpret the instructions provided at the start of the project. Week nine provided assessment guidelines for phase 2 of the project and although the atmosphere was more relaxed than the previous week there was still a high level of dependency. The final two weeks focused on tutorials and there was a clear split in relation to the groups that were working autonomously and those that were not.

5. Evaluation of the formative feedback questionnaire

Student feedback was obtained via a formative questionnaire (FFQ) which focused directly

on issues related to learning, teaching and general aspects of the unit. The questionnaire (Table 3.1) was modified from an existing format, which had been developed and utilised over a number of years (Power, 2007; Power, 2010).

Table 3.1 Formative Feedback Questionnaire

THE FOLLOWING RELATES TO YOUR LEARNING	**% agree**	**% neutral**	**% disagree**	**Score**	**n**	**Type**
The unit proceeded at a pace I was able to cope with.	82.6	15.2	2.2	2.8	46	closed
The content of lectures was explained clearly.	93.5	6.5	0.0	2.9	46	closed
I enjoyed the unit structure (practical product development teams).	43.4	32.6	24.0	2.2	46	closed
I was informed clearly about how my learning would be assessed.	84.8	13.0	2.2	2.8	46	closed
I thought the methods/nature of assessment allowed me to display the extent of my learning effectively.	69.6	17.4	13.0	2.6	46	closed
During the 24 weeks I developed my self-study skills to a high standard.	66.7	31.1	2.2	2.6	46	closed
I enjoyed the experience of working together as a group.	41.8	30.2	28.0	2.0	43	closed/ open
What about your attendance? (above 75%)	88.8	-	-	-	45	closed/ open
Was there any particular reason for this attendance level?	-	-	-	-	-	open
What about your wider reading out-of-class? (12−19 journals or books)	65.9	-	-	-	44	closed/ open
THE FOLLOWING RELATES TO YOUR TEACHING	**% agree**	**% neutral**	**% disagree**	**Score**	**n**	**Type**
The lecturers were well prepared for the lectures.	95.6	4.4	0.0	3.0	45	closed
The lecturers demonstrated good knowledge of product development process.	95.6	4.4	0.0	3.0	46	closed
The lecturers were easy to approach for help outside the class.	82.6	8.7	8.7	2.7	46	closed
The lecturers provided effective resources for learning.	91.3	6.5	2.2	2.9	46	closed
The lecturers provided satisfactory feedback on learning progress and performance.	67.4	30.4	2.2	2.7	46	closed
Overall, the lecturers were effective teachers.	93.5	4.3	2.2	2.9	46	closed
THE FOLLOWING IS GENERAL TO THE UNIT	**% agree**	**% neutral**	**% disagree**	**Score**	**n**	**Type**
Overall, I was satisfied with the quality of this unit.	71.7	21.7	6.5	2.7	46	closed
Are there any ways in which you think the unit could be improved?	-	-	-	-	-	open
Are there any topics that you thought would be covered/would like to see covered but weren't?	-	-	-	-	-	open
Which was your favourite aspect of this unit?	-	-	-	-	-	open
Did the subject contents assist you outside the unit? (Yes)	79.5	-	-	-	39	open
Do you think this style of learning will benefit you in your employment? (Yes)	79.5	-	-	-	44	open
Any other comments?	-	-	-	-	-	open

Most of the questionnaire focused around closed questions, asking the respondent to agree or disagree on a scale of 5, the questions which were open-ended were coded to enable common themes to be established. Forty-six (sixty per cent) students completed the feedback. The data was subject to descriptive analysis using the statistical package for social science (SPSS V15). For ease of analysis the Likert scale was modified to 3 agree, 2 neutral, 1 disagree. Overall the students agreed that; the unit proceeded at a pace they could cope with (eighty-three per cent); the content of the lectures were clearly explained (ninety-four per cent); they had been clearly informed about their learning assessment (eighty-five per cent); overall they felt the method of assessment allowed the extent of the learning to be displayed effectively (seventy per cent); and the unit enabled them to develop their self study skills to a high standard (sixty-seven per cent). In all the categories related to 'the teaching' the vast majority of students agreed with the statements. Overall seventy-two per cent were satisfied with the quality of the unit. Interestingly the two statements in which less than fifty per cent agreed were related to, enjoying the unit structure and the group experience. The students were given the opportunity to expand on their views regarding groupworking; these were analysed to generate main themes; group work provided challenges that were perceived as negative learning experiences (twenty-four per cent); the group worked well together and therefore provided a positive supportive learning experience (eighteen per cent); the groupwork developed employability skills which the student found valuable (thirteen per cent); a further forty-five per cent either declined to comment or made unrelated comments. Eighty-nine per cent of the students commented that they thought their individual attendance was above seventy-five per cent, and accredit this figure to, enjoying the unit, wanting to do well, or finding the project interesting. Sixty-six per cent of the group claimed to have read quite a lot (12−19 journals/books) and this was accredited to research for the assignment (demonstrating a move to autonomy). The students expressed that the unit could be improved generally by two factors, consideration of groupwork in term 2 and increasing the unit value. The favourite topics were; the practical seminars, the research in term 1 and the positive experience of working in a group. Most students eighty per cent commented that the unit had assisted them in other units. A significant number (eighty per cent) expressed the view that active learning would benefit them in employment (fifteen per cent linked this directly to the development of groupworking skills).

6. Evaluation of the skill audit

Each student was requested to complete a skills audit based on the six categories of generic skills as described by the QAA (2008). The skills audit used a Likert scale response identical to the one used in the FFQ and consisted of fourteen statements (Table 4.1) the response rate was sixty-two per cent. The scores for the statements clearly indicate that the majority of the participants agreed that their skills had improved generally throughout the unit.

7. Attendance and assessment

The attendance for the cohort averaged at eight-two per cent during term 1 and sixty-eight per cent during term 2. Further investigation was conducted in relation to why the attendance had dropped significantly during term 2. It was found that week twenty-one's attendance reduced to below half of the group, which coincided with an assessed critic in a separate unit (this was supported by verbal communication from the students), if this weeks attendance was removed from the analysis the average for term 2 would be seventy per cent. Through verbal communication with the students it was established that some groups had allocated individual members to focus on specific learning elements. This had resulted in some members only attending the technical sessions to enable them to complete their allocated task. Hence, instead of attending the full eight sessions they attended 2. The average grade for the 2

assessments were sixty-two per cent and sixty-four per cent. Attendance was correlated with grade for both terms. The results show varying degrees of positive correlation which was no different to previous studies (Power, 2010).

Table 4.1 Student skills audit

Skill statement	% Agree	% neutral	% disagree	Score	n
The teaching and learning method used in this unit enabled me to improve my self-management skills (study independently, set goals, meet deadlines).	77.1	20.8	2.1	2.8	48
The teaching and learning method used in this unit enabled me to anticipate and accommodate change and work within the context of uncertainty and unfamiliarity.	77.1	22.9	0.0	2.8	48
The teaching and learning method used in this unit enabled me to improve my critical thinking skills .	87.5	10.4	2.1	2.9	48
The teaching and learning method used in this unit enabled me to improve my skills of data interpretation and analysis.	75.0	14.6	10.4	2.6	48
The teaching and learning method used in this unit improved my ability to work effectively in a group/team setting .	68.8	18.8	12.4	2.6	48
Working in a group/team environment improved my interpersonal communication skills	62.5	31.3	6.2	2.6	48
The teaching and learning method used in this unit enabled me to articulate ideas and information comprehensibly in visual, oral and written forms	75.0	25.0	0.0	2.8	48
The teaching and learning method used in this unit enabled the group to use the views of others effectively in the development or enhancement of their work	70.2	21.3	8.5	2.6	47
The teaching and learning method used in this unit improved my ability to identify and locate appropriate resources to assist with problem solving	79.2	18.8	2.0	2.8	48
Through this project my information technology skills have improved	56.3	31.3	12.4	2.4	48
This project has enabled me to identify personal strengths and reflect on personal development	66.0	25.5	8.5	2.6	47
Through this project I developed enthusiasm for enquiry into technology research and the motivation to sustain it	58.3	31.3	10.4	2.5	48
This project provided the opportunity to develop both creative and practical skills.	64.6	27.1	8.3	2.6	48
This unit was very valuable in the development of employability skills	68.8	20.8	10.4	2.6	48

8. Discussion of the findings

Evidence of the development of technical knowledge and understanding was demonstrated through the inserts in the journal. This was particularly evident during weeks 3-7 which coincided with the guest lecturers providing information relating to specific advanced technology. Further to this the assessment criteria listed specific technology related competencies that needed to be achieved, since the average grade for assessment was sixty-three per cent it can be ascertained that technical competencies were developed.

Life skill development was evident from the practitioner journal and the FFQ (sixty-seven per cent agreed that the unit had enable them to develop their self-study skills to a high standard). It was found through the journal that key/professional skills were developed significantly throughout the first term as the students progressed through the active learning. During weeks 3-7 there was a clear move to autonomy, which coincided with the guest lectures. One interesting example of autonomy was a group seeking assistance (via the tutor) regarding a non-engaging member. The entire group had a meeting to air grievances these were then laid to rest with all parties agreeing actions. This demonstrated a significant move to autonomy and the development of life skills; which resulted in a successful project. It was found that the groups that developed autonomy early remained largely self-directed thought the whole project. The findings of the skills audit concluded that many employability skills, in particular critical thinking, self management, communication, problem solving and ability to accommodate change were developed. Further to this the vast majority of students recognised that active learning strategies would benefit them in their employment.

Interestingly the two statements in which less than fifty per cent of the group agreed with (FFQ) related to enjoying the unit structure and the group experience. It was found that some students perceived groupwork to be challenging due to negative experiences; the groups that developed metacognitive skills early appeared to have had a positive experience and felt the active learning provided supportive learning. Interestingly eighty-nine per cent of students commented that they thought their individual attendance was above seventy-five per cent and accredit this figure; to enjoying the unit, wanting to do well, or finding the project interesting. Further to this in the favorite topics the positive experience of working in a group was listed in the top three. Clearly the data from the open-ended and the closed questions show different interpretations of how students perceived enjoyment. Interestingly it was ascertained from the skill audit that less than sixty per cent of the group agreed with the development of information technology skills, and enthusiasm for enquiry into technology research and the motivation to sustain it. This was interesting since the project had deliberately encouraged the development of IT skills through, a written assignment, a visual poster and a thirty minutes presentation. During the project some groups had progressed further to develop their research to include primary data from sports clubs, innovative material developments, samples of seaming, body scans of professional athletes, information on advanced technology (using resources outside the department - wind tunnel) and had incorporated a self-developed movie clip to provide an overview of their research. Clearly not all the learners perceived this as enthusiasm for the enquiry or the advancement of IT skills, perhaps this was due to the skills being so deeply embedded into their project. It was observed by the tutors that the students excelled in their resourcefulness and enthusiasm for research and invested heavily to maximize the desired outcome. This supports the work of Kimmons and Spruiell (2005) and Hmelo et al (1997) who identified when students are given opportunity to invest they take direct ownership. However, further strategies need to be explored regarding students reflective practice to assess how a greater appreciation of IT skills, enthusiasm and enjoyment

can be embedded into the active learning and why so many students are selecting a neutral option in these specific questions.

It was found from the journal that the development of metacognition was evidence in all classes, with the exception of those that provided the assessment guidelines. During the early and mid phases the students fluctuated between dependent and independent students. Initially lots of enquiries were made such as “is this approach correct”, “is this what we are supposed to be discussing”, the instructors role was constantly changing from expert to facilitator. Interesting two different approaches developed within the group regarding the method used to collate the data. Initially this proved problematic since the students wanted a right or wrong approach (this should be discouraged in active learning). Learning to trust the group members was an important learning leap for some students; this supports the findings of Kimmons and Spruiell’s (2005) work. Whilst about 1/3 of the group developed good working practices early in the project others were still struggling with the concept at the end of the second term. This was particularly evident in one group who had an individual that attempted to micro manage everyone’s tasks, this caused a great deal of frustration for the individual and alienated fellow members.

Finally, the advancement of high order cognitive skills were demonstrated both through observation and assessment. Weekly goals were evaluated in relation to the synthesis of the tutor input, individual research and peer analysis. The students were able to analysis the various benefits each technology offered, synthesis how different technologies worked together, evaluate the benefits to the group functional range and final communicate this in a variety of different forms to a high level. The general unit feedback was extremely positive: regarding the unit management and the teaching including; pace, contents of the lectures, assessment, preparation, lecturers knowledge, effectiveness of resources, and satisfactory feedback. Interestingly when the students were asked to list their favourite topic, the three most common responses related to the teaching and learning strategy. A significant number of students expressed the view that active learning would benefit them in employment. When a similar question was asked which linked the unit to the development of employability skills the number of students that agreed was around ten per cent lower. This suggested that students associated the unit directly with employment prospect rather than the development of employability skills. This could be linked to graduates connecting HE qualifications to improve job prospects.

9. Conclusion

This paper discussed the development of a curriculum that endorsed employability skills through active learning. Evaluation of the practitioner journal, FFQ and skills audit found that active learning does promote the development of the four key statements required for industry ready graduates. It was disappointing that the students scored IT and enthusiasm lower than the other skill categories. However, other data (assignment and journal) demonstrates evidence to the contrary, which suggests that this was so deeply embedding within the unit that the students did not see it as significant skill development because it was indirectly related to the assessment. This unit enabled technical resources that had not previously been utilised to be developed effectively into the curriculum. In particular there was a strong focus on four distinct technologies and the integration with each other, which enabled the students to evaluate the benefits, drawbacks and limitations of utilising virtual garment simulation in advanced product development. The paper concluded that the majority of the students recognised that active learning strategies would benefit them in their employment. However, it was concluded that careful consideration of learning environment

must be given prior to implementation and it is recommended that in large student groups an operational model is utilised.

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