Chartered Institute
of Ergonomics
& Human Factors

Return to School:

COVID-19 Guidance for Schools

#ciehf #EHF2021

Introduction

The purpose of this short guide is to help school leaders to effectively share information with teaching and non-teaching staff, creating a better appreciation of what might be done to encourage a safer working and learning environment. The aim is to reduce the spread of the virus among teachers and pupils.

This guide provides general advice that can be adopted in different school settings.

It is well reported that minimising mixing between people is an effective way to reduce COVID-19 transmission. For example, the Welsh Government has emphasised the importance of doing "everything possible to minimise contacts and mixing" in a school setting.[1]

There is a greater risk of COVID-19 transmission at the school gates than inside schools.[2] Some scientists believe this is happening due to parents socialising outside of school gates. Dr Joanne McClean, a Consultant in Public Health Medicine, is quoted as saying: "You just need to look at a school...a child goes to school, all the measures are in place but the minute they come out that door, there is mixing and parents mixing."[2]

Therefore, in order to reduce this risk, schools will need to positively influence parents' behaviour at the school gates. This has become even more important because of the challenges introduced by new variants of the COVID-19 virus.

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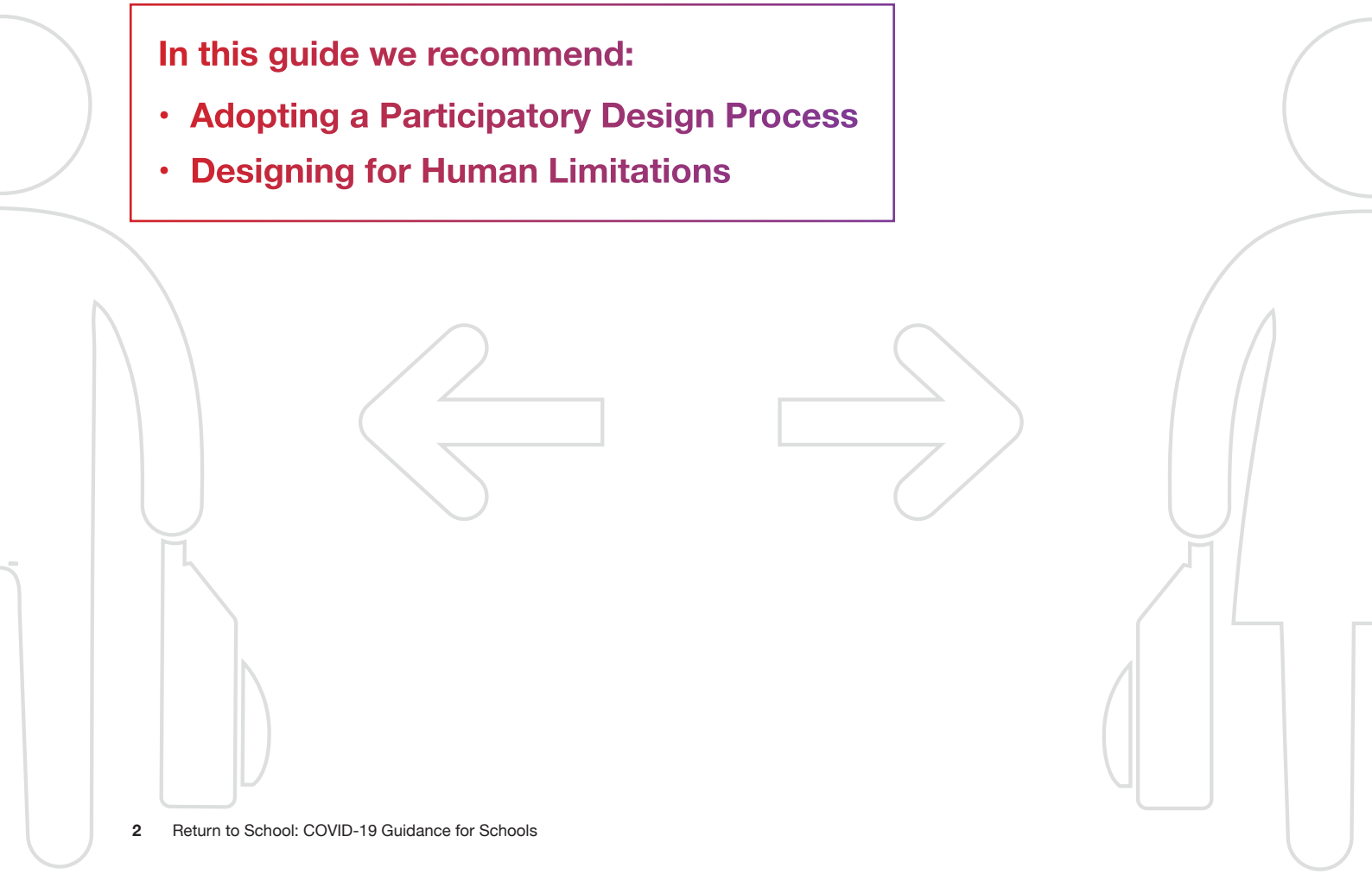
In this guide we recommend:

- **Adopting a Participatory Design Process**
- **Designing for Human Limitations**



Key Recommendations

1. Adopting a Participatory Design Process

Participatory design has been used successfully to make changes to the built environment. This approach helps to create usable design solutions by involving all key stakeholders in the design process.[3]

A design process has a greater chance of creating successful outcomes when it includes a number of stakeholders and takes account of their views, rather than just the views of one stakeholder. A participatory design approach clearly aligns with the guidance outlined by the Welsh Government, which states that reviewing and reinforcing the importance of control measures "with all staff, learners and parents, and visitors on the school estate will remain key".[1]

Tackling problems together creates a richer and deeper understanding of the context of use, which helps to align the design with users' needs.[4] Participatory design creates "hands-on democracy in action".[5] It allows different stakeholders to exchange critical information about a situation that others in the group may not be aware of, but need to know about and understand. It promotes shared knowledge, with everyone involved learning and gaining from this exchange of information.

Therefore, participatory design involves creating a team that will work together to solve a particular problem. It's crucial that the team have a shared understanding of the problem because studies have shown that performance is improved when teams have a shared mental model of the task environment.[6] Key elements of the school's task environment include pick-up and drop off points because of the challenge that they present to maintaining social distancing. This is a complex challenge for schools. Studies have shown that sharing different perspectives and having shared mental models is particularly important for successfully dealing with complex tasks.[6]

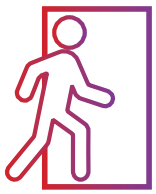
A practical way to achieve this here is to use the plan view of the school layout, because this is a great enabler for a participatory design process. This will help the team develop a shared understanding of the situation and its challenges. All key stakeholders (i.e. governors, head teacher, senior leadership team) can use the plan view of the school to identify the optimum pick-up and drop-off points.

In order to maximise social distancing between people, the Welsh government recommend that schools look at ways to utilise areas of the school where there are lower numbers of learners attending.[1] A participatory design process, added to the use of a school plan, would be an effective way to look at this in a systematic manner.

As part of the participatory design process, it is important to look at a range of options for achieving effective change. The Chartered Institute of Ergonomics and Human Factors (CIEHF) has previously provided guidance on this aspect for those working in the health and social care ecosystem.[7] This guidance advocates systems thinking, which in the context of health and social care, involves walking through the patient's journey to gain a deep understanding of the different people and work systems that patients encounter along that journey.

Systems thinking is just as important in the context of the schools system as it is in the health and social care ecosystem. Using the plan layout of the school to walk through a parent's journey will create a better understanding of the interconnectedness of the different elements of the system and the different situations that parents may encounter along that journey. This will help to determine the most effective strategies to reduce the risks of COVID-19 transmission.

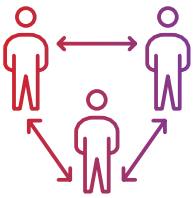
Examples of different strategies could include:



Separate entrances / exits for each year group

One-way system

Additional pick up / drop off zones (i.e. for foundation phase and key stage 1 & 2)



Including waiting zone inside the school gates with space for adequate social distancing

It is important to monitor the selected measures to understand whether they are improving the situation by reducing the amount of socialising at the school gates.

As an example, Ysgol Bro Cinmeirch school in Wales used a participatory design process to develop new systems for school pick-up and drop-off points after the first national lockdown in 2020. This process involved the head teacher, the local authority, the Board of Governors, and the Parent Teacher Association (PTA). Using Microsoft Teams, they ran participatory design workshops to design an effective system that they all agreed with.

2. Designing for Human Limitations

As part of any design process, it is important to think about people's limitations in terms of vulnerability to error. In the context of school pick-up and drop-off points, certain parts of the journey will be more liable to error than others.

One of our human limitations is that once we have achieved the main goal of a task, we are vulnerable to omitting the final steps related to that task.[8] This is because attention is a very scarce resource. Once we have achieved the main goal of a task, the focus of our attention has a tendency to flow to other things, meaning that we may forget about the follow-on tasks related to the original goal, which get dropped from our short-term memory. An example of this is forgetting to turn the headlights off in your car (i.e. the final steps) after you've reached your destination (i.e. the main goal).[8]

In the context of schools, the main goal of the parent is to drop-off or collect their child/children. Therefore, the final related steps that directly follow on from this task (e.g. maintaining social distancing at the school gates) could be vulnerable to omission as the attention of the parent starts to flow to other things (i.e. socialising with other parents at the school gates).

A human factors specialist recently wrote about observing the breakdown of social distancing at the exit points of a COVID-19 vaccination centre, citing the same issue of people being vulnerable to omitting the final steps of a task once the main goal has already been achieved. In the context of the COVID-19 vaccination centre, the main goal is to receive the vaccination. Therefore, the related follow-on steps (i.e. maintaining social distancing as you leave the vaccination centre) could be vulnerable to omission, thereby meaning that the exit points could become a "transmission hotspot".[9]

To reduce the risk of this happening, it will be necessary to prompt users. Given that the need to maintain social distancing at the school gates could be dropped from short-term memory, it will be important to create an effective "memory jogger" in the form of a well-placed reminder.[10] An effective memory aid helps prevent necessary task steps from being omitted. It is key that this reminder will grab the parent's attention at the critical moment, is positioned very close to the place where the parents needs to carry out the key task steps, will tell the parent exactly what needs to be done, and provides enough detail about when and where this needs to be done.[10]

In the context of schools, providing appropriately positioned signage is one example of a well-placed reminder (the participatory design process will help to determine the optimum locations for signage).

As an example, Paddington Central used the following text on signage to promote the desired behaviour change: "No Waiting – Please Keep Moving".[11]

Research has shown that the following design features capture attention:

Warning words printed in red

Researchers presented warnings (directing participants to wear protective gloves) in red, green or black text. The researchers assessed behavioural compliance by measuring whether participants donned the protective gloves. The results showed that the warnings printed in red text had higher levels of compliance than all of the other colours combined.[12]

Warnings that contain thick and colourful borders

Compared to similar signs with no borders (or thin borders), researchers discovered that signs possessing thick and colourful borders attracted the attention of passers-by more effectively.[13]

Warnings that contain both text and pictorial symbols

Researchers assessing pharmaceutical container labels concluded that including pictorial symbols may be important for gaining people's attention, as well as being useful for situations where text print size is small or illegible. Moreover, they concluded that it may particularly important for people who are not proficient in a given language.[14]

If the signage is not designed effectively, in a way that captures the attention of the parents, there is the risk of it being ignored or going unseen, thereby reducing the likelihood of achieving the desired behaviour change that will reduce the risk of COVID-19 transmission.

Ergonomics and Human Factors

Ergonomics and Human Factors has been a scientific discipline since the late 1940s and has evolved to become an activity embedded in many organisations throughout the UK. It has impacted changes in, and improvements to, workplaces, technologies and systems. At the CIEHF, we understand the need to identify clear messages to influence industry, policy makers, research funders and educators, on why ergonomics and human factors is important, how it adds value, and what the priorities should be when considering how ergonomics and human factors should be implemented.

Applying ergonomics and human factors ensures that systems, products and services are designed to make them easier, safer and more effective for people to use. We focus on integrated human-centred design to improve life, wellbeing, performance and safety. This involves the disciplines of engineering, technology, physiology and psychology.

E&HF experts are formally trained to design and improve work systems to maximise individual and team performance. Benefits to industry and business include:

- Working with a Chartered Ergonomist and Human Factors Specialist early in the design process will lead to higher quality outputs, improved brand reputation and cost savings
- Ergonomists and human factors specialists' partner with colleagues from different specialisms and together they create better solutions
- Ergonomics and human factors methods help design more effective workplaces, enable more efficient work, and create a safer and healthier working environment for all
- Ergonomics and human factors approaches have made an invaluable contribution to patient safety and wellbeing within the NHS, social care, design of public buildings including schools and learning environments
- Applying ergonomics and human factors can be very cost-effective and can deliver a good return on investment.' To read more than 20 case studies on how ergonomics and human factors have made a positive difference to organisations, visit: https://bit.ly/HumanConnectionII For advice and guidance on other types of workspaces or public areas, business and more.

To learn more about our guidance in response to Covid-19 including creating a safe workplace visit: www.covid19.ergonomics.org.uk

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