Mismatched perceptions and expectations: an exploration of stakeholders' views of key and technical skills in vocational education and training

Mark NK Saunders*, Denise Skinner and Richard Beresford
Oxford Brookes University Business School
Wheatley Campus
Wheatley
Oxford, OX33 1HX, UK

Tel: 01865 485915
E-mail: mnksaunders@brookes.ac.uk

*Please address all correspondence to this author

Structured Abstract

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Journal of European Industrial Training

Purpose
To explore potential mismatches between stakeholders' perceptions and expectations of key and technical skills needed for an advanced modern apprentice within the UK.

Design/methodology/approach
Using data collected from the automotive sector, the Template Process is used to establish lecturer, student and employee stakeholder group's expectations of a person taking up employment alongside an advanced modern apprenticeship or as an advanced modern apprentice. Perceptions of the extent to which expectations are met and their relative importance are assessed.

Findings
All stakeholders acknowledge that a skills gap exists across key and technical skills. However whilst students' focus on technical skills, lecturers and employees place greatest emphasis on key skills and their ability to transfer them.

Research limitations/implications
Although this research is based on the UK automotive sector, the findings emphasises the importance of key skills and understanding as part of students' learning. Research is needed to establish why students appear to under value these and establish whether similar patterns exist in other sectors.

Practical implications
The voluntarist approach to UK vocational education and training has, when combined with the need for further education colleges to be economically viable, resulted in courses that appear attractive but do not always meet the automotive sector's needs. Research is needed to establish whether this is occurring across other sectors.

Originality/value
This Template Process offers an new technique to explore stakeholders' perceptions and expectations. The findings provide new insights into the mismatches between expectations of the stakeholders in vocational education and training.

Brief biographical notes:

Dr Mark NK Saunders is Head of Research and Reader in Research Methods at Oxford Brookes University Business School. His research interests include organisational justice and trust in the management of change and developing the Template Process as a tool to understand organisational relationships. Email: mnksaunders@brookes.ac.uk Telephone +44 (0)1865 485915

Dr Denise Skinner is Reader in Human Resource Management at Oxford Brookes University Business School. Her research interests include trust in the context of the employment relationship, evaluation, change management and diversity. Email: denise.skinner@brookes.ac.uk Telephone +44 1865 485912

Richard Beresford is a Senior Lecturer in Human Resource Management at Oxford Brookes University Business School. His research interests include vocational education and training, employee relations within small businesses and enterprise. Email: rberesford@brookes.ac.uk Telephone +44 (0)1865 485958

Key words: key skill, technical skill, modern apprentice, vocational education and training, Template Process

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Introduction

Individuals' knowledge, skills and understanding have long been recognised as essential for maintaining organisations' economic competitiveness and enabling growth. Not surprisingly, the need to ensure that the capabilities of the workforce meet these requirements has become an important issue at both organisational and national levels over the past decade. Research within organisations has highlighted that the training opportunities available help attract new high quality employees and improve the commitment of those already employed by the organisation (Altman and Iles, 1998; Coffield, 2002). The importance of such training and the creation of a learning environment have been argued to be a key to competitive success or to the attainment of competitive advantage (Altman and Iles, 1998). At the same time national policies, such as modern apprenticeships and national vocational qualifications, have sought to develop people thereby increase the pool of skilled labour available to organisations.

Within the UK, government initiatives such as modern apprenticeships highlight the importance of a key skills component to vocational education and training. These key skills relate to communication, numeracy, information technology, problem solving and team working and are, it is argued, the transferable skills that all workers will need and which can provide both a stepping stone and the basis for further training (Department of Employment, 1998; Gospel and Fuller, 1998). The importance of these key skills and, in particular, their transferability has been emphasised by both employers and successive governments and form a central component of vocational education and training offered through further education colleges (Learning Skills Council, 2004). However, it is less clear whether other stakeholders such as the students (prospective employees) gaining key skills, or their current or future employee colleagues, recognise the value of these key skills relative to the technical skills component.

This paper utilises research within the UK automotive sector to explore and understand potential mismatches between different stakeholders' perceptions and expectations of key and technical skills needed, offering reasons for these. It begins with an overview of employment in the automotive sector, focussing on the UK's West Midlands region and the associated issues of skills and development needs. Data collected are used to establish each of three stakeholder groups' (educators, students, and employees) expectations of the knowledge, skills and understanding that could reasonably be expected of a person taking up employment alongside an advanced modern apprenticeship. Their perceptions of the extent to which these are currently being met and the relative importance of the identified knowledge, skills and understanding characteristics are also assessed. Subsequently mismatches between the stakeholders' perceptions and expectations are highlighted. Building upon these findings we discuss possible reasons for these discrepancies and offer suggestions of future research avenues. We conclude with a consideration of the implications for national training and development.

Training and development needs and the automotive sector

Studies of UK engineering employers (e.g. MacNeill et al, 2000; Mason, 1999; Melia, 2001) have highlighted significant gaps between the current skills of the workforce and the skills required to meet business objectives. In addition, the attraction and retention of skilled staff has become more problematic, some employers reporting that their commercial prospects are being limited by this factor (Marsh, 1999). Many employers have realised that competing on cost alone is impossible, resulting in a drive for competitive advantage through quality, niche production, diversification, and improved customer focus (MacNeil et al, 2000). The process of change has placed increasing pressures on the skills base of the current workforce, already considered to be an obstacle to business development and sustained competitiveness in the sector (Mason, 1999). These skills shortages have been identified, principally by employers, as greatest in associated professional and technical occupations. They include key skills relating to the use of information and communications technology, problem solving, communication and general business as well as more specialist programming and electronics, process manufacturing (Prime Research and Development, 1998). At the same time, national surveys of employees have revealed that in general they perceive they have the necessary skills, suggesting a skills perception gap (for example, Performance and Innovation Unit, 2001; Road Haulage and Distribution Training Council Report, 2001).

Such problems are replicated in the automotive sector where increasing globalisation, consolidation amongst the major automotive manufacturers, and a growing need to compete with producers in newly industrialising countries has lead to change. Previous research within the sector has highlighted that, from the employers' perspective, there are both key and technical manufacturing skills shortages (Mason, 1999). Production workers, it is argued, need increasingly to be multi-skilled (with more mechanical, electronic and data processing skills) and to work in self managed teams. In addition to deficiencies in key skills in areas such as team working, problem solving, numeracy, literacy, IT and communication, gaps in their specialist manufacturing skills are also widespread. These include machine operation, knowledge of continuous improvement, total productive maintenance, welding and injection moulding. Existing evidence would therefore suggest the need, from an employers' perspective, for both key skills and technical skills.

In recognition of generic and technical manufacturing skills shortages modern apprenticeships were launched in 1995, to provide training at foundation and advanced levels for over 80 sectors (Learning and Skills Council, 2004). Open to young people aged 16-24, they alternate work with off the job training often undertaken in partnership with further education colleges. This training incorporates key skills and sector specific technical skills. Although employee status is compulsory for advanced level modern apprenticeships, it is only recommended for the foundation level. Consequently employment may be substituted by work placement at this level (Learning and Skills Council, 2004). Prior to commencing the advanced level, apprentices must achieve a National Vocational Qualification (NVQ) at level 2, a technical certificate and, for those without General Certificates in Secondary Education in English and Mathematics, key skills qualifications at level 2 in communication, application of number and information technology (Learning and Skills Council 2002a,b). At the advanced level apprentices' employment is likely to involve them in "performing a variety of technical activities and taking responsibility for others and for the allocation of resources" (Learning and Skills Council, 2002b: 2). This emphasises the need for both technical and keys skills within their work reflected in the apprenticeship by the inclusion of an NVQ at level 4, an appropriate advanced technical certificate and key skills at level 3 in communication, application of number, information technology, improving learning and performance and working with others (Learning and Skills Council, 2002b).

Context and data collection

The introductory discussion highlighted the possibility of expectations of the knowledge, skills and understanding required differing between stakeholders as well as their perceptions of the level required to meet these needs. As part of this, the perceived relative importance of key and technical skills might differ, as might the importance ascribed to different aspects of them. Although published literature (for example: Learning and Skills Council, 2002b, 2004) implies that the views of employers and lecturers in further education delivering vocational education and training (educators) are similar, it appears probable that these views differ from those of students or existing employees (Performance and Innovation Unit, 2001; Road Haulage and Distribution Training Council Report, 2001). Consequently it was felt important to capture separately the views of different stakeholders within the sector.

Much of what has been written on the key and specialist skills needs for the automotive sector is based predominantly upon employers', usually larger firms, perceptions. It was therefore important that, rather than utilising a data collection method which replicated these findings, one was chosen which enabled those key and technical skills perceived as necessary to be elicited and explored separately with each stakeholder group. To this end it was decided to adopt phases I and II of Saunders and Williams' (2000, 2001) Template Process. Developed initially to address concerns associated with generic measures of service quality and their inability to reflect fully the dyadic nature of such relationships, the process is concerned with eliciting and recording data from a separate meeting with each stakeholder group. These are subsequently represented graphically as a series of Templates.

Data collection was undertaken within the West Midlands. As the UK's most important region for automotive manufacturing, it accounts for 40% of the country's vehicle production employment and 35% of vehicle parts and accessories employment (MacNeill et al., 2000). This equates to approximately 40,000 people working in vehicle production and 60,000 in parts and accessories, representing approximately 5% of the region's jobs. Major automotive assemblers include Jaguar, Land Rover, MG Rover and Peugeot, whilst component producers include Goodyear, Rockwell, TWR Lucas, Unipart and VDO Instruments. The automotive sector in the West Midlands competes for workers with other sectors, principally the distribution and consumer services sector and the finance and business services sector. Both these sectors have even higher skills shortages and are often perceived as more attractive environments in which to work (Mason, 1999).

In accordance with the Template Process separate purposive samples were selected from each of the three stakeholder groups within the West Midlands automotive sector. Due to limitations of access imposed by the organisations involved, these consisted of five lecturers representing courses taken by both foundation and advanced modern apprentices in automotive engineering, motor sport engineering and generic engineering at further education college in the West Midlands; six of their students completing courses that would enable them to commence advanced level modern apprenticeships; and two experienced multi skilled assembly team workers in a major component manufacturer. In addition, interviews of approximately one-hour duration were conducted with the production manager and the team leader of the assembly workers at the components manufacturer.

Separate meetings of approximately two hours duration were held with each stakeholder group. In line with established practice for focus groups (Krueger and Casey, 2000), the

purpose of these meetings was explained to each group. This was twofold: firstly to help each group independently to make explicit their ideas of the knowledge, skills and understanding ('characteristics' in the Template Process) that an advanced modern apprentice would need to do her or his job well and secondly: to capture their perceptions of current abilities and their expectations of the abilities required to do the job well. This was displayed prominently and referred to regularly throughout all meetings to help maintain focus.

Within each stakeholder group, the characteristics that an advanced modern apprentice needed to do her or his job well were elicited from the participants and recorded in the order they emerged using the participants' words through a brainstorming type process. This allowed those characteristics that each stakeholder group considered to be important to be surfaced independently. Clarification of meanings was sought as part of this process, thereby helping ensure everyone in the meeting was using a similar frame of reference and had the same understanding (Oppenheim, 2000). Subsequently, the list of characteristics was refined and positive and negative descriptors generated and recorded for the 'ideal situation' and 'worst case' of each. For example, the ideal situation for the characteristic "CAD" (Computer Aided Design) identified by students was "quick and accurate drawings" whilst the worst case was "can't turn computer on, don't understand programme" (fig 1). Each of these bi-polar rating scales defined the extremes of a characteristic against which participants expectations and perceptions were recorded visually on a Template.

Participants' current perceptions of characteristics were defined by responses to the question "what do you perceive the position to be today?" and expectations by responses to "what could reasonably be expected?" Variations between participants in their perceptions and expectations were represented by the length of the bar (fig 1). The resultant Templates each contained between approximately 15 and 25 characteristics. Each was discussed with the stakeholder group whom had generated it. As well as allowing understandings to be verified, this helped confirm the internal validity of the Template and, in particular, that participants' perceptions and expectations of the knowledge skills and understanding needed by an advanced modern apprentice to do her or his job well had been captured. Finally participants were asked to identify and weight those characteristics they consider most important by allocating 100 points between them. Subsequent analysis of these Templates explored the knowledge, skills and understanding required to do the job well in relation to key and technical skills using the participants' own words and understandings. It is to the results of this analysis that we now turn.

Results

The importance and nature of key skills

The characteristics lecturers weighted as most important (ten or more points) for the advanced modern apprenticeships filled by their students all related to key skills (fig 2). Those ranked highest were the "ability to transfer skills (life, engineering, the lot)", "motivation" and within this "respond[ing] to instructions", "spatial ability" and "shop floor safety". In the context of the ability to transfer skills, the lecturers felt that employers' expectations varied quite widely perceiving that their students' abilities for this characteristic when they took up an apprenticeship fell within what they believed employers could reasonably expect. They perceived their best students were able to undertake "problem solving" and "look as though they know what they are doing". In terms of motivation and the ability to respond to instructions lecturers believed that employers expected advanced modern

apprentices to be able to "implement instructions" and not to "resent doing it". However, in relation to this characteristic they felt that the capabilities of their students entering such apprenticeships were far more varied, often falling below what could reasonably be expected. Discussion revealed that although current students who were already in employment were perceived to already be close to employers' expectations, perceptions for those students with work placements were far more varied. These ranged from nearly matching employers' expectations to a minority who did not want to be there and were "obstructive". In relation to "spatial ability" lecturers felt that employers expected reasonably good conceptual skills with regard to "form and symmetry" and perceived that their students entering advanced modern apprenticeships had these skills at this expected level. Lecturers also felt that employers expected students entering such apprenticeships would be aware of safety issues' in most cases expecting them to have "no accidents" and be "aware of environs". They perceived that their students would either meet or nearly meet this requirement.

In general students considered key skills such as those identified by their lecturers and skilled assembly workers as far less important for advanced modern apprenticeships. The only key skill allocated more than ten points by students in their weighting was "maths" (fig 1), a skill lecturers termed "arithmetic knowledge" and which they weighted as far less important (fig 2). Students perceived that their numerical abilities, when they took up apprenticeships, would be below that which employers could reasonably expect. They defined this as close to the ideal "can use a scientific calculator" whilst they were closer to "can't count". This was despite lecturers feeling that the students' knowledge was "vocationally appropriate" and would meet employers' expectations.

Skilled assembly workers, unlike lecturers and students, weighted all characteristics as equally important, other than "health and safety" which they placed highest. Within these, the majority of characteristics identified were, like those identified by lecturers related to key rather than technical skills. Other than health and safety, key skills focused upon characteristics they defined as different aspects of being a "team player", "learning" and "communication". The workers' view was supported in interviews with both the component manufacturer's production manager and a team leader. These people emphasised both key and technical skills in their discussions, key skills relating to the ability to "fit in with the team", be "punctual and take responsibility for themselves" and to "understand and follow written and verbal instructions" being given the most prominence. This reflects the importance of the working with others, improving learning and performance and communication key skills highlighted by the Learning and Skills Council (2002b).

Safety, although highly weighted by both lecturers ("shop floor safety") and workers ("health and safety"), was not identified by students as a separate characteristic. Although there was some reference to safety in characteristics associated with specific skills such as wiring, testing and welding, this was only as the worst case consequences of not having these skills such as "blow everything up", "kill yourself" or "burn yourself/get 'arc eye'". Subsequent discussion suggested that whilst students considered acting safely to be a consequence of gaining specific skills, workers considered this as a separate characteristic that all advanced modern apprentices needed to possess. These views were captured on the Templates by the workers' ideal descriptor of "aware that everything is potentially dangerous" and the lecturers' ideal of "…aware of environs".

Motivation, defined by students as a "good attitude to work" was considered to be far less important for advanced modern apprentices by students than by lecturers or workers.

Lecturers perceived that students, when advanced apprentices, would be less motivated than employers could reasonably expect. Similarly students felt that whilst employers would expect them and their colleagues to "know[s] what doing and get[s] it done" and "enjoy[s] it" in their advanced apprenticeships, they perceived they would not meet these expectations. Students' feelings appeared to match those of the workers who, in discussion, suggested that their characteristics of "team player -attitude" and team player –time keeping" were both antecedents of motivation. For both these characteristics, workers perceived that advanced modern apprentices did not meet what could reasonably be expected. This was highlighted on their Templates by a lack of overlap between perceptions and expectations. In discussion lecturers also commented that many students did not appear committed or interested in their apprenticeships. This observation was supported by those students with placements who commented that the work was "boring", not living up to the image that they had been sold and, in particular, the glamour associated with cars and motor sport.

Interpersonal skills relating to working with others appeared on all three Templates. Lecturers referred to these as "Dealing with people", perceiving that their students would meet employers' expectations of being "friendly and open". Lecturers also highlighted other aspects relating to interpersonal skills as being important such as their ability to integrate into the workforce and to be a "good team player", once again perceiving that their students were likely to meet or exceed employers' expectations when they entered advanced modern apprenticeships. Workers also focussed on the "team player" aspects of these skills emphasising their expectations that to do the job well an advanced apprentice would need to be "reasonable with work mates" and "looking out for others". Unlike the lecturers, they perceived that such employees did not usually meet these expectations. Students considered interpersonal skills less important, giving them a lower weighting and focussing on "Communication skills". Within these they perceived that their abilities were lower than that which employers would expect, particularly with regard to "knowing what they were talking about". However, in discussion they did not appear to consider this was important, citing the wide availability of jobs within the sector as practical justification.

Students' identification of the "Reading" of drawings, manuals and reports as mid ranking characteristics might be considered to imply importance for a key rather than a technical skill. However, the manner in which these were described and discussed suggests they were focusing upon these as technical skills. Students described the ideal and worst case of both these characteristics using phrases such as "understands technical language" and "makes something wrongly" within their descriptors. In contrast workers used the phrases "reasonable English and literacy" and "ignorant and illiterate", their general descriptors for the ideal and worst cases and highlighting a large gap between what could be reasonably expected and their perceptions of advanced modern apprentices (fig 3). These differences in between students and workers lend further support to the contention that, unlike workers and lecturers, students did not recognise the importance of key as opposed to job specific skills.

The importance and nature of technical skills

Students weighted technical skills most highly, these dominating their Template. Although this differs to responses from both lecturers and workers, these weightings suggest differing perceptions and expectations between all three stakeholders. Whilst lecturers accorded far less importance to technical skills in their weightings (fig 2), discussion with workers' regarding their weightings (fig 3) confirmed that both key and technical skills were equally important. These were replicated in the production manager's and team leader's views.

Within the workers' Template, technical skills were focussed upon the assembly tasks required by their workplace, in this organisation welding, whereas students' Template contained more variation. Discussion revealed that this was due to the students' foci on a variety of possible workplace. The focus on technical skills was less apparent in the lecturers' Template and is highlighted clearly by comparison of references to the use of CNC (Computer Numerically Controlled) machinery. Students (fig 1) weighted the characteristic "CNC machining" highly in their Template emphasising that, although the ideal was "writes program correctly for what designed", they perceived considerable variation in both their own practical abilities and in what employers expected. In contrast they considered their "IT software skills (Microsoft)" far less important, despite their perception that they exceeded employers' expectations of advanced apprentices in this area. Workers (fig 3) included the characteristic "Computer skills –use of CNC machines", again emphasising the technical skills required in their ideal of "setter-operator competent" and the worst case "incompetent", but this time highlighting that their perceptions of apprentices' abilities matched what could reasonably expected. This implies that students might have been underestimating their own abilities or over estimating expectations of employers. Although lecturers did not include CNC machines explicitly in their Template, discussion highlighted that this was reflected by their characteristic "Shop floor –machines" (fig 2). For this characteristic lecturers emphasised advanced modern apprentices' abilities "…to select appropriately" suggesting a more general focus. Like the workers, lecturers felt that students' abilities met what could reasonably be expected by employers of advanced modern apprentices.

Two of the technical skills highlighted in students' characteristics were weighted equally as most important for someone entering an advanced modern apprenticeship, namely "CAD" (Computer Aided Design) and "Wiring". In the context of CAD students perceived that their abilities to produce "quick and accurate drawings" matched what they felt were employers' expectations. The level of skills expected by an employer in relation to wiring however, was felt to vary quite widely dependent upon the precise apprenticeship, the ideal being a student whose wiring was "put together correctly". Whilst students felt there was some overlap between employers' expectations and their own abilities, they felt that in some cases their abilities were higher than employers expected. Students ranked an understanding of materials' strengths, types and properties as the fourth most important characteristic. They felt that employers expected an advanced modern apprentice to be able to "specify the right material", "know what everything is" and "tell the difference" between materials properties. For each aspect of materials, they perceived that they would not quite meet employers' expectations. The equivalent characteristic on the lecturers' Template "Shop floor – materials" was weighted less highly, lecturers perceiving that advanced modern apprentices often exceeded what could reasonably be expected from employers applying their knowledge to a range of situations, as they were "able to select appropriately". Once again this suggests that students had a lower perception of their abilities relative to the job specific skills than lecturers.

Students and workers included a technical characteristic relating to "welding" in their Templates. Students' 'ideal' focused upon the process and outcome, being described as "knows how to set machines up and produce accurate welding" perceiving that although they did not always meet what employers could reasonably expect, there was often overlap. Although the workers included the process and outcome in their ideal descriptor, they also included the need for understanding of the process rather than just technical competence stating, "welds neatly to drawing specification, understands metal fusion". This was captured

in the workers' descriptor for the worst case of "glues together" which included no recognition of understanding.

Discussion

Within this research all stakeholders acknowledged that a skills gap existed across both key and technical skills. However, the perceptions and expectations of the three stakeholder groups differed with regard to the knowledge, skills and understanding required by an advanced modern apprentice to do her or his job well. In particular there were marked differences between lecturers and students in the relative importance of key and technical skills, whilst employees differ again, weighting both as equally important. In line with the stance of the UK government, lecturers placed greatest emphasis on key skills, and the ability to transfer these skills. Students, in contrast, accorded greater importance to the application of specific technical skills, although many of the skills they weighted as important were also identified, albeit in less detail by lecturers. In defining these skills students focussed on their application, whilst lecturers and workers both considered that both technical competence and an understanding of the processes involved were essential. Consequently there appears to be mismatch between the knowledge, skills and understanding that are considered important for organisations by lecturers and workers and those which students weight as important in the workplace. The research also highlighted a number of gaps between understandings of what could reasonably be expected of advanced modern apprentices and the perceived reality of the knowledge, skills and understanding of these people. Although there was reasonable agreement between lecturers and workers regarding the key and technical skills required, it was clear that the degree to which these were perceived to have been met varied considerably. In addition, students seemed in general to underestimate their abilities or over estimate expectations compared with their lecturers and, to a lesser extent, workers.

These mismatches have implications for the long-term future of a sector where production workers will increasingly need to be multi skilled and work in self managed teams. In particular, they highlight a need for research to understanding why this is undervalued by students and, building upon this, to develop ways to ensure that students recognise the importance of key skills and of understanding as part of their learning to be incorporated into their vocational education and training. In addition the 'gaps' suggest a need for greater dialogue between lecturers and those working in organisations to clarify the level of key and technical skills required and for these levels to be made more explicit to students.

The UK Employment, Lifelong Learning and International Directorate (Department of Education, 1998) noted that the most serious problem facing business was the lack of social skills and employability skills such as motivation, commitment, reliability and a willingness to learn and work with others. This issue was highlighted in all three stakeholders' Templates where for example expectations for related characteristics such as good attitude to work (students), time keeping and communication (workers) and motivation (lecturers) exceeded perceptions. For employers, this issue is likely to be compounded by the lack of importance placed on associated characteristics by prospective advanced modern apprentices and in particular those with only limited experience of work. Although this appeared to be partially due to the relative ease of obtaining employment in the automotive sector at the time of this research, it still highlights the need for students to be made aware and understand the importance of social and employability skills as part of their vocational education and training. Conversely it was clear from all three stakeholders' Templates that advanced modern apprentices' information technology software skills met or exceeded those expected

by employers in nearly all cases. It may therefore be that those taking up advanced modern apprenticeships have skills that are currently under utilised in this area.

Since the demise of the Industrial Training Boards, UK vocational education and training policies have been based on a voluntarist approach, emphasising the role of individuals in their training and development, stressing in particular that they should take responsibility for their own learning (Rainbird, 2000). As part of this, benefits to individuals in terms of gaining and maintaining employment and the potential to maximise earnings have been emphasised (Bryans and Smith, 2000). Despite this, the operation of student choice appears to have resulted in some being disappointed by both their course's content and the lack of employment opportunities. A focus upon the individual, combined with the need for further education colleges to be economically viable, has resulted in the promotion of courses that appear attractive and raise expectations of future careers that may prove unrealistic in terms of available employment. Although this research is only based upon the automotive sector, it raises the question of whether a market for training and development based on individual free choice can meet the demands from industry more generally. Further cross-sector research is needed to explore this. It also suggests that there may be a need for greater government intervention through training providers to ensure that the vocational education and training meets industry's skills needs.

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Fig 1: Further education college's students' Template

CHARACTERISTIC	WT	IDEAL	10	9	8	7	6	5	4	3	2	1	WORST CASE
CAD	17	quick and accurate drawings			ep								can't turn computer on, don't understand programme
Wiring	17	puts together correctly		e	ep		p						blow everything up
Maths	12	can use scientific calculator			e			p					can't count
Understands materials strengths	\	always specify right material		e			p						don't know what material is
Understands materials types	|9	know what everything is			e		p						don't know what material is
Understands materials properties	/	tell the difference –magnetic properties etc.				e		p					don't know what material is
CNC machining	8	writes program correctly for what designed			e	ep							types in wrong program
Science of mechanics	8	use science to help work things out –uses formulas etc.			ep			p					never think succinctly and don't apply formulas
Testing	\5	knows right test to use	e		p								kill yourself
	/	knows what results mean		e	ep	p							misinterprets what got
Soldering	5	uses right size of solder			ep				p				everything falls apart
Machining	4	matches speed to materials, right first time		e	ep	e							weld tool to metal, never get it right
Reading –drawings	\	understands conventions and language	e	ep									makes something wrongly
	|4												
Reading –manuals/reports	/	understands technical language		e	ep								can't read, asks someone else
IT software skills (Microsoft)	2	produce good work	e		ep								can't open programs
Drawing skills (technical)	2	knows how to use drawing instruments (compass etc.)		e	ep								can't draw
Writing –technical reports	\	sounds professional, uses language correctly				ep			p				one big story/can't write
	|2												
Writing -instructions	|	sounds professional, uses language correctly				ep			p				one big story/can't write
	/												
Communication skills	\												
-knowing what talking about	|2	makes sense		e		p							doesn't use right terminology
-talking to other people	/	makes sense and doesn't scare the shit out of them				e	p						sounds crap, don't understand what s/he is saying
Good attitude to work		knows what doing and gets it done, enjoys it			e			p					not willing, constantly making mistakes

Key: **expectations** **e** **overlap** **p** **perceptions**

Fig 2: Further education college lecturers' Template

CHARACTERISTIC	*WT*	IDEAL	10	9	8	7	6	5	4	3	2	1	WORST CASE
Ability to transfer skills (life, engineering, the lot)	10	problem solving, look as though know what doing			e	ep		e					fixed in their ways, disinterested
Motivation	\10	implements instructions		e			p						doesn't want to be there
–responds to instructions	/	doesn't resent doing it		e			p						obstructive
Spatial ability	10	form and symmetry –take a 2D form and conceptualise as 3D			ep								the earth is flat
Shop floor –safety	10	no accidents, aware of environs	ep		p								first name terms with first aider
Shop floor –processes	7	logical thought processes and how things fit together				ep							badly planned, disorientated
Adaptability	7	willing to do different jobs, flexible		e	ep								reluctant to do anything other than main job
Interest in engineering	7	involved, even in leisure time			e			p					no enthusiasm
Dealing with people -interpersonal skills	7	friendly and open		e			p						introspective and self centred
Integration into workforce	7	gets on readily with people			ep								doesn't fit in
Good team player	3	shares knowledge, supports others		e	ep	p							totally self centred
Motivation -time management (punctuality)	\3 | /	realisation of world of work		e		p							needs constant supervision, unable to prioritise
		responsible			ep								unaccountable
Use of IT	3	computer literate		p	ep	e							luddite
Shop floor –materials	3	able to select appropriately			p	ep							oblivious to needs
Shop floor –machines	3	able to select appropriately		ep									unplanned happenings
Self awareness		knows what aiming for			e		p						demotivated
		aware of own capabilities, "knows what they don't know"				e						p	know all
Accountability –peer group		leader of the pack			ep								runt
Accountability –workforce		gets on with wide range of people, mature			e		p						only relates to peers
Use of information sources		knows where to find it, can use a library etc.		e		p							Readers Digest Book of Engineering
Shop floor –product knowledge		knows what goes where and how things go together			e			p					total disregard for product
Commitment		company person, has pride in company		ep									who gives a stuff

Key: **expectations** **e** **overlap** **p** **perceptions**

Fig 3: Skilled assembly workers' Template

CHARACTERISTIC	*WT*	IDEAL	10	9	8	7	6	5	4	3	2	1	WORST CASE
Health & safety		aware that everything is potentially dangerous		ep									flippant, careless, horseplay, dream world man
Team player -attitude		committed to the team, targets and job			ep		p						I don't do that, insolent, idle and not focused
Team player –time keeping		punctual		e		p							indifferent, couldn't give a bugger
Team player –reasonable with work mates		polite, sensitive and caring			ep	p							arrogant, bombastic, know it all
Team player –looking out for others		care for people and the job			e	p							doesn't care, selfish, leaves people to fend for themselves
Team player –quality skills		understands and applies accepted standard			e		p						careless, doesn't bother checking
Team player –knowing what is expected		keeps work mates and management happy			e	ep	p						totally individual maverick
Commitment to doing the job		able to work without supervision, takes responsibility			e	ep	p						needs to be told what to do
Learning on the job		sensitive and open minded				e	ep		p				negative, fixed thinking, rigor mortis of the brain
Learning from mistakes		next time I do it right				e	p						neurotic
Communication –verbal and written		reasonable English and literacy, can write sentences	e						p				ignorant and illiterate
Computer skills –use of CNC machines		setter – operator competent			ep								needs someone else, incompetent
Welding –MIG and TIG		welds neatly to drawing specification, understands metal fusion			e				p				glues together
Forming metal		fits the jig			e		p						doesn't fit the jig, not to specification

Key: **expectations** **e** **overlap** **p** **perceptions**

N.B. No weighting as after "Health & Safety", all other characteristics are considered equally important.