

IOR SKILLS SURVEY- DATA REPORT

Appendices to be read in conjunction with the IOR Skills Survey Report “Getting to grips with skills gaps”

The purpose of this research was to delve into current and future issues within the RACHP sector with the view of producing actionable recommendations for the IOR to take a front-line approach in alleviating industry needs. This report highlights the results of a skills survey conducted on 298 IOR members and non-members. This report highlights skills gaps with new entrants and providing actions to bridge skills gaps, hard-to-fill jobs and CPD content.

Graduates and Apprentices entering the market showed skills gaps across 45 individual skills. This includes vital skills; identifying and solving engineering problems, testing & commissioning, acting with professionalism and integrity and designing systems within safety constraints and safety in mind, all of which are core skills and principles.

Current hard-to-fill jobs and future skills were identified as; project management, service engineers, sales, design roles and ‘Technocommercial’ skills, respectively. Collaborative CPD is one solution suggested by employers. Traditional methods of delivery, using physical workshops and printed materials, is currently the preferred learning style of industry. Indicating a failure to grasp opportunities available through the innovative technologies of e-learning or blended learning.

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Appendix A - The Respondents

This section outlines the respondents' demographic breakdown by RACHP sector, level of career responsibility, company size, industry tenure, age, gender and level of education.

Figure 1 below shows a slight over representation of respondents from the refrigeration sector. Respondents were asked to specify if answering "other" which included responses such as: acoustics, catering, construction, data centres, energy and education.

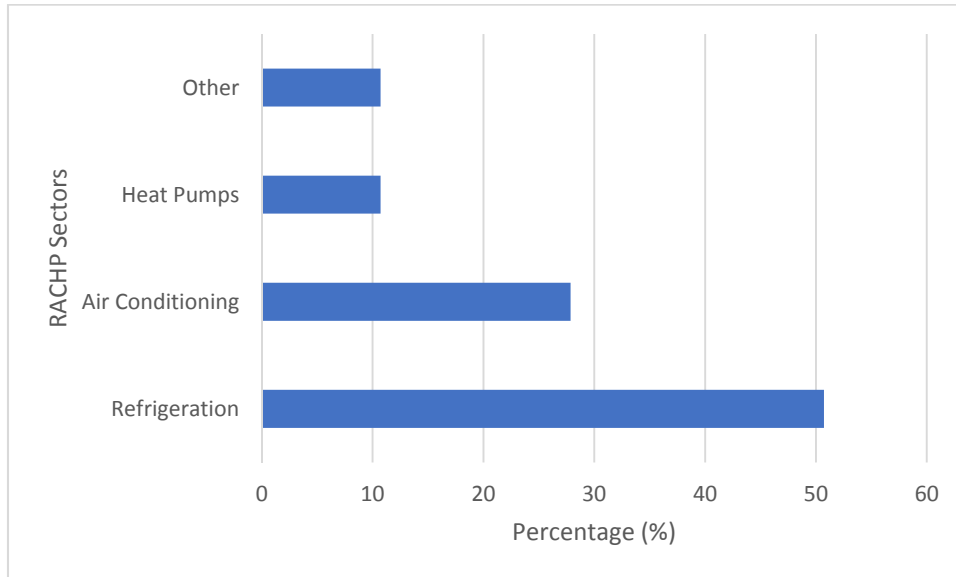


Figure A.1. Respondents by RACHP Sector

Figure 2 shows the breakdown of respondents by their current level of responsibility within RACHP. The distribution of the survey looked to get a good balance between top-level and middle-level management, as well as first-level management or engineering technician level respondents to gain both strategic views and closer involved respondents to new entrants within the companies. The other category included retired or self-employed respondents.

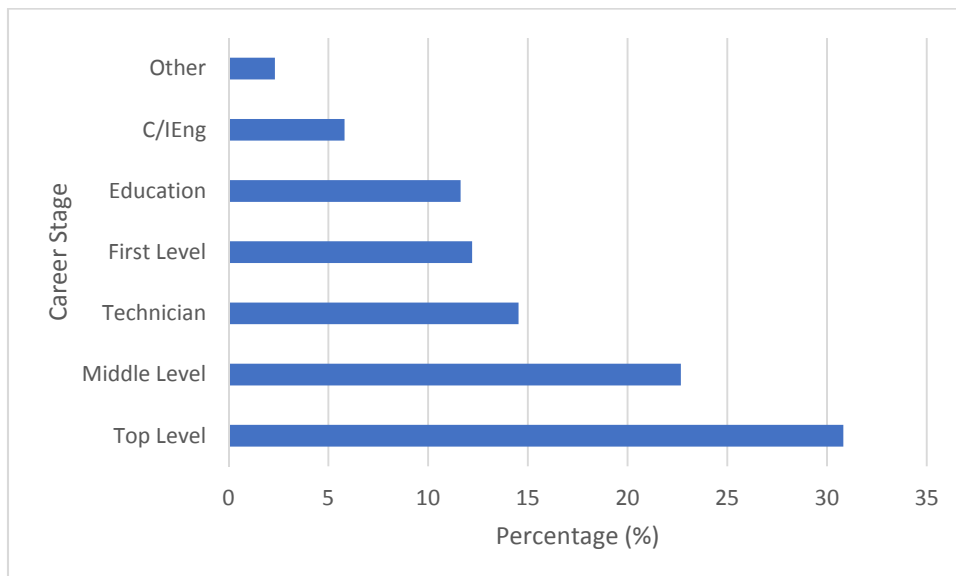


Figure A.2. Respondent by Level of Career Responsibility

Figure 3 below shows the demographic breakdown by large and small to medium sized enterprises (SME), with the inclusion of micro sized companies with below 10 employees. Small companies have between 10 and 49 employees, Medium have between 50 and 249 employees and large employers have over 250 employees. As expected within RACHP, most respondents came from SMEs with 73%.

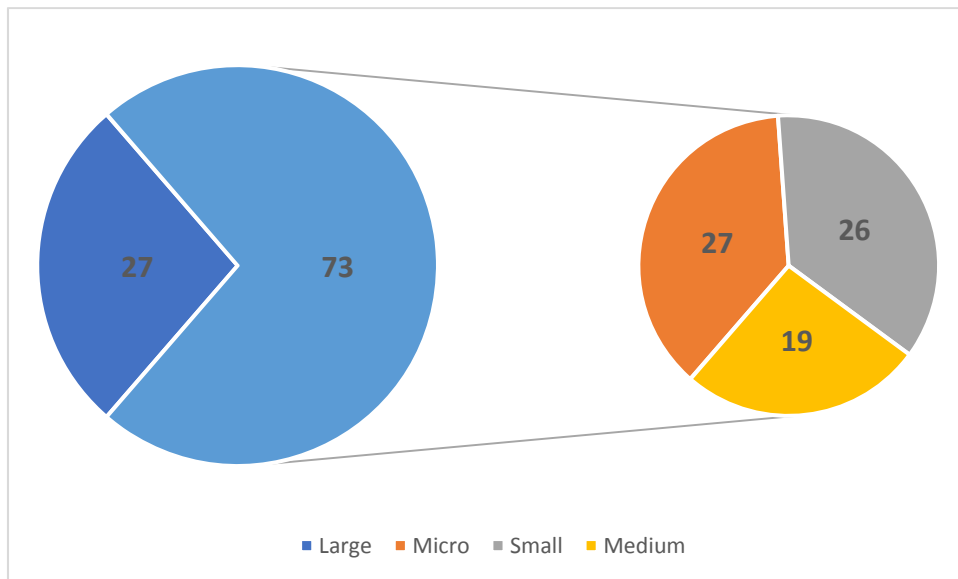


Figure A.3. Respondents by Company Size

Figure 4 shows the respondents breakdown by their length of experience within the RACHP sector. With most respondents coming with; 40-49, 30-39 and 20-29 years of experience, it demonstrates a high level of expertise in the collected data.

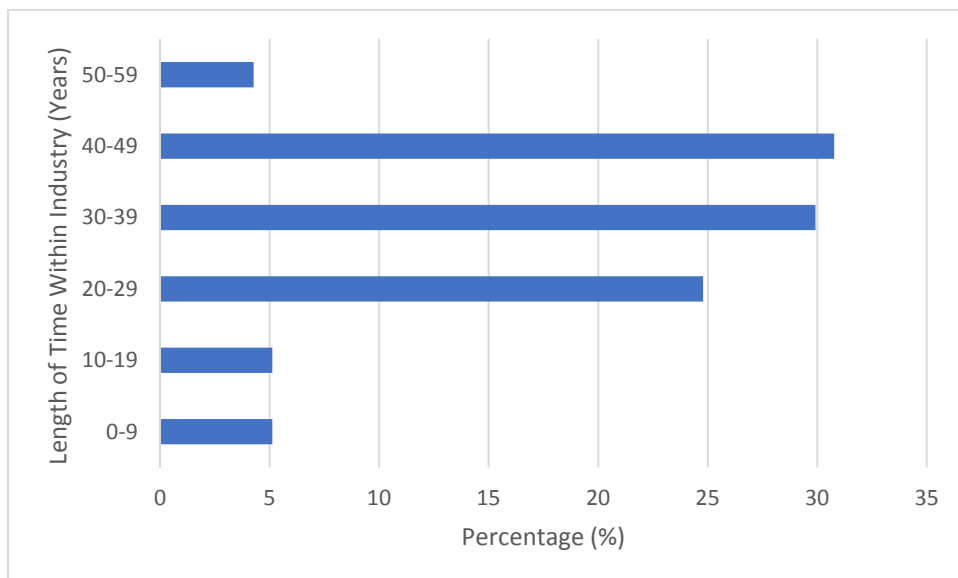


Figure A.4. Breakdown of Respondents by Length of Time in RACHP

Table 1 below shows the personal data of respondents by gender, age and level of education. Highlighted in the table is the highest probable respondent demographic; male between the age of 50-69 with an education level between 4 and 5 (HNC, HND, etc.), which doesn't vary too far from representation levels of the RACHP industry with regards to management and high level of responsibility roles this research looked to engage.

Gender		Level of Education	
Male	98%	Level 8 (PhD, etc.)	5%
Female	2%	Level 7 (Masters, etc.)	12%
Total	100%	Level 6 (Degree, etc.)	15%
		Level 5 (HND, etc.)	18%
		Level 4 (HNC, etc.)	26%
Age		Level 3 (A Levels, etc.)	7%
70-79	5%	Level 2 (GCSEs A*-C, etc.)	4%
60-69	29%	No Qualifications	2%
50-59	34%	Other	10%
40-49	26%		
30-39	6%		
Total	100%	Total	100%

Table A.1. Breakdown of Respondents Personal Data (Gender, Age & Level of Qualifications)

Appendix B

<p>Technical Knowledge</p> <p>Factor 7 & 8 – Problem solving and analysis</p> <ul style="list-style-type: none"> Analyse Data Identify and solve engineering problems Testing & Commissioning Use modern computer software Use modern engineering tools and techniques <p>Factor 5 & 9 – Application of technical knowledge</p> <ul style="list-style-type: none"> Apply engineering science knowledge Apply mathematical knowledge Design engineering systems Design systems within safety constraints and with safety in mind <p>Factor 6 – Global, environmental, and social awareness skills</p> <ul style="list-style-type: none"> Act with awareness of global issues Understand environmental responsibilities Understand the impact of engineering solutions on society Possess sound engineering ethics 	<p>Business Acumen</p> <p>Factor 1 – Leadership & Enterprise (Entrepreneurship)</p> <ul style="list-style-type: none"> Leadership Entrepreneurship Customer orientation Evaluate performance of others Innovation Lead a team Motivation or need for achievement Risk taking in non-dangerous situations Teamwork Use modern communication technology <p>Factor 2 – Business Skills & Multilingualism</p> <ul style="list-style-type: none"> Possess basic business planning skills Possess basic economics knowledge Possess basic finance knowledge Possess basic management abilities Possess basic marketing knowledge Speak more than one language
<p>Personal Development</p> <p>Factor 3 – Cooperation and continuous learning skills</p> <ul style="list-style-type: none"> Accept constructive feedback Acquire new skills and knowledge on a continuous basis Desire to continuously learn Function as a team member Give constructive feedback Set personal learning targets Take directions well from superiors Understand concepts from engineering fields other than their own Work with individuals from other fields or disciplines 	<p>Interpersonal & Professionalism</p> <p>Factor 4 & 10 – Communication and Professionalism</p> <ul style="list-style-type: none"> Communication skills Act with integrity Act with professionalism Communicate effectively with customers Manage time Speak and present ideas clearly Write effectively

Table B. Full List of Skills Groupings

These groupings were formed by conducting a factor analysis, using respondents' importance ratings. The original factor analysis gave the option of 2, 4, 6 or 10 factor groupings, the groupings were first segmented into 10 factors and reduced to 4 broader subsectors shown above.

Appendix C

Graduate		Apprentice	
Skill	Rank	Skill	Rank
Use modern computer software	Very Satisfied	Use modern communication technology	Very Satisfied
Function as a team member		Acquire new skills and knowledge on a continuous basis	
Use modern engineering tools and techniques		Function as a team member	
Use modern communication technology		Act with integrity	
Lifelong learning desire		Act with professionalism	
Act with integrity		Desire to continuously learn	
Take directions well from superiors		Understand environmental responsibilities	
Work with individuals from other fields or disciplines		Use modern engineering tools and techniques	
Accept constructive feedback		Use modern computer software	
Acquire new skills and knowledge on a continuous basis		Teamwork	
Act with professionalism		Take directions well from superiors	
Give constructive feedback	Quite Satisfied	Accept constructive feedback	Quite Satisfied
Teamwork		Work with individuals from other fields or disciplines	
Design systems within safety constraints and with safety in mind		Communicate effectively with customers	
Understand environmental responsibilities		Communication skills	
Analyse data		Give constructive feedback	
Apply engineering science knowledge		Testing & commissioning	
Communication skills		Speak and present ideas clearly	
Identify and solve engineering problems		Customer orientation	
Act with awareness of global issues		Act with awareness of global issues	
Write effectively		Possess sound engineering ethics	
Set personal learning targets		Understand the impact of engineering solutions on society	
Possess sound engineering ethics		Design systems within safety constraints and with safety in mind	
Apply mathematical knowledge		Understand concepts from engineering fields other than their own	
Understand the impact of engineering solutions on society		Set personal learning targets	
Communicate effectively with customers		Manage time	
Understand concepts from engineering fields other than their own		Identify and solve engineering problems	
Speak and present ideas clearly		Motivation or need for achievement	
Motivation or need for achievement		Apply engineering science knowledge	
Innovation		Analyse data	
Testing & commissioning		Write effectively	
Customer orientation		Innovation	
Design engineering systems		Risk taking (in non-dangerous situations)	
Manage time		Evaluate performance of others	
Leadership		Leadership	
Lead a team		Apply mathematical knowledge	
Possess basic management abilities		Design engineering systems	
Possess basic business planning skills		Possess basic business planning skills	
Evaluate performance of others		Lead a team	
Possess basic finance knowledge		Entrepreneurship	
Possess basic economics knowledge		Possess basic management abilities	
Speak more than one language		Possess basic marketing knowledge	
Risk taking		Possess basic economics knowledge	
Entrepreneurship		Possess basic finance knowledge	
Possess basic marketing knowledge	Speak more than one language	Somewhat Satisfied	

Table C. Full List of Graduate and Apprentice Skills Satisfaction Rated by Employers

Appendix D

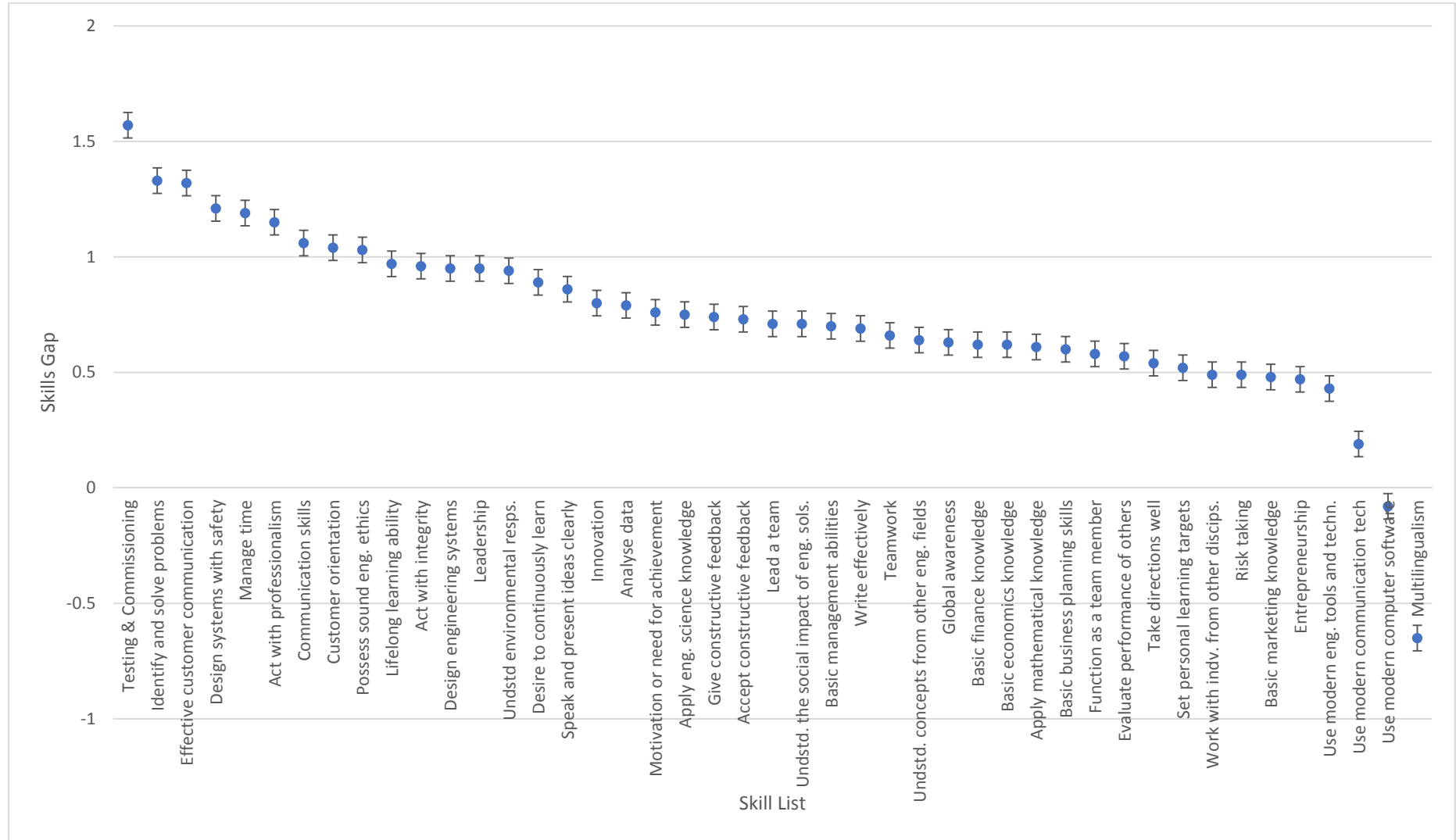


Figure D. Graduate's Skills Gaps Comparing Satisfaction to Importance Mean

Appendix E

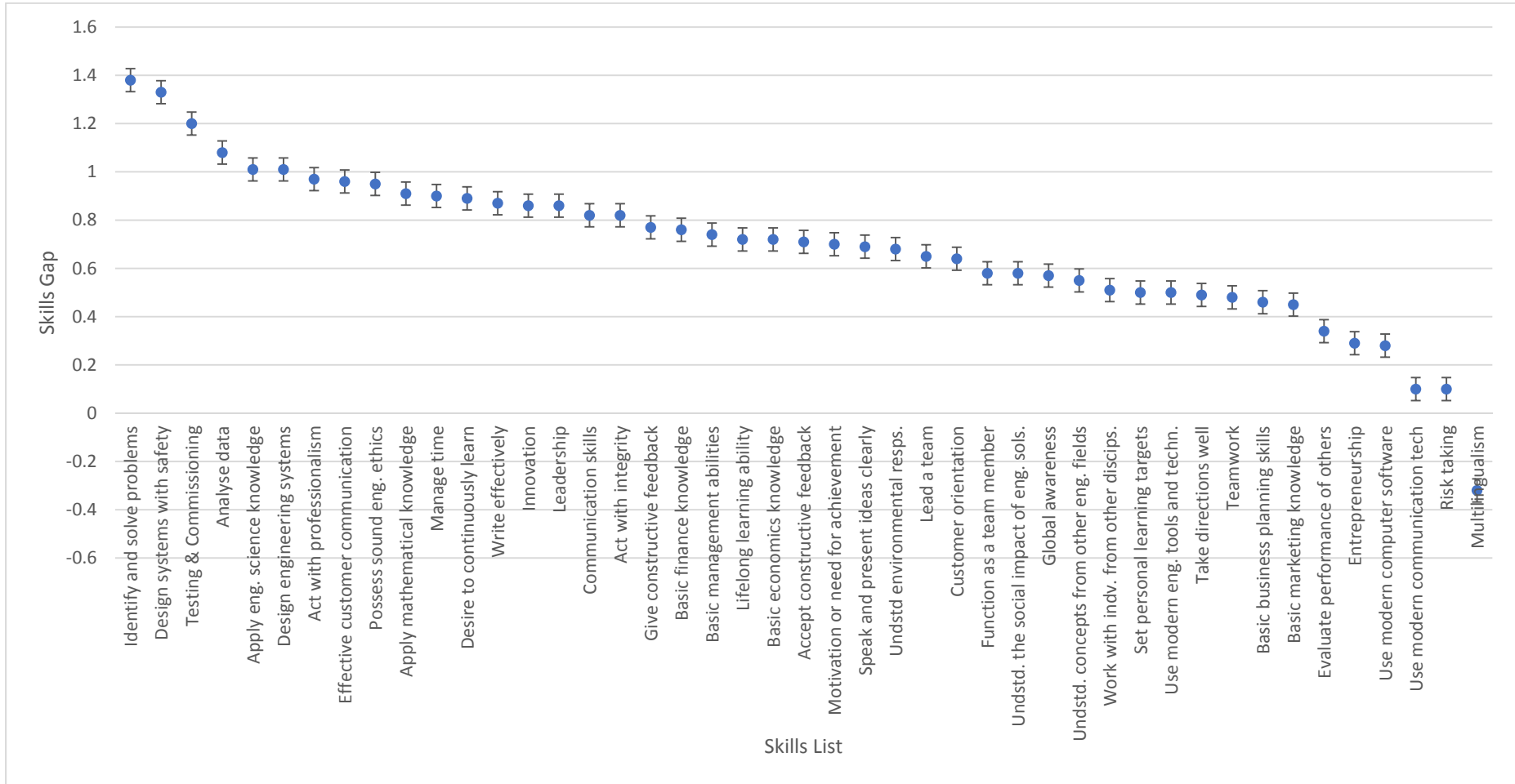


Figure E. Apprentices' Skills Gaps Comparing Satisfaction to Importance Mean