Introduction

The IMechE Benelux branch has launched a series of events in 2017 with the goal to stimulate a debate about how demographic and technological changes will affect the workplace of the future.

The events are in the format of a Discussion Café where members of several Engineering Institutions are invited to share their experience and opinion on the topic of:

Generations in the workplace.

At every Discussion Café, there are two ways to participate in the debate; the first is to attend the event in person and enjoy the company of fellow Professional Engineers and debate together face to face, the other is to share opinion via 4 pre-defined questions in an on-line survey.

The topic of Generations in the workplace was chosen because the IMechE represents numerous different industries, but this topic affects the industry as a whole. As a result, the Discussion Café events are also open to other Engineering Institutions in the Benelux region including the IET and IMarEST.

Demographic changes to the population distribution in Western Societies is forcing governments to encourage people to stay in work longer and longer. At the same time, new technology is radically changing the way we work. Automation and Artificial Intelligence will eliminate some jobs and, hopefully, create new ones but in different sectors that need new skills. This mix of humanity and technology is at the centre of the IMechE policy of "Improving the world through Engineering."

Executive Summary

The opinion of the second Discussion Café was that the younger workers are keen to learn, but don't know what they need to know. They don't know what they don't know. The experience of the older workers can, and should, be shared with the young. The Grey-Green partnership is vital and was seen as a win-win for both sides with the older workers bringing experience and the younger workers bringing energy and enthusiasm to the partnership.

The key debate was about the "knowledge gradient". Similar to the laws of thermodynamics, information flows from areas of high knowledge to low knowledge. The difference from the physical world is that knowledge is a soft commodity and high and low knowledge is subjective and depends on each person's perception of themselves.

In the exchange of knowledge, both the giver and the receiver need to position themselves so that the knowledge gradient flows from one to the other. This implies that the receiver needs to recognise the need for knowledge and the giver needs to be recognised as a genuine and useful source of knowledge.

With respect to technology, both young and old recognised that human workers in the future need to bring creativity and human emotions to the workplace. The energy and enthusiasm of the young combined with their rich feed of varied media input can be very beneficial if it is harnessed and guided with the experience of the old. Effective mentoring of the young can ensure efficient use of their energy and talent.

The third Discussion Café will be held on the 20th June in Breda, NL. From the conclusions of the first two events, the third Discussion Café will debate mentoring and how it can benefit the giver and the receiver: What are the best practices for the giver? How can the role of the mentor be promoted and enhanced?

Recapitulation of Discussion Café number 1

The first Discussion Café on the 9th March focused its discussion on the older workers, and, and via the debate and on-line responses, the opinion of the participants was that older workers with a technical background have many, but not all, of the skills needed to succeed in the workplace of the future. It also expressed the opinion that there is little that the old can learn from the young when we consider the traditional business skill of the 20th Century.

It is worth noting that the members present and the online responses were biased towards the older workers, so to redress the balance, the second Discussion Café on the 11th April in Maastricht focused its discussion on the younger workers. The response to the on-line survey showed a better distribution of old and young responses, and an a more balanced point of view was shared.

Managing the Knowledge Gradient

The first question posed was "What skills can younger workers learn that will help them in their future careers?" The discussion can be analysed from the point of view of the young opinion of themselves and from the point of view of the older workers' opinion of the young. In the first instance, the young members' responses to the questionnaire were more generic and represented a desire to gain experience about how to work, and also notably, how to deal with stress. The older workers were more specific and highlighted the need for young workers to learn key people skills (networking and people management) and decision making skills.

> **"Skills that allow them to strategically make decisions, understand roles of stakeholders and how to influence people."**
>
> On-line response (36-50 years old)

The live discussion picked up on this difference and highlighted that the young are following assumed stereotypes but actually they don't know what they don't know. The older workers can analyse the past with experience and therefore identify the elements at have helped them the most, for example effective networking.

The follow up to this conclusion was how to ensure that younger workers can effectively benefit from the experience of their seniors? The concept of knowledge

gradient was presented to show how both sides of the knowledge transfer process have a role to play to maximise the benefit.

Akin to the laws of thermodynamics, knowledge flows from regions of high knowledge to regions of lower knowledge, but to achieve this, the giver and the receiver must position themselves appropriately within those regions to achieve the necessary knowledge gradient.

Because knowledge is a subjective evaluation, someone with many years of working experience under their belt can think of themselves in negative terms and undervalue their worth, effectively putting themselves in the low knowledge region, and making the flow of knowledge very difficult. A similar blockage to knowledge flow would be where a younger person has the presumption to know more than they do, and they try to position themselves in a high knowledge region. People can only change themselves, so it is the duty of each person to position themselves appropriately to ensure that the information flows freely.

In the discussion in Maastricht, with only older workers represented, the assumption was that the majority of the knowledge rests with the older workers and they should therefore take responsibility for the knowledge transfer process. When it is a Grey to Green flow, the experience of the older workers will naturally tend to put them in a high knowledge region. However, in the reverse condition, a Green to Grey flow, it is also the older workers again that need to position themselves by clearly identifying the topic and their need for knowledge. By deliberately putting themselves in a low knowledge region, they can stimulate the transfer of knowledge.

There was a good example of a CEO of a big multinational organisation who has the ability to listen to his colleagues and position himself voluntarily below them in terms of knowledge, to ensure that he gets the information that he needs.

Stress in the young

Of the young people who replied to the survey, more than once, they responded that they wanted to learn how to deal with stress. As a direct reply to the question about what can young people learn to help them with their careers, this is a worrying conclusion. From the brief replies to this survey, it is not possible to ascertain the background to their need to cope with stress, but simply that they feel that their future career will be stressful, and that they need to develop defences against it is a reason for concern.

The Grey-Green Partnership

> **"It will be an interesting experience where young workers will bring the ideas and the old ones will make sure of the reliability"**
>
> On-line survey response (18-35 years old)

From the first part of the discussion, there was already a clear convergence of needs between the old and the young. The new entrants into the workforce need to gain experience which comes from the old, but it was seen as a win-win scenario for both sides because the younger workers can bring the energy and drive to supplement

the older workers. For example, the young can do the majority of the leg work in travelling and investigating, then as a team, they can analyse and draw conclusions.

This was also a complementary scenario to the conclusion that younger workers don't know what they don't know. During a project data review, the older worker can guide the analysis using experience and at the same time share how his analysis method has been developed over time.

Both sides of the age distribution hinted that this partnership didn't need to be the traditional office based face-to-face discussion. The increasing use of remote communication technology would allow the collaboration to take place from different locations.

Keeping an open mind

In the first Discussion Café, it was noted that the young are far more flexible and adaptable to change. In this event, we asked the question, how can you measure this adaptability and use it to train other people.

There were several responses to the effect that it is impossible to measure, but, as a bunch of engineers, there were also several good responses that hinted at how we can try. Two key principles were highlighted, the first is to have an open mind about change and the second was to forget about the investment in the past.

An open mind allows new technology and new methods to be tried without prejudice. As was highlighted in the first Discussion Café, the users of the new technology should always ask why it is being used and what are the benefits. Older workers may be aware of how to use the new technology from an operational point of view, but not understand why it is necessary to use it in the new working environment. For example, social media has changed the face of communication. While older workers may know how to use the tools, they lack the knowledge of how to use it to maximise their communication potential.

In many cases, the older workers have seen new systems introduced, but not adopted. The result is a waste of money and time. Part of this reluctance to adopt new technology is the time invested in learning the previous system. If we have spent part of our working life mastering a system, it is hard to accept that that investment no longer has value. To become more adaptable, it is necessary to see that investment as a sunk cost, forget it and move on. By not trying to understand all the inner workings of the new system or method, the investment in time and effort to learn is lower, and the attachment to the past would be less.

> *"Just accepting the new things (technology, work system,...) without trying to understand how everything works"*
>
> On-line survey response (18-35 years old)

Don't fight the machine

The last question that was asked was: "What can younger workers bring to the workplace that Artificial Intelligence cannot?" Both young and old recognise that it will be impossible to compete against the machines in their field of competency.

> *"I think AI will be able to do everything in the future, however at the moment the emotions and feelings as well as gut feelings and maybe even doing something against all odds is something AI cannot do at this moment."*
>
> HR Manager, Global EPC Contractor based in The Netherlands

Human emotions were the key words that came out of this debate, both on-line and in Maastricht. The implications being that it is the human interactions that are important. Not surprisingly, this was the same conclusions that were highlighted from the first event in Rotterdam.

Some of the responses also listed: energy, enthusiasm and creativity as valuable resources that the young can bring. There was some debate about whether the old really lack enthusiasm, and that will probably be part of a future Discussion Café debate.

With regard to creativity, the participants in the venue talked about going outside the rules. Computer programmes have a set of rules to follow. The human brain can bring in other influences and use them to bend or break the rules, and this was something that computers cannot do.

The younger generations that have grown up with the internet have a far more rich source of information from which they can draw inspiration.   That abundant data stream can be used for more effective decision making or pure innovation, but without guidance about what to look for, much of this content might be lost as merely "entertainment", or incorrectly applied to a problem. Knowing what to look for, making patterns out of the data, and being able to innovate is a skill that takes inspiration and experience combined.

Mentoring the young by the old is the answer to many of the topics discussed above. The desire of the young to gain experience; the management of innovation; the grey-green project partnership; the coaching for adaptability. It all requires mentoring skills. The giver of the information needs to understand what they have and how best to share it and that is not always from grey to green, it can be in the opposite direction. The receiver also needs to understand what they don't know, and that is also the responsibility of the giver to highlight what the receiver doesn't know, but should do.

The second Discussion Café highlighted the importance of mentoring, and therefore this will be the topic of the **Third Discussion Café**.

On the Tuesday 20ᵗʰ June, at 18:30,
The Apollo Hotel Breda City Centre
The Netherlands.

You can participate in person (see details here) or via the on-line survey (click here)

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