



MOMENTOUS CHANGE

LTD.

Scotland and WorldSkills: Opportunities and Challenges

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Executive Summary

This report has considered the merits for Scotland in becoming much more committed to involvement in the WorldSkills movement.

The WorldSkills movement is best known for its skills competitions which are the largest in the world. However such competitions are built upon the development of international standards and enhancement of the quality of vocational education and training amongst member countries.

There are huge challenges to be faced by Scotland at the current time which impinge on the need for action regarding skills. These challenges include facing the aftermath of the global pandemic and the significant changes to business and the economy that will ensue.

Scotland has considerable ambitions, as is evident through government reports on areas such as international trade and government-initiated reviews, that suggest a need to move beyond competence and aim for excellence throughout the skills system.

Some 40% of countries across the globe are members of World Skills. However, more to the point, 100% of the Scottish Government's Priority 1 countries for international trade are members; all bar one of its Priority 2 countries are members; 100% of countries deemed as main competitors in both the service and goods sector are members, and 100% of comparator countries cited by the Sustainable Growth Commission are members.

Scotland currently does not contribute financially to WorldSkills UK, but its colleges, universities, training providers, skills bodies and businesses are currently allowed to take part in WorldSkills competitions via WorldSkills UK. However, they take part without any direct policy or resource support from within Scotland.

Over recent years, Scottish trainees have had significant achievements at UK levels skills competitions, but less so at European and World levels.

World Skills is able to more frequently update skills standards than is possible for SQA.



WorldSkills standards are internationally developed and internationally benchmarked with global businesses.

Countries fully engaged in WorldSkills, such as Ireland, have used WorldSkills engagement to enhance the status of vocational education and skills.

The trainee journey clearly testifies to considerable benefits for individuals, businesses and the wider economy.

WorldSkills engagement helps drive higher performance amongst trainers as well as trainees.

The development of WorldSkills centres of excellence can focus on issues such as standards that will help the Scottish government to drive forward and meet the challenges of the future.

This report has four recommendations:

- I. The Scottish Director of WorldSkills UK should seek an urgent meeting with appropriate Scottish government ministers to discuss this report, the advantages WorldSkills would bring to government ambitions and agree what further action is needed.**
- II. The Scottish Government should review the options (and associated levels of investment) for Scotland to become directly involved in WorldSkills, whether through the UK or independently, and commit to the preferred course of action before the end of the current parliamentary term.**
- III. In light of the Higgins report, The Scottish Government should set up a short term working group, including representatives from Skills Development Scotland, the SQA, WorldSkills and such others that are deemed appropriate. Its aim would be to create proposals for high quality apprenticeships that could be badged as World Class.**
- IV. The Scottish Director of WorldSkills in Scotland should scope out a proposal for a Scottish Centre of Excellence. He should invite participation from the Scottish Government and appropriate agencies.**

Introduction

This report sets out the case for Scotland's skills sector to become much more active in the WorldSkillsⁱ movement. The report does so by considering aspects of the Scottish Government's economic ambitions, such as on international trade, as well as considering the challenges posed to Scotland by the current pandemic-induced crisis.

It should be understood that the WorldSkills movement is a great deal more than an international body promoting global skills competitions. Of particular importance to the challenges Scotland faces, is the work WorldSkills undertakes in creating frameworks for skills that are driven by excellence not simply competence, developed with the involvement of international businesses not merely domestic ones, and committed to sharing international best practice.

This report therefore sets out to consider the following.

- First, the context of the current economic crisis.
- Second, a review Scotland's main competitors and planned trading partners and their engagement with the WorldSkills movement.
- Third, a review of issues of excellence, skills and productivity issues
- Fourth, capturing the learning journey.
- Fifth, a consideration of the setting of standards and centres of excellence.
- Sixth, recommendations as to how Scotland should proceed to make best use of the opportunities presented by WorldSkills.

Although this report has been commissioned by WorldSkills UK, responsibility for its content rests solely with its author, Roger Mullin of Momentous Change Ltd. Any errors of fact or interpretation are his responsibility alone.

A context of crisis

At the time of constructing this report (July/August 2020) the world is in the midst of a huge health, social and economic crisis due to the continuing Covid-19 pandemic. This crisis is presenting challenges of a type and scale that neither the UK nor Scotland have faced during the lifetime of the current generation.

From relatively early in the crisis it was becoming clear that the crisis was going to have a lasting impact, the like of which will make the post financial crash of 2008 pale by comparison.

Economic impact

As regards the economic impact, on 31 March 2020, the Fraser of Allander Institute at Strathclyde University published its assessment that:

“Hopes that the recession that we are now in would be ‘v-shaped’ – i.e. a sharp downturn followed by a bounce-back in the months to follow – have sadly largely disappeared...

We are in the early stages of a major economic downturn. One that...will be much bigger than the financial crisis”ⁱⁱ.

Although the Bank of England has published much more optimistic assessments, they have received widespread criticism from the economic community, including the IMFⁱⁱⁱ. Our discussions with senior Scottish Government figures indicate they are much more in tune with the Fraser of Allander assessment, and are not expecting a quick bounce back, but a long-term challenging environment.

There are almost daily publications of data reporting on many facets of the deep recession we are now in the midst of; from significant rises in unemployment, to increasing business failures. The impact of this is a profound challenge not only to government in general but to the skills sector in particular.

The role of skills

Although we are facing a much more difficult future than in the aftermath of the financial crisis, it is nonetheless useful to reflect on a major study commissioned by the UK Department for Business, Innovation and Skills and published in December 2015^{iv}. It pointed out that:

“In the run-up to the financial crisis, the up-skilling of the UK's workforce accounted for around 20% of total labour productivity growth. During and after the crisis, overall growth in labour productivity was negative on average – largely because of declining total factor productivity -



but the contribution of skills continued to make a positive contribution. The implication of this finding is that labour productivity growth could have been even weaker in the UK in recent years had it not been for the significant up-skilling of the workforce.”

More recently however (October 2019), The Industrial Strategy Council report^v *UK Skills Mismatch in 2030*, pointed to very real challenges for skills in the coming years due to a mismatch between the supply of skills and the needs of the economy (and this before the onset of the pandemic-induced crisis). It averred that:

“A skills mismatch can act as a drag on economic growth by limiting the employment and earnings opportunities of individuals and impacting on firm performance and productivity. UK firms have previously reported that lack of access to the right skills was the number one threat to the competitiveness of the UK labour market”.

The OECD has quantified the mismatch in its 2017 report claiming no less than 40% of workers in the UK are engaged in an occupation for which they are not properly qualified^{vi}. This is a significantly higher percentage than many of the UK’s competitors. This echoes the view of some of the Scottish business leaders interviewed in the course of this study who claim they cannot rely on current qualifications as an accurate guide as to who will have the skills, aptitudes and behaviours needed for their business.

As we enter a new major economic recession there is evidence from the previous financial crisis, that the better the upskilling of the workforce, the more it will contribute to the restraining of an inevitable fall in labour productivity growth. There is a clear need to ensure a better match between skills training and business needs, and we operate in an international context where we lag behind some competitor nations in terms of skill contributions to productivity.

Thus, although skills have the potential to contribute positively to pulling the country out of recession, however long and difficult that process may be, there is the need for considerable development and improvements on the skills front. As this report argues, for Scotland there is significant scope for a more ambitious international outlook to assist in this challenging journey.

World Skills and Government Priorities

About WorldSkills

WorldSkills is by far the largest global initiative in the cause of developing international standards of excellence in skills. It brings together businesses, governments, education and training institutions, and other specialists in the cause of developing international standards of excellence in skills.

It is probably best known for its WorldSkills global competition which is the world's largest professional education event. It is held every two years, with the most recent held in Kazan being the 37th such competition. There are also competitions at European and member levels.

Membership

There are currently 84 members of WorldSkills^{vii}, 80 of which are states with seats at the United Nations. The other 4 members are classified as “regional” such as South Tyrol in Italy (Italy is not itself a member). Approximately 40% of UN members are full members of WorldSkills.

The UK is a member and WorldSkills UK receives direct funding from government departments in England, Wales and Northern Ireland. Scottish education and training institutions and their students, as well as apprentices from Scottish businesses are currently allowed to participate in WorldSkills UK competitions and as part of the UK team at both World and European level. They do so as a matter of individual choice as there is no Scottish level policy encouraging participation. Individual colleges/universities/training providers/employers from Scotland seeking to participate in competitions fund their own additional costs from core budgets. WorldSkills UK is also currently funding a part-time director for Scotland, a post due to end in December 2020.

Conferences and standards

Running alongside competitions are international conferences at which occupational standards are discussed and work put in motion to develop standards of excellence. These conferences also keep standards up to date and internationally valid. At a policy level, Scotland does not systematically benchmark its own suite of vocational education and training qualifications



against these international WorldSkills standards, although in some very limited areas standards have been influenced due to the work of individuals with direct knowledge of WorldSkills.

The search for excellence, which is a hallmark of the aims of WorldSkills, has recently been reflected too in the Scottish Government funded *Cumberford-Little Report* which argued that:

“we must insist on excellence rather than competence within the content, assessment, and currency of technical and professional qualifications. SQA and QAA should work more closely together and with a greater sense of urgency to ensure their portfolios reflect what the economy needs, both in the short- and medium-terms and thereby further enable the agility and flexibility of colleges.”^{viii}

WorldSkills development of frameworks and standards involves input from international businesses with the aim of ensuring, as far as possible, standards reflect both needs and international best practice. This is partly reflected in the list of 23 major international business partners to the WorldSkills movement^{ix}.

Scottish Government: Looking to the future.

The recently published Higgins report *Towards a Robust, Resilient Wellbeing Economy for Scotland: Report of the Advisory Group on Economic Recovery* was commissioned by the Scottish Government to address the needs of Scotland’s post pandemic economy. It has given considerable prominence to the importance of skills developments in building a sustainable future. Of particular interest is its emphasis on ensuring high quality skills and properly reflecting business and economic needs. For example, it argues that:

“Skills Development Scotland and the Scottish Funding Council should collaborate with colleges, universities and businesses to prioritise apprenticeship training...

Many apprenticeships have high value in the labour market: but this depends on their quality ...

Expanding the number of apprenticeships in this period of depressed economic activity will be challenging. Generating new apprenticeships that are not of high quality will undermine the reputation and value of apprenticeships...”



Thus, while the report puts skills in a prominent position, it does so by recognizing the need to ensure and emphasise the quality of provision: a view that is shared by the WorldSkills movement.

Recent government funded reports stress the importance of developing excellence and high quality skills development. But this is not the only aspect that impinges upon government thinking and policy.

At the time of writing, the Scottish Government has published its response to the Higgins review^x. Its response is quiet on the issue of quality.

Scottish Government: International trade and competitor nations.

We referenced earlier that approximately 40% of UN member states were members of WorldSkills. We have therefore explored to what extent this is reflected in the countries which the Scottish Government have identified as particularly important.

We begin by considering the Scottish Government's international trade strategy as outlined in its publication *Scotland: A Trading Nation*. This detailed report, supported by independent research from the Fraser of Allander Institute at the University of Strathclyde, has constructed a set of 15 Priority 1 countries, and a secondary list of 11 Priority 2 Countries. These are the countries where most government resources will be focused in support of Scottish exporters.

The table following lists Priority 1 countries and whether or not they are members of WorldSkills.

Table 1: List of Scotland A Trading Nation Priority 1 target countries^{xi} for exports, in rank order of importance as identified by Scottish Government Export Value Gap tool.

Countries in rank order of importance	Member of World Skills?
United States of America	Yes
Germany	Yes
France	Yes
Netherlands	Yes
Switzerland	Yes
Norway	Yes
Poland	Yes
Belgium	Yes
China	Yes
Ireland	Yes
Denmark	Yes
Sweden	Yes
Italy	Yes (South Tyrol only)
Canada	Yes
Spain	Yes

As is evident, although only 40% of countries worldwide are members of WorldSkills, 100% of Scotland's Priority 1 target countries are members. All of the above countries contribute both an annual fee to the global movement, and directly fund their own national World Skills organisation as is the case with the UK and WorldSkills UK.

Given Scotland has its own qualification bodies within the UK, it is to the authors of this report somewhat perplexing to find Scotland having a less than fully committed engagement.

Turning next to Priority 2 countries, we find only one of the Priority 2 countries (Nigeria) is not a member of WorldSkills.

Table 2: List of Scotland A Trading Nation Priority 2 target countries^{xii} for exports, in rank order of importance as identified by Scottish Government Export Value Gap tool.

Countries in rank order of importance	Member of World Skills?
Japan	Yes
Australia	Yes
Turkey	Yes
Mexico	Yes
India	Yes
Singapore	Yes
United Arab Emirates	Yes
Nigeria	No
South Korea	Yes
Brazil	Yes
Indonesia	Yes

No less than 25 of the Scottish Government's 26 countries identified as trading target countries are full members of WorldSkills.

It may be argued that of greater importance will be our competitor countries. To address this we can turn to the work of the office of the Chief Economic Advisor to the Scottish Government. Setting out to examine 100 countries world wide, analysis was undertaken to identify key competitors in various service sector and product manufacturing sector markets.

In the following table, rather than reporting in detail on each of the 66 goods sectors and 19 service sectors, we report by the high level Goods and Services only. As can be seen, this identifies a comparatively small number of countries overall considered to be key competitors of broadly similar scale to Scotland. As in Tables 1 and 2 we have then listed whether or not they are members of WorldSkills - a relatively straightforward task as all are members.

Table 3: List of principal competitor countries as identified by Scottish Government^{xiii}

Country	Competitive sector	Member of World Skills?
Denmark	Goods and Services	Yes
Ireland	Goods and Services	Yes
Finland	Goods	Yes
Norway	Goods	Yes
Belgium	Services	Yes
Netherlands	Services	Yes
Poland	Services	Yes
Sweden	Services	Yes

The above list it should be noted, also involves some overlap with export target Priority 1 and 2 countries.

Next, we report on the 12 countries identified by the Sustainable Growth Commission which was set up by Scotland's First Minister Nicola Sturgeon in her capacity as leader of the governing party. These 12 comparator countries were selected to represent nations that are of broadly similar scale to Scotland, that are economically developed, and that are particularly successful in some areas of economic life. In other words, nations that in some areas of economic life Scotland should seek to emulate.

Table 4: List of comparator countries identified by the Sustainable Growth Commission^{xiv}.

Comparator countries	Member of World Skills?
Austria	Yes
Belgium	Yes
Denmark	Yes
Finland	Yes
Hong Kong	Yes
Ireland	Yes
Netherlands	Yes
New Zealand	Yes
Norway	Yes
Singapore	Yes
Sweden	Yes
Switzerland	Yes

Once more we find that all countries on the list are member of WorldSkills.

In summary, we can see that across different country groupings that dominate the thinking of Scottish Government ministers, membership of WorldSkills is a particularly common feature.

Scotland and WorldSkills competition

Given so many key countries are involved in WorldSkills, it has enabled us to look at skills competition data and review Scotland's current performance against them. We are not arguing this is the best way of assessing Scotland's relative skills abilities. That would require research far beyond the scope of this report. Indeed, it would be far beyond anything ever undertaken to this point. We are using this merely as a very broad indicator of where Scotland sits in relation to the competitive element of the WorldSkills movement.

The Cumberford-Little report avers that:

“Scotland has historically punched well above its weight in WorldSkills. Despite that success, it is difficult to say WorldSkills enjoys the same status in Scotland apparent in some of our European competitors”^{xv}

Similar claims have been cited elsewhere^{xvi}.

We agree this is a fair summary of performance at UK level competitions.

Although Scotland does not contribute to the central funding of WorldSkills UK, it has thus far been allowed to participate in its competitions. As the Times Educational Supplement pointed out in November 2019, for the last 7 years a Scottish College has topped the institutional rankings at the WorldSkills UK competition^{xvii}.

The following table indicates the extent of Scottish participation at UK level in recent years.

Table 5: World Skills UK competition registration numbers of individual participants by year

Registration Numbers from Scotland				
2015	2016	2017	2018	2019
294	325	374	434	471

We can see from the above that there has been significant and steady growth in participation over recent years. Furthermore, access to the WorldSkills UK data base has revealed a wide range of Scottish institutions have been involved including colleges, universities, private training providers, trade associations and private businesses. Each institution directly funds the participation of their own students/trainees.

At this level and competing against participants from England, Wales and Northern Ireland we can see the strong performance at this level from Scotland in the following table from the 2019 competition.

Table 6: World Skills UK competition 2019: Scottish performance from registration to final award

	Registration	Heat	Final	Final Award
Scotland	13%	15%	16%	20%
England	60%	60%	55%	54%
Northern Ireland	9%	10%	11%	8%
Wales	18%	15%	18%	18%

The above indicates a level of performance from Scotland higher than that which would be expected on a population share basis. Combined with a Scottish college topping the rankings again, it may tempt some to be complacent. However, if we raise our sights to international level a different tale is told.

Typically, there is approximately an 18-month gap between a WorldSkills UK competition and the Global competition. During that time a group is formed of high performers at the UK competition and further development and support given before a final selection for the UK team takes place. Scottish participants are allowed to take part in this development phase and are then open to selection for the UK team. There is no established Scottish infrastructure for additionally supporting Scottish participants.

At the most recent global competition in Kazan, there were 56 vocational areas in the competition. All participants were given a points score, which formed the basis for awarding medals. Points scores were also averaged for each participating nation, allowing the construction of a points table. In Kazan, 62 nations sent teams to compete. The following lists the top 20 performing countries by this measure.

Table 7: Top 20 countries at WorldSkills Kazan by number of competitors and average point score in rank order.

Top 20 countries in rank order	Number of competitors	Average score
China	56	729.13
Korea	47	719.83
Chinese Taipei	45	717.51
Switzerland	39	717.28
Russia	56	716.79
South Tyrol, Italy	14	714.50
France	36	713.86
Australia	15	712.40
Austria	40	709.75
Brazil	56	709.66
Japan	42	708.38
Singapore	29	708.10
Germany	32	705.41
Ireland	15	704.60
Iran	10	704.00
Thailand	23	703.09
Macao, China	16	701.69
Denmark	14	699.50
United Kingdom	32	699.13
Hong Kong, China	22	698.59

In passing we note that all four WorldSkills members that are not recognised states with membership of the United Nations (such as South Tyrol) all appear in the top 20 list.

At the most recent global competition in Kazan, five members of the UK team were from Scotland.

To enable a comparison with Scotland, we have disaggregated the scores of the UK into two areas: Scotland and the rest of the UK (rUK). This has enabled us to create a separate Scotland category and has resulted in the number of competing nations rising from 62 to 63. This allows us to consider where Scotland fits in terms of relative national performance.

The following tables are based, as before, on Scotland's competitor nations, trading nations, and comparable nations. We turn first to considering Scotland compared to competitor nation performance and rUK.



Table 8: Comparing Scottish competitors average score at Kazan 2019, with those of economic competitor countries (and the rest of the United Kingdom, rUK)

Country	Number of competitors	Average score	Position (out of 63 competitor nations)
Ireland	15	704.6	14
rUK	27	700.1	18
Denmark	14	699.5	19
Netherlands	25	694.2	26
Scotland	5	694.0	27
Sweden	25	693.0	28
Finland	25	691.4	30
Norway	16	686.31	36
Belgium	14	685.57	37
Poland	6	685.17	38

There are a few matters of importance to note. First, relative to competitor nations Scotland's participation is relatively low on the world stage, compared to it being relatively high in UK level competitions as we noted earlier. For example, Ireland, with a population less than Scotland, had three times the number of competitors in Kazan.

Notwithstanding relatively low level of participation, Scotland's performance level at 694 points on average placed it 27th overall and just over mid-way when compared with competitor countries. In other words, fair to say a middle ranking country.

Turning to those priority countries featuring in in the Scottish Government's *Scotland: A Trading Nation Report*, we present two tables. First in relation to Priority 1 countries and secondly Priority 2 countries. We find the following.

Table 9: Comparing Scottish competitors average score at Kazan 2019, with those of Priority 1 target export countries plus rUK.

Country	Number of competitors	Average score	Position (out of 63 competitor nations)
China	56	729.13	1
Switzerland	39	717.28	4
Italy (South Tyrol)	14	714.5	6
France	36	713.86	7
Germany	32	705.41	13
Ireland	15	704.6	14
rUK	27	700.1	18
Denmark	14	699.5	19
Netherlands	25	694.2	26
Scotland	5	694.0	27
Sweden	25	693.0	28
Canada	29	692.48	29
Norway	16	686.31	36
Belgium	14	685.57	37
Poland	6	685.17	38
United States of America	20	684.60	39
Spain	26	663.27	48

Again, Scotland achieves a middle ranking level of performance amongst Priority 1 countries, but, perhaps surprisingly, does less well compared to Priority 2 countries as the following table makes clear.

Table 10: Comparing Scottish competitors average score at Kazan 2019, with those of Priority 2 target export countries plus rUK.

Country	Number of competitors	Average score	Position (out of 63 competitor nations)
South Korea	47	719.83	2
Australia	15	712.40	8
Brazil	56	709.66	10
Japan	42	708.38	11
Singapore	29	708.10	12
rUK	27	700.1	18
Indonesia	29	696.69	23
India	43	695.98	25
Scotland	5	694.0	27
United Arab Emirates	10	684.10	40
Mexico	6	646.50	54
Turkey	Did not compete		

Note that Nigeria is a Priority 2 country but is not a member of WorldSkills.



As Tables 9 and 10 suggest, Scotland's participation compared to priority countries is at a much lower level, and of those who do compete, the performance level leaves scope for development.

Amongst the countries with which Scotland is compared by the Sustainable Growth Commission, again we find a similar story (See Table 11 which follows). The extent of participation is relatively low, with a middle ranking performance from those that do compete.

Table 11: Comparing Scottish competitors average score at Kazan 2019, with the Sustainable Growth Commission comparable countries plus rUK.

Country	Number of competitors	Average score	Position (out of 63 competitor nations)
Switzerland	39	717.28	4
Austria	40	709.75	9
Singapore	29	708.10	12
Ireland	15	704.6	14
rUK	27	700.1	18
Denmark	14	699.5	19
Hong Kong	22	698.59	20
Netherlands	25	694.2	26
Scotland	5	694.0	27
Sweden	25	693.0	28
Finland	25	691.4	30
Norway	16	686.31	36
Belgium	14	685.57	37
New Zealand	9	670.0	47

The above considers only performance at the most recent global competition. However earlier data provides a broadly similar picture and can be accessed on the WorldSkills data portal^{xviii}.

The critic may ask if this is of any importance? Is participation in such international competitions seen as valuable and important by the governments of competing nations? Does it help raise the profile of the importance of vocational skills? These questions may be addressed to some degree by considering the case of Ireland.

Ireland is considered as a competitor nation, a Priority 1 trading nation and also was a comparable country used by the Sustainable Growth Commission. It is also of very similar size to Scotland, has strong cultural connections to Scotland and has strong relationships with Scotland at government level. By all these measures Ireland is therefore a credible nation by which to compare Scotland.

While Scotland has thus far eschewed engagement with the WorldSkills movement at a national policy level, Ireland became the 7th member of WorldSkills back in 1956.

Ireland's continuing political commitment to WorldSkills is demonstrated by the attendance in Kazan of John Halligan, Minister for Training, Skills, Innovation, Research and Development. Commenting on Ireland's performance in Kazan, where it achieved 14th place amongst 62 competing nations, and won 2 gold medals, 1 bronze medal, a Best of Nation medal and 7 Medallions for Excellence^{xix}, the Minister said:

“In itself it is such an incredible achievement to have competed at WorldSkills, but to be able to also bring home medals, really highlights this team's individual dedication and commitment to their crafts. It also bodes well for their future and no doubt successful careers, but also Ireland's future.”^{xx}

The national significance of skills was further emphasized by an official visit of the Irish team to Michael D. Higgins, Uachtarán na hÉireann (President of Ireland) at his official residence Áras an Uachtaráin^{xxi}.

This level of political commitment results in considerable press coverage in Ireland, and contributes to raising the status and importance of vocational skills.

However, as argued earlier, perhaps of greater importance is the qualitative development that takes place from participation in WorldSkills. It is to some of these qualitative aspects we now turn.

The Student Journey

This section is based on Appreciative Inquiry^{xxii} style interviews with two Scottish students (Andrew and Ross) who, at different times, have gone through WorldSkills-based programmes at New College Lanarkshire.

Pre-College

Prior to embarking on college studies, neither Andrew nor Ross considered themselves particularly conscientious school pupils.

Andrew says he was a disinterested pupil with little ambition at school and he only latterly found a teacher who introduced him to graphic design thus sparking some interest. It was his teacher who encouraged him to apply for a place at the then Motherwell College (now part of New College Lanarkshire).

Ross whilst at school was very interested in sports and had hopes, like so many boys from Lanarkshire, to become a professional footballer. His only real academic passion was for graphic communication and related engineering design. Although Ross contemplated going to university it was his family, some of whom were involved in education, who encouraged him to go down the HNC/D route as the early stages of pursuing a degree.

Both Andrew and Ross had developed some computer-based graphics skills at home. Ross in particular was influenced by WorldSkills before embarking on college studies. He had seen in the local press stories about WorldSkills achievers from the local college, including Andrew who as we shall see performed extremely highly on the global stage. Ross attributes this to his early enthusiasm to enrol at college in the same area as Andrew: Computer Aided Draughting and Design (CADD).

College experience

Both Andrew and Ross were very impressed by college teaching staff. From the outset they were made aware of the high standards that would be expected but also the additional support they would receive should they need it. As they became involved in WorldSkills they attended additional evening sessions provided by teaching staff to help them move beyond the



requirements of the SQA qualifications they were studying for and reach for WorldSkills standards. In effect there was a drive for excellence not just mere competence. For example, to satisfy qualification requirements, Ross made a proposal for a course project. It met the requirements of the curriculum, but he was given it back and told it didn't reflect his range of abilities. He was asked to come up with something much more challenging – an example of excellence in action. Rather than being satisfied with basic requirements excellence included self-awareness, a willingness to challenge oneself and to set higher than minimum standards.

Both Andrew and Ross saw in their lecturers a commitment and range of supporting behaviours that went far beyond their expectations. To teach to standards of excellence, staff displayed to students like Andrew and Ross a commitment to their own excellence.: a willingness to keep up to date, and a desire to assist students to achieve their best.

Wider skills

It was not just a striving for excellence in technical skills that WorldSkills encouraged. Both Ross and Andrew talked eloquently about how the approach to WorldSkills developed a wide range of additional skills and behaviours. These included an ability to use knowledge effectively in communicating and giving explanations to others. Both Ross and Andrew were able to provide examples of how their involvement in WorldSkills enabled them to use knowledge in a wide variety of ways. Such examples ranged from them reading highly complex technical documents and using information to create different types of artefacts, to using knowledge as part of engagement with senior business personnel, to synthesising and evaluating World Skills materials. This reminded me of the different levels through which knowledge can be deployed.

One of the most frequently used taxonomies used in educational circles is Bloom's Taxonomy^{xxiii}. Bloom postulated six levels from lowest (level 1) to highest (level 6) as follows

1. Knowledge
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation



Both Ross and Andrew presented examples that demonstrated their educational experience with WorldSkills had enabled them to perform at all six levels of Bloom's taxonomy.

In addition, exposure to competition and having to perform under the pressure of time and complexity introduces an element that arguably meets concerns about competence based assessment in the UK that it lacks "ecological validity"^{xxiv}. In practical terms both Andrew and Ross claimed that having to perform complex and complete tasks under pressure of time prepared them well for the subsequent realities of employment.

WorldSkills competition

The competitive element of WorldSkills is merely the end point of a significant educational journey. It allowed both Andrew and Ross as top performers from the college, to experience developing and demonstrating their skills to an international audience, including in USA, China, Brazil, Germany, France, Russian as they participated in competitions at European and global level, and participating some development events internationally.

However, they were not the only students from their year groups to benefit from learning to WorldSkills standards. They were merely the cream of their year group, but many other students have also benefitted from engagement.

Post college journey

Both Andrew and Ross attribute their access to university studies and high quality jobs to their WorldSkills experience. Ross for example (now an honours graduate of Strathclyde university) did not have the required mathematics and physics Highers level awards from his time at school to meet entry requirement to the course he undertook at Strathclyde University.

However, he was told his engagement in the WorldSkills movement (even before his participation at global events) allowed the university to waive requirements and give him direct entry to year three of his BSc course. He then found he was far in advance of his fellow students in those areas he specialised in for WorldSkills. Ross was asked by the university to both tutor fellow students, and by the Head of Department to re-write programme descriptors for years 1 and 2 students. A clear testimony to his abilities.

Both Andrew and Ross said it was their WorldSkills engagement that particularly attracted employers. Both had multiple offers of employment, and their careers were able to flourish. For example, Andrew has progressed from being a trainee to reaching the level of Design Engineer.

From boys who were often poorly motivated in school, to progress to become such valued employees is a tale of considerable success. It should also be added that both have been supporting subsequent students participating in the same journey as themselves by continuing to contribute to the development of excellence. As Andrew puts it:

“WorldSkills has totally made me who I am”.

The Productivity Puzzle

WorldSkills UK Productivity focus

WorldSkills UK has a strong commitment to exploring how the development of international best practice can contribute to improvements in productivity. Its Productivity Lab^{xxv} is testimony to this focus.

The first major piece of research^{xxvi} commissioned by the lab was focused on identifying best international practice, seeking to draw out lessons for the policy community in the UK.

Without seeking to repeat work already undertaken, this section takes a different focus on the issue of productivity, but one which is central to some of the debates currently underway in Scotland regarding the skills contribution to productivity.

Measuring Productivity

Earlier we briefly referenced the issue of productivity. The experiences of Andrew and Ross suggest that they are likely to be highly productive employees. The skills of the workforce are often seen as an essential factor in productivity with regular attempts made to measure the skills contributions at a macro level^{xxvii}, and in some jurisdictions to place productivity centre stage in policy making, such as in Singapore. The results however are often unclear, and there is some dispute amongst economists as to how far you can accurately measure productivity. For example, the Asian expert and economist Dr Jim Walker^{xxviii} has argued:

“To give you an example Singapore seeks to be a productivity-led economy – but they are now conceding it is really difficult to measure. For example, you can measure how many cubic meters of cement a builder pours in a day, but it is not easy to measure the productivity of someone making the beds in a hotel. For example, sometimes only a few rooms are taken or if it is a 300-bed hotel, you can only change 300 beds. You cannot improve your productivity. It’s a minefield. It is an attempt by economist (and) politicians to measure the impossible and put it together in a single puzzle”.

Leaving aside how productivity is measured at a macro-level, Dr Walker provides a reminder that different occupational areas face different challenges. For the purpose of this report, perhaps the more interesting question to pose is, “What aspects of an individuals skill set contributes positively to their productivity and effectiveness as an individual employee”?

What makes people productive?

There is no clear consensus about this in the economic literature we have consulted, and therefore we have supplemented our literature review with a set of interviews with leading business figures.

What is agreed in both the literature and from interviews is that there is a very basic set of skills that must be met which we would summarise as follows:

- ❖ Tasks are fully completed, efficiently and in good time.

However our interviewees were adamant that such basic competence was far from sufficient. This was the case on two fronts. First the ability to effectively use basic technical skills and their associated knowledge for different purposes, and secondly (and particularly important for our interviewees) were wider behavioural characteristics.

In terms of the use of skills and knowledge the following were cited.

- ❖ Being good problem solvers in their area of work.

This varied in importance across our interviewees, but none considered it unimportant. To be good problem solvers means not only having practical skills but having high levels of applicable knowledge, including being able to deploy it at levels 4, 5 and 6 in Bloom’s taxonomy.

- ❖ Employees have sufficient broad skills such as in literacy, numeracy and an ability to self-learn, to keep themselves up to date in any developments in their field of work.

Self-learning tends to be appropriate for higher level employees. Other employees will reasonably expect employers to invest in training for them. One of our interviewees leads a PLC that actively encourages all their employees to have breadth...they rarely refuse any training for

staff (even where it has only a tenuous link with their job) as they believe they benefit from well-trained committed staff who support them in the work and their life. On any given day at least 20% of his staff are undertaking training it was claimed.

- ❖ Employees have sufficient knowledge to pass on accurate information and advice to other employees, particularly about new practices and developments in their field of work.

This varied considerably in importance amongst our interviewees.

However, in addition it was very clear that that a wide range of behavioural aptitudes were seen to be important if employees were to be fully productive. One leading business figure indicated her companies no longer recruit at all just on technical skills and actively look for key behaviours such as initiative, taking ownership, and the extent to which the individual will fit into their culture. Another averred that:

*“It’s mostly attitude which I guess is learned behaviour. If they have worked in environments where they are encouraged to try things and if they make a mistake it’s not the end of the world...they tend to be more productive than if they have worked in traditional environments.....
“You need to be prepared to take the risk of not getting it right. It is flexibility and we talk about this quite a lot, it’s really interesting how many of them have no natural curiosity so that when you do find an interest in trying new things it is a surprise.*

When I first started work you had to have that, but they tend to put themselves more in boxes now...much less self-sufficiency around nowadays”

Interesting that in the above quote the attitudes being sought are learned behaviour and, in other words employees are capable of being nourished. As the above suggests key wider attributes being looked for include:

- ❖ Taking ownership (personal responsibility)
- ❖ Using personal initiative.
- ❖ Being curious



- ❖ Appropriate risk-taking

Reflecting on WorldSkills experience

What is fascinating is to reflect on this section in the light of the WorldSkills journeys of Ross and Andrew. The great majority of issues seen as being important for the creation of productive employees are reflected very strongly in the experiences of both Ross and Andrew.

Indeed, we would argue that is clear overlap between the drive for excellence and the drive for productivity at an individual level.

Qualifications, Teaching, and Centre of Excellence.

This section reflects a review of a sample of SQA qualifications and comparable WorldSkills standards^{xxix}. It has also benefitted greatly from discussions with ex-students Ross and Andrew, Barry Skea, a leading lecturer in the WorldSkills movement in Scotland and member of staff at New College Lanarkshire, Martin McGuire, Scottish Director for WorldSkills UK, and two others from the college sector in Scotland who wish to remain anonymous..

Qualification development

The development of qualification standards comparing SQA qualifications and WorldSkills standards has some key differences. Of particular significance are the following:

First, World Skills frameworks are fully reviewed every two years to keep them as up to date as is practical. For many SQA qualifications there can be a gap of 5 years or more before a review of mandatory components are undertaken. As a result, in a fast-changing world, with global interdependence, qualifications can quickly become dated. This is a particularly important matter for key Scotland wide ambitions and particularly for skills related to the digital economy and the green economy. In such areas technological advances and new knowledge production places a particularly heavy demand on the education and training sector to keep up to date. A five year gap or more between full revision of standards will fail such areas.

Second, the process of development at world skills level includes the participation of subject experts from different countries.

Third, both the development of new areas, and the review of exiting frameworks, involves a process of review and feedback from businesses throughout the world, making the development process international rather than domestically driven.

The development process adopted by WorldSkills fits with the Scottish Government's global ambitions.

Teaching

Those involved in the delivery to WorldSkills standards recognise, as did students Andrew and Ross, that to effectively deliver to WorldSkills standards requires more of staff in terms of the following.

- ❖ A willingness to keep up to date on latest developments in their field. This requires both individual commitment as well as support from their employing institutions.
- ❖ A commitment to always work to the needs of trainees and to take responsibility for delivery for all.
- ❖ An ability to use a variety of training methods including those that encourage wider skills such as problem solving and knowledge transfer.

Indeed, two of those interviews indicated they found involvement in WorldSkills helped remotivate themselves as college lecturers and move beyond “*doing the basics to meet the needs of traditional qualifications*”.

Barry Skea from New College Lanarkshire, who has waved his right to anonymity, put it thus:

“Getting involved in WorldSkills took me out of my comfort zone.... enabled me to stretch myself....and increased the satisfaction I get from my job”.

Centre of Excellence

In the course of this study a number of people have commented on the fact WorldSkills UK are preparing to launch a number of Centres of Excellence. Amongst this, centres of excellence will aim to provide support to organisations involved in WorldSkills and support staff to develop the higher levels of performance mentioned above.

For Scotland, it is recognised it has a different qualification system and structure to that elsewhere in the UK, and the Scottish Government has some particular ambitions that could be reflected in the work of a centre of excellence.

A centre of excellence could also be a focus of supporting the development of qualifications that reflect international best practice.

Summary Discussion

It is very noticeable that in recent years the Scottish Government has sought to look outwards in pursuit of its economic goals. This is very evident for example in the development of its international trade policy. It has also sought to exit the current pandemic while taking a fresh look at its economic priorities, as has been particularly evident in its commissioning of the Higgins report.

Along with this, it has shown itself concerned with developing strategy in relation to colleges and skills which led it to commissioning the Cumberford-Little report, which, like the Higgins report, is concerned about the quality of provision and the desire to achieve excellence not merely competence.

The question is how are the Scottish Government going to realise such ambitions? This report does not suggest a comprehensive solution, but does argue the case for serious consideration of how the WorldSkills movement can make an important contribution to achieving the step change required.

In particular, this report suggests there are benefits to be gained from a much stronger commitment to WorldSkills in terms of the following:

- ❖ Using WorldSkills to raise the prestige and status of vocational skills, similar to the manner in which Ireland is successfully doing.
- ❖ Demonstrating a commitment to excellence in skills development, not mere competence.
- ❖ Developing the wider range of skills that are essential for addressing the productivity puzzle.
- ❖ Driving up standards to support Scotland's competitive ambitions.

- ❖ Benchmarking Scotland against the highest of international standards.
- ❖ Stretching the abilities of students and staff in a continuous drive for excellence.

It has not been the purpose of this report to undertake an examination of the costs of bringing forward a commitment to WorldSkills. However, our discussions lead us to believe that to commit to the recommendations in the next section with the aim of realising the benefits outlined above would be modest and well within the scope of the Scottish Government.

By moving forward and adopting and supporting WorldSkills the Scottish Government will be able to take some practical steps to move beyond wise words and commit to effective action.

Conclusions and Recommendations

The following conclusions and recommendations are made in the light of this report.

Our research and discussions suggest there is considerable scope for raising awareness of WorldSkills at government level. We make the following recommendations:

- 1. The Scottish Director of WorldSkills UK should seek an urgent meeting with appropriate Scottish government ministers to discuss this report, the advantages WorldSkills would bring to government ambitions and agree what further action is needed.**

There is considerable scope for much fuller engagement with WorldSkills in Scotland. It will present challenges to those who are content with things remaining as they are, but if things do remain as they are Scotland will not achieve the levels of quality, let alone excellence, that many now call for.

There are two possible ways of becoming more purposefully involved in WorldSkills. Firstly, to fully fund Scotland's engagement within WorldSkills UK, or secondly, to seek direct membership as a "region" such as South Tyrol. Hence our second recommendation;

- 2. The Scottish government should review the options (and associated levels of investment) for Scotland to become directly involved in WorldSkills, whether through the UK or independently, and commit to the preferred course of action before the end of the current parliamentary term.**

In light of the Higgins report and the call for high quality apprenticeships, it would be advantageous to consider how WorldSkills could contribute to raising standards particularly at higher levels. We therefore recommend;

- 3. The Scottish Government should set up a short-term working group, including representatives from Skills Development Scotland, the SQA, WorldSkills and such others that are deemed appropriate. Its aim would be to create proposals for high quality apprenticeships that could be badged as World Class.**

To maximise the development of higher quality vocational education and training in Scotland we finally recommend the following;

- 4. The Scottish Director of WorldSkills in Scotland should scope out a proposal for a Scottish Centre of Excellence. He should invite participation from the Scottish Government and appropriate agencies.**

The above recommendations are not the only ones that could be made in light of this report. However, we consider all the above are possible to achieve and can be implemented speedily.

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