



Enhancing Working in Groups and Teams in Learning and Teaching in Higher Education

A Report for the Centre for Education Teaching Innovation, University of Westminster, UK

Mick Healey





“Whose job is it, anyway?”

A team of students had four members called Everybody, Somebody, Anybody and Nobody. There was an important job to be done. Everybody was sure that Somebody would do it. Anybody could have done it but Nobody did it. Somebody got angry about that because it was Everybody's job. Everybody thought Anybody could do it but Nobody realised that Everybody wouldn't do it. It ended up that Everybody blamed Somebody when Nobody did what Anybody could have done.

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July 2024

“Groupwork is a crucial aspect of work contexts and a key twenty first century skill.”

(Rasooli et al., 2024, 1)

“The stance that students should ‘take responsibility for their learning’ does not necessarily mean that they should be left to their own devices or naïve capabilities to manage the group experience.”

(Lizzio & Wilson, 2005, 376-377)

Acknowledgements

"The document presents a comprehensive evaluation of group work in HE and highlights opportunities for enhancement. The focus on the purpose of the group work, and the role of the tutor in improving a group's chances of success are important. This includes the need to support team development as well as achievement of the task. The educator has a leadership responsibility in enabling task, team, and individual success." (Ralph Neil, Senior Teaching Fellow, Lancaster University, UK)

*"Collaborative and connecting pedagogies that enable relational and social learning are absolutely essential in higher education. They have been for decades, but shifting attendance modes, the crisis of loneliness, attention to well-being, and GenAI rightly spotlight social learning. This resource for group work in higher education is timely, scholarly, and practical. **It is a gift!**"* (Kelly Matthews, Acting Pro-VC (Teaching and Learning), University of Queensland, Australia)

*"This timely and comprehensive report synthesizes key scholarship on group work, resulting in an essential guide for supporting students working in teams in higher education. The report provides staff and academic developers with a nuanced analysis of both the benefits and challenges of group work, as well as strategies for teaching group work skills and integrating teamwork pedagogies across the disciplines. **It's an invaluable resource.**"* (Jessie L. Moore, Elon University Center for Engaged Learning, United States)

Several people kindly agreed to read and comment on a draft of this report. I am very grateful to Peter Hartley (Independent HE Consultant); Neil Ralph, Joe Hall, Rachael Barrow, Harry Rolls and Radka Newton ([Centre for Scholarship and Innovation in Management Education - Lancaster University](#)); Ruth Healey (University of Chester); Kelly Matthews (University of Queensland); and Andy Pitchford and Mark Elliot (University of Westminster). Their comments and suggestions greatly improved the text.

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EXECUTIVE SUMMARY

“Students probably learn more during group work than any other form of teaching during their higher education journey.” (Francis et al., 2022, 3)

Group work is key for delivering the University of Westminster’s Educational Strategy. **Experiencing collaborative group work is an important way of delivering this strategy**, whether through authentic education, transformative learning, or personalised education, as it has been shown to:

“develop a range of soft skills including communication, empathy, teamwork, conflict resolution, leadership and self-management; all skills highly sought after by employers, recruiters and other key stakeholders” (McKay & Sridharan, 2024, 221).

This report aims to provide a **practical, evidence-based review and guide for staff in higher education about facilitating students to collaborate effectively in groups to enhance learning in all disciplines. Its target audience is staff using group work with their students, academic developers supporting staff and students to make the most of teamwork as an effective pedagogy, and senior managers and programme leaders developing institutional, departmental and programme-level strategies to promote effective and fulfilling group work learning.** There is a vast literature on group work. This report draws on almost 200 of the more important references.

There are several types of groups that students may encounter in higher education, including project teams, learning teams, peer-assisted learning teams, and problem-centred teams. In this report, the emphasis is on **student project teams operating over a minimum of several weeks**, though many of the arguments apply to other forms of group learning. A variety of closely related approaches may involve teams of students working on projects, including inquiry-guided learning, research-based learning, and project-based learning, which I group under the generic term – **inquiry-based learning**.

The core chapters of the report discuss the benefits and challenges of group work, learning to work in a group, and assessing group work (Chapters 3-5).

The **benefits and challenges of group work** faced by students and staff overlap. Just as importantly, many strategies may be used to maximise the benefits and minimise the challenges. My argument is that group work has an important role in student learning in higher education, but for it **to be effective it needs to be designed to meet the specific context**, including the level of the course, number of students, length of the project, extent of diversity, mode of instruction, pedagogical approach, discipline, and learning spaces available.

The advice given in the literature about **how to build, develop, and maintain effective teams to enhance the quality of student learning** is reviewed. There is **no universal way of working effectively in groups**. Among the advice given is building group work skills into learning outcomes, choosing an appropriate way of selecting teams and team sizes to meet the context, and recognising that most teams develop in stages.

Free-riding or social loafing is a major concern in all disciplines. This is when group members do not contribute equally, or at all, to the work. Many strategies may be adopted to reduce this issue. However, care needs to be taken to explore the reasons for social loafing. It is **“not necessarily due to apathy or a deliberate attempt to do as little work as possible”** (Hall & Buzwell 2013, 37).

There are many activities students can use to help their group develop as a team, including setting ground rules, identifying the different roles team members need to play, and handling problems. Ideally, there should be an explicit across-institution group work strategy developed for programmes to ensure there is a **progression of skill development**, particularly across the core modules.

Traditionally, in assessing group work, the emphasis has been placed on the **product or outcome** of the task or project, but attention is increasingly also being given to assessing the **process** of group work. This makes sense if there is an explicit learning outcome about the acquisition of skills of working in teams. **Tutors** usually assess the product outcomes of projects as they know the subject material; they may also sometimes assess the processes of working in groups if the project is largely undertaken in the class or laboratory and they can observe and mentor the students in action. However, in most group work projects, **the only people who know how the group operates are the students themselves**; hence peer and self-assessment is the only valid way to assess the process of group work.

There is much debate as to whether **all team members should be given the same mark**, whether **team members should be assessed individually**, or whether it is better to **distribute the group mark between individuals** to reflect differences in the quality of their contributions, and if so, how best to do this. Many projects use a mixture of group marks and individual marks, with some tasks assessed by the tutor and others by peer and self-assessment. **Redistributing group marks** between team members can incentivise all students to work to the best of their ability.

Not all teamwork has to be summatively assessed. **Formative feedback** can play a critical role in developing teamwork skills and give students confidence in areas in which they have previously little experience.

Developing **inclusive working in groups is more about promoting equity and justice than upholding equality**. Staff need to take account of the diversity among the students that they teach. It is important to avoid 'othering' and stereotyping, as **individuals have multiple categorisations**. This matters because it helps highlight the difference between equity and equality. Individuals and teams are likely to have *different* learning development journeys as they experience working with students with different histories, identities and skills. I explore two illustrative examples of supporting equity and intercultural groups to undertake teamwork – **disabled students** and **international students**. Many of the principles discussed apply to all the protected categories and other marginalised groups.

The **modes of learning delivery** – face-to-face, online, or blended – have different benefits and challenges for students and staff in undertaking group work.

Group learning is central to many different **pedagogies**.

“The challenge is that there are so many approaches that making a choice can be daunting, and, at times, it can be difficult to make distinctions between the myriad variations of specific group-learning approaches” (Davidson & Major, 2014, 8).

Hence it is unsurprising that many small group learning activities have developed in higher education *without* explicit reference to an underlying pedagogic framework. Here I use the term **inquiry-based learning (IBL)**, as a pedagogy that “enables students to experience the processes of knowledge creation (Spronken-Smith, 2008, 1). IBL may be used as an alternative to attending lectures, for students to learn about **existing knowledge which is new to them**. It may also be used for students to undertake research, where they are **creating new knowledge for society**.

Disciplines have distinct approaches to their research and pedagogy that reflect their subject matter, and many have **signature pedagogies**, for example, using laboratories in the sciences and studios in art and design subjects. How group work operates in a laboratory and a design studio differs in some respects reflecting how knowledge is constructed in the sciences and the arts. A word of caution is needed here. **Simply putting students in small groups in a laboratory, a studio or any other learning environment does not mean that the students will learn either knowledge or skills**; that depends on the quality of the learning design and the appropriateness with which it meets the local context.

Too many tutors adopt a ‘sink or swim’ approach to managing group work. “Indeed team projects are often assigned without providing students with the information or guidance needed to ensure a productive experience that allows students to develop the skills necessary to work effectively in teams” (Flores & Bauman, 2024, 71). Group facilitator behaviours can, however, damage group work if they over-interfere. There is **no one best way of facilitating group work**. Tutors need to be prepared to play multiple roles at different points during the life cycle of a group project.

Mentors may be used to support student group work. They are commonly senior students who have taken the course previously. **Student team members can support each other** to develop the skills of working in teams and to make their groups a success. Discussing which of the values underpinning partnerships apply to their group at their first meeting can help the team get off to a good start.

Face-to-face and blended project group work require different physical learning spaces on campus than is needed for transmission teaching and independent learning. There has been a significant increase in the design of learning spaces to support **active and collaborative learning**, particularly in **authentic learning** settings. **Discipline and professional-specific learning spaces**, such as studios in art and design and architecture, laboratories in sciences, and workshops in engineering, are essential for many forms of authentic learning. Our focus is on **generic learning spaces designed for active and collaborative learning**. Formal small group learning spaces include collaborative learning suites and bookable active learning spaces.

A range of **educational strategies to incorporate research and inquiry into the curriculum** is identified. All of them include group work. For change to be successful many conversations between stakeholders are essential, but these need to take place within a clear framework and sense of direction provided by senior management. Strategic initiatives, around the design, development, and maintenance of effective teamwork pedagogy, often involve a **trade-off between costs and benefits between educators, students and institutions**. Institutions ought to develop group work policies.

Group work strategies should recognise that **teamwork and individual work are complementary**, as students obtain different knowledge and skills. The choice between working separately or in groups depends on the preferences of staff and students, the size of the class, the complexity of the project, and what discipline and transferable skills the students are expected to learn. A **group-based final-year capstone project**, perhaps sitting alongside an individually undertaken dissertation, could be a sensible strategy to ensure there is a **progression in the development of teamwork skills**, as well as the enhancement of other skills. Strategic group work initiatives have several prerequisites for success.

In the final chapter, I speculate on the future of group work in higher education drawing on the views of two colleagues who reviewed an earlier version of this manuscript. Both emphasise the potential impact of generative AI, so I end this chapter with what **ChatGPT** says in response to the question: **“What are the future likely trends in project group work in higher education?”**. **Future trends in project group work in higher education are debatable** but include adaptation to rapidly changing communication technologies and gen AI; co-creation with students of group work activities; emphasis on diversity and inclusion; interdisciplinary group learning; personalised and adaptive learning;

sustainable and socially responsible projects; blended learning models; and focus on lifelong learning and professional development.

The text is illustrated throughout with many specific examples of advice, practices and mini case studies on the use of group work in a range of disciplines, institutions and countries. The report ends with a list of key takeaways. Four appendices provide examples of specific ways of assessing group work.

Glossary of terms

Authentic learning

“Authentic learning experiences are those where complex, ‘higher’ knowledge comes to life through application, where the learning enables both students and staff to deploy their understanding and capabilities for the benefit of others” (Stevens & Owen, 2020). Kreber (2013, 11) describes this as a “perspective that suggests that what makes learning experiences authentic is that they are situated in, or correspond to, the ‘real world’ or appropriate social and disciplinary contexts”.

Blended, hybrid, hyFlex, and flipped learning

Several different models combine face-to-face with online learning (Panopoto, 2021). Although they are sometimes all referred to as forms of **blended learning**, strictly speaking, *blended learning* uses online educational materials to supplement opportunities for interaction in person. *Hybrid learning* combines traditional face-to-face sessions with online learning outside the classroom. The difference with blended learning is that online learning replaces rather than supplements some face-to-face sessions. Another model of learning is *HyFlex* learning (an abbreviation for hybrid and flexibility). In this mode, students can choose whether to participate face-to-face, online synchronously, or online asynchronously, and they can switch between these modes. *Flipped learning* is a form of blended learning in which students undertake some online learning, for example, watching a video or reading a short article, *before* discussing the content and engaging in activities in the face-to-face class.

Cooperative and collaborative group learning

The terms are sometimes used interchangeably. In the former, there is a tendency for students to *cooperate* to achieve a particular task by dividing the work up between team members and undertaking their agreed tasks separately. In the latter, students more commonly *collaborate* on a project, through interaction, negotiation, discussion, and accommodating others' perspectives (Panitz, 1999). The teacher plays a stronger role in cooperative learning than in collaborative learning where more of the activities are student-led. In many group projects, the emphasis may be on cooperative learning at some stages and collaborative learning at others.

Cultural diversity

This refers to “distinctions in the lived experiences, and the related perception of and reactions to those experiences that serve to differentiate collective populations from one another” (Marshall, 2002, 7; cited by Guo & Jamal, 2007, 29).

Equality, equity and justice

Equality involves treating people the same, but not everyone needs the same support, some people need more, and some people need less. *Equity* means that people are given the support that they need. *Justice* involves removing the barriers that people require support against in the first place.

Face-to-face learning

This refers to when teachers and learners are physically in the same room.

Free-riding or social loafing

This occurs when group members do not contribute equally, or at all, to the work of the group

Generative artificial intelligence (gen AI)

Until recently, machine learning was largely limited to predictive models, used to observe and classify patterns in content. Generative AI was a breakthrough. Rather than simply *perceiving* and *classifying*, machine learning is now able to *create* an image or text description on demand (McKinsey (2024).

Group work and teamwork

The term *group* refers to “people who come together to share knowledge, for personal development or to learn from each other through discussion”, while *team* implies “groups that are engaged in a task or project geared towards an end product or decision”. Hence, “All teams can be viewed as groups, but not all groups as teams” (Jacques and Salmon, 2005, 6). Hartley et al. (2022, 18) suggest that “groups must become teams so they can be effective.”

Inquiry-based learning (IBL)

Here I use the term as a generic label incorporating *inquiry-guided learning*, *research-based learning*, and *project-based learning* as a pedagogy that “enables students to experience the processes of knowledge creation (Spronken-Smith, 2008, 1).

Input-process-output team (IPO) framework

This is a framework for understanding and analyzing group dynamics and team effectiveness. “The IPO diagram consists of three columns listing inputs on the left, describing the process in the middle, and then tracking the outputs on the right” (Adobe Experience Cloud Team, 2023).

Intersectionality

“Intersectionality highlights that different aspects of individuals’ identities are not independent of each other. Instead, they interact to create unique identities and experiences, which cannot be understood by analysing each identity dimension separately or in isolation from their social and historical contexts” (Varsik & Gorochovskij, 2023, 4).

Online learning

This occurs when courses are offered virtually. It is also referred to as *distance learning* or *e-learning* when learners are not physically present in the same room. Students working online *synchronously* can talk with tutors and team members via Teams, Zoom, or other video conferencing software, and use chat rooms and break-out rooms. *Asynchronous* participation using discussion boards gives students time to read, reflect and edit their responses before uploading them. Students may also learn asynchronously online by listening to recordings of lectures, reading online references, and undertaking solo activities.

Personalised learning

“Personalised learning refers to a range of learning experiences and teaching strategies which aim to address the differing learning needs, interests and diverse backgrounds of learners. Often described as student-centred learning this approach uses differentiated learning and instruction to tailor the curriculum according to need. Learners within the same classroom or on the same course work together with shared purpose but each has their own personalised journey through the curriculum” (Higher Education Academy, 2017).

Project teams, learning teams, peer-assisted learning teams, and problem-centred teams

According to Gibbs (1995), *project teams* are product-oriented, aiming to complete a task together. In contrast, there are *learning teams*, sometimes referred to as student learning communities, that are process-oriented, where the emphasis is on mutual support to learn rather than completing tasks (Otto et al., 2015). *Peer-assisted learning teams* are somewhere between project teams and learning teams, where the focus is on helping each other complete individual tasks (Hammond et al., 2010). Finally, there are *problem-centred teams* which use the vehicle of a problem to support individual learning, rather than a group project (Savin-Baden & Major, 2004).

Scrum

This is an agile methodology developed in technological businesses that has been adapted to interdisciplinary professional courses in computer science in recent years (Persson et al., 2011), though it has also been used in the humanities (Jurado-Navas & Munoz-Luna, 2017). It is a process used to enhance project-based learning in which students, in teams of 4 to 9 members, can learn to self-manage their time and resources for meaningful learning. The students take on roles associated with real-world scenarios. The '*product owner*' is the teacher who proposes the topic to be worked on by the students. The '*scrum master*' is the student leader of each team who facilitates communication between group members and the teacher and plans the team meetings. The role of the scrum master usually rotates among the different group members. Within a scrum framework, project development is an iterative incremental approach emphasising continuous improvement conceived as a succession of short fixed work cycles called '*learning sprints*' (every 1-4 weeks) with regular progress meetings (daily or 2-3 times a week). The latter are stand-up meetings to encourage brevity.

Social and informal learning spaces

"These are spaces that support independent, self-guided study as well as group study, outside of the traditional timetabled sessions" (AUDE, 2022, 5).

Sticky campus

"At its core, the sticky campus is somewhere students can feel they belong. It's a connection of learning and social spaces which engenders a more meaningful learning experience, ultimately promoting better academic outcomes and stronger relationships with students and educators" (Benson, 2019).

Student-Centred Active Learning Environment with Upside-down Pedagogies (SCALE-UP)

"SCALE-UP is an active, collaborative mode of learning which offers an alternative to didactic and discursive pedagogies like lectures and seminars. In SCALE-UP, lectures are replaced by problem-solving and enquiry-based activities carried out in strategically-assigned groups. To foster collaborative learning, the re-designed classroom environment incorporates circular tables and technologies to enable students to share their work in small groups and in 'public thinking' spaces. These elements are supported by 'upside-down pedagogies' such as flipped learning, peer teaching, and rotating group roles. The shift away from lectures frees up class time for students to focus on the more difficult aspects of the material, to work at their own pace, and to receive on-the-spot feedback on their work from peers and the tutor" (McNeil & Borg, 2019, 3).

Students as partners

"... a relationship in which all involved – students, academics, professional services staff, senior managers, students' unions, and so on – are actively engaged in and stand to gain from the process of learning and working together" (Healey et al., 2014, 12).

Team-based learning (TBL)

"TBL is an active, collaborative learning and teaching strategy which uses a particular sequence of individual study, group work, immediate feedback, teacher-facilitated discussion and debate to create a motivational framework for students' learning. TBL takes a flipped approach to learning, with students being provided with or directed to learning resources to engage with before formal classes. The incentive to engage with the pre-class content comes from a readiness assurance process (RAP), which includes a short summative individual readiness assurance test (iRAT) immediately followed by an identical team test (tRAT) to foster discussion, debate, and peer learning. Students and academic staff receive immediate feedback on team performance, allowing a focused class discussion on any troublesome course concepts. The majority of class time is dedicated to application exercises where students learn how to use their new knowledge to solve authentic, real-world problems, make

collaborative team decisions, justify their decisions to other teams during discussion and debate, all facilitated by an academic teacher” (McNeil & Borg, 2019, 3).

Transformative learning

The theory of transformative learning is associated with the work over several decades of Jack Mezirow. “Transformative learning occurs when an individual experiences a significant structural shift in the way they perceive and understand the world around them. It is a process that is conducive to a change in the individual's perspective and a re-evaluation of their beliefs, values, and assumptions.”

<https://meridianuniversity.edu/content/what-is-transformative-learning>

Vertically Integrated Projects (VIP)

VIP originated at Georgia Institute of Technology (GTech) and was developed by the University of Strathclyde, where the teaching model has been enhanced by aligning it with the United Nations’ Sustainable Development Goals (SDG) Agenda 2030, and including interdisciplinary collaboration through ‘horizontal integration’ across all four of its faculties. “... research teams consist of undergraduate students ranging from all year groups; encouraging students to work continuously on the same project (gaining academic credit) throughout their University career. This ‘vertically integrated’ approach ensures a constant throughput of students is maintained, where ‘new generations’ of students joining the team can build on the successes of, and learn lessons from, students who have gone before them. Overtime, these VIP teams can reach a critical mass and level of continuity that allows the formation of long-term research groups, consisting primarily of undergraduate students. This allows teams to address relatively bold and ambitious research challenges” (Strachan et al., 2019, 1314).

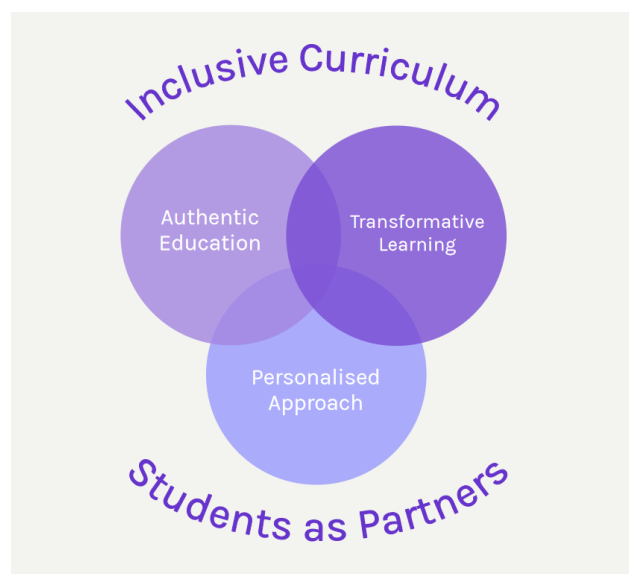
1. University of Westminster context

“Among the most-often-used approaches to get students engaged in the classroom is small-group work.” (Davidson et al., 2014, 1)

Group work is key for delivering the University of Westminster’s Educational Strategy. The University has over 19,000 students from 169 nationalities taking a wide range of courses from Architecture and Interiors to Computer Science and Software Engineering, from Business and Management to Journalism, Digital Media and PR. (<https://www.westminster.ac.uk/about-us>). The University’s strategy – *Being Westminster 2022-2029* – focuses on actions that reflect the institution’s three core principles of being **progressive, compassionate, and responsible** (University of Westminster, 2022). These principles inform the institutional priorities of **wellbeing, inclusion, and sustainable development**. These principles and expectations are translated into a set of priorities for the education mission of the University, as detailed in the *Educational Strategy* (Figure 1):

*“We will offer **personalised and authentic education**, underpinned by an **inclusive curriculum**, to enable all our students, from all backgrounds, to engage in **transformative learning** and to succeed in their studies and professional lives. ... Students will be empowered by **working in partnership with colleagues and fellow students** to shape the Westminster experience”* (emphases added) (University of Westminster, 2023a, 6).

Figure 1. Key features of Westminster’s Education Focus, 2022-29



Source: Healey & Pitchford (2022)

The University recognises that “**Employability-related learning** will be a core and critical part of the courses and curriculum we offer, right across the University” (University of Westminster, 2022, 16). **Experiencing collaborative group work is an important way of delivering this vision**, whether through authentic education, transformative learning, or personalised education, as it has been shown to:

“develop a range of soft skills including communication, empathy, teamwork, conflict resolution, leadership and self-management; all skills highly sought after by employers, recruiters and other key stakeholders” (McKay & Sridharan, 2024, 221).

In 2023, the University's Vice Chancellor and President Professor Peter Bonfield OBE officially committed the University to SDG 4.7 education for sustainable development and global citizenship (University of Westminster, 2023b). One way of engaging students in this goal would be to undertake **inter-disciplinary group projects** related to the 17 United Nations sustainable development goals (SDGs) (United Nations, nd), perhaps on the lines of the University of Exeter's [Grand Challenges](#) or Stratchclyde's Vertically Integrated Projects as a means of embedding the SDGs in the undergraduate curricula across all four faculties (Strachan et al., 2019).

This report builds on a previous report on *Supporting student group work* written by John Begg (University of Westminster, nd a), and two guides produced by the Library on *Group work* and *Group work online* (University of Westminster, nd b and c).

2. Aim, focus and framework

“Supporting collaboration effectively for the purpose of student learning is the overwhelming strategic priority for education policy and management.” (Bentley and Cazaly, 2015, 7)

This report aims to provide a **practical, evidence-based review and guide for staff in higher education about facilitating students to collaborate effectively in groups to enhance learning in all disciplines. Its target audience is staff using group work with their students, academic developers supporting staff and students to make the most of teamwork as an effective pedagogy, and senior managers and programme leaders developing institutional, departmental and programme-level strategies to promote effective and fulfilling group work learning.** There is a vast literature on group work. This report draws on almost 200 of the more important references.

The terms ‘group’ and ‘team’ are often used interchangeably, though many see a team as being a particular type of group (Open University, 2016). For example, Jacques and Salmon (2005) use the term **group** for “people who come together to share knowledge, for personal development or to learn from each other through discussion”, while they use **team** for “groups that are engaged in a task or project geared towards an end product or decision”. Hence, “[a]ll teams can be viewed as groups, but not all groups as teams” (p.6). Hartley et al. (2022, 18) suggest that “groups must become teams so they can be effective.” There are cultural differences in the use of the two terms. In the UK and Australasia, **group work** is the favoured term, while in North America, educators rely more on **teamwork** to describe the same activities (Flores & Bauman, 2024).

Similarly, a distinction may be made between **cooperative and collaborative group learning**, although the terms are also sometimes used interchangeably. The teacher plays a stronger role in cooperative learning than in collaborative learning where more of the activities are student-led. In the former, there is a tendency for students to *cooperate* to achieve a particular task by dividing the work up between team members and undertaking their agreed tasks separately. In the latter, students more commonly *collaborate* on a project, through interaction, negotiation, discussion, and accommodating others' perspectives (Panitz, 1999). In many group projects, the emphasis may be on cooperative learning at some stages and collaborative learning at others.

There are several **types of groups** that students may encounter in higher education (Gibbs, 1995). The most common are **project teams** that are product-oriented, aiming to complete a task together. In contrast, there are **learning teams**, sometimes referred to as student learning communities, that are process-oriented, where the emphasis is on mutual support to learn rather than completing tasks (Otto et al., 2015). **Peer-assisted learning teams** are somewhere between project teams and learning teams, where the focus is on helping each other complete individual tasks (Hammond et al., 2010). Sometimes they are run by senior students (Capstick & Fleming, 2001). Finally, there are **problem-centred teams** which use the vehicle of a problem to support individual learning, rather than a group project (Savin-Baden & Major, 2004). Assessment for the last three types of teams is normally individual. Project teams usually have a mixture of group and individual assessments. **In this report, the emphasis is on project teams**, though many of the arguments apply to other forms of group learning (Richter et al., 2021). A variety of closely related approaches may involve teams of students working on projects, including inquiry-guided learning, research-based learning, and project-based learning, which I group under the generic term – **inquiry-based learning** (see Chapter 8).

The **length of time** students may spend in a group varies from a few minutes, as a breakout activity in a class, to the whole of a session(s), or the whole module or course. It may be undertaken in the same group (Healey & Healey, 2020). Occasionally students may belong to the same team over more than one year of their programme, although the membership of the team may change as senior students

leave and junior students are appointed. For example, in vertically integrated projects, “students from all year groups ... work shoulder to shoulder with research students and experienced staff” (Pitchford et al., 2021, 126; Strachan et al., 2019). Here **our focus is on supporting students working in project teams over a minimum of several weeks**, as this period allows some time, at least in theory, to spend explicitly on the development of the skills and capabilities of students to work effectively in groups.

There has been a growing interest in group work in higher education over the last 35 years in part because of the growth in student numbers and fall in staff-student ratios, but also because of a recognition that students learn more when actively involved in their learning (Baume, forthcoming; Gibbs, 1992; Sotto, 2007). Nevertheless, there **remains a culture of working individually in Western higher education**, and many staff are reluctant to use group work with their students.



Teachers who have had positive experiences working in groups are more likely to design group work into their teaching. These experiences may include collaborative writing groups, research groups, team teaching, and professional development in teams (Abegglen, 2023; Gast et al., 2017; Healey & Healey, forthcoming; Koeslag-Kreunen et al., 2016). **The focus of this report is on students working in project groups and what teachers and students can do to make this experience more effective and enjoyable.**

There is a large literature on working effectively in groups (see Further reading). However, some guides are targeted at business and others are written to support learning in higher education. There are important differences in these two contexts. In a workplace context, team leaders are usually appointed, there is usually a hierarchy between senior and junior team members, and decision-making may be more constrained by the culture and values of the organisation. In contrast, in higher education, student groups are commonly non-hierarchical, team leaders emerge, and decisions are made democratically (Hartley et al., 2022). Peer evaluation is common in higher education, but rare in the workplace. There are also differences in the incentives and sanctions available for strong and weak performance (Thorn, 2020). These differences mean that **the literature on working effectively in the**

workplace has limited transferability to that in higher education. This can also cause some tension when books and guides are being written for business students on how to work effectively in teams whether they are training the students for the workplace *or* the course (Flores & Bauman, 2024; Open University, 2016). Although these are overlapping purposes, students need to know the aim of group work support activities – employability or education (Mutch, 1998). Here our focus is on **supporting all students to work effectively in teams to enhance their learning.**

It is also important to recognise **cultural dimensions** in undertaking group work. The diversity of the student body and the staff and their individualistic or collective cultural backgrounds will impact their willingness to engage in group work as well as, potentially, their success. This is discussed in Chapter 6 Inclusion and diversity.

This report is structured into chapters as shown in the **framework** (Figure 2). I have already discussed the first two. The next three chapters are the core of the report, as they discuss the benefits and challenges of group work (Ch 3), learning to work in a group (Ch 4), and assessing group work (Ch 5). The following four chapters explore some of the nuances of group work, as what is appropriate varies according to the diversity of the student composition (Ch 6), the mode of learning delivery (ie whether it takes place face-to-face, online or blended) (Ch 7), the pedagogic approach (Ch 8), and the disciplinary context (Ch 9). The final four chapters explore the roles of tutors, mentors and students (Ch 10), the physical learning spaces needed to support small group work on campus (Ch 11), examples of strategic initiatives to embed group work across institutions (Ch 12), and the future of group work (Ch 13).

Figure 2: A framework for exploring facilitating group work in higher education



3. Benefits and challenges of group work

“The development of learning in small groups in higher education has occurred, in part, because of strong evidence indicating that students working in small groups outperform their counterparts in a number of key areas. These include knowledge development, thinking skills, social skills, and course satisfaction.” (Davidson & Major, 2016, 7)

There is a wide range of overlapping benefits and challenges of group work faced by students and staff cited in the literature, but, just as importantly, many strategies may be used to maximise the benefits and minimise the challenges (Table 1). These should be made explicit to students and staff through workshops. Too often we do not explain to students why we are asking them to undertake particular activities. Given that many students have had poor experiences working in groups, we need to persuade them of the benefits and how the challenges can be addressed. Similarly, some staff are reluctant to engage their students in group work and they also need to be convinced when and how it is appropriate and beneficial to build group work experiences into their courses.

Table1. The benefits and challenges for students and staff of learning in groups

Benefits
For students:
• More ambitious, larger and more interesting problems can be tackled. • Focuses on an <i>issues-oriented</i> way of thinking – How shall we ...? What do we need to ...? Forced to confront questions of judgement, and values, risk and quality of information, and cope with uncertainty. • Team assignments add variety to the curriculum and reduce exam season fatigue. • Can encourage creativity by group members bouncing ideas off each other. • Advantage can be taken of the varied skills of group members. • Students are involved actively in the learning process and more discussion can be generated than in conventional courses. • Gives members a sense of belonging and a source of mutual support. • Can be a very welcoming opportunity to get to know and study with others and learn how effective (and enjoyable) learning can be when it is a social experience too. Socialisation skills are particularly important for students whose formative education was during the pandemic. • Average and weak students have the opportunity to study with others who are more able and this can be enormously helpful and stimulating. • Provides an opportunity to work with students from different backgrounds and cultures, and increase intercultural understanding and competencies. • A broad range of intellectual and emotional skills is encouraged (including leadership, negotiation, time and task management, minute-taking, building confidence, taking responsibility for their learning, presentation, and communication). • Assigning group work early in their degree is a good way to ease students into skills they will need during their course, such as research skills, independent working, presentation skills, and an understanding of group dynamics, all of which will help them in more demanding projects later in their degree. • Students with extensive experience in teamwork are more employable, as they have gained important transferable skills.
For staff:
• More advanced work can be set, involving more data collection and analysis, and a greater degree of independence and creativity. • Groups require less supervision than the same number of students working alone.

- Marking loads can be significantly reduced and group assignments can decrease the burden of administrating and marking exams.
- More engaged learning can result in deeper learning.
- The average quality of work is usually higher than the average work of individuals.
- Can enhance the quality of discussion between students and foster informal peer tutoring and peer feedback. Peer learning has also long been recognised as a much more powerful tool for learning than academic instruction.
- Students in groups usually work hard and develop enthusiasm for the topic.
- Groups should have a greater sense of ownership over the processes and products of learning.
- There is relatively little chance of team failure and much less than that of individual student failure.
- By sharing resources, groups require fewer resources than the same number of students undertaking identical tasks individually.

Challenges

For students:

- Fear that other team members may not do their fair share of the work.
- They may feel uncomfortable in a situation which is not teacher-dependent.
- It involves a change of attitude from a traditional Western educational culture which has espoused the performance of the individual, to one emphasising the value of teamwork.
- Clever and/or hard-working students may feel they are not given sufficient credit for their efforts.
- The students may have to work with people with different personalities, cultures, and learning styles; and deal with group members who do not pull their weight, turn up to meetings, or complete assigned tasks.
- Some students (particularly those who do not feel confident about their ability to communicate, or those who are neurodivergent) prefer to work independently and may find group work, with its requirement for interaction and its built-in ambiguity, confusing, challenging and confronting.
- There may be a loss of individual choice and agency in selecting groups, topics and how projects are undertaken.
- It takes more time to work in a group than to work alone. However, the time spent talking and analyzing problems usually results in better solutions.

For staff:

- Students are often reluctant to work in groups and have a proportion of their marks in the hands of others.
- Weak and/or lazy students may be able to 'hide' in a group.
- With the division of tasks, students may shy away from areas in which they are weak or with which they are not familiar; and may focus too narrowly on their contributions to the detriment of the group outcome.
- It can be difficult to determine individual students' achievement of the learning outcomes.
- Less subject matter may be covered than in a conventional lecture-based course.
- They may feel that the higher average marks typically awarded to group work 'distort' the mark profiles of individual students.
- Group work can be hard to assess, and individual student contributions are challenging to tease out, especially if conducted outside formal teaching hours.
- Institutional constraints (e.g. timetabling, and availability of suitable physical and digital spaces) may restrict effective group work.
- There can be issues of how students with extenuating circumstances make up for missed group work.
- Staff may feel that they lack the necessary skills to set up group learning activities and support students to work effectively in teams.

Maximising the benefits and minimising the challenges

- Designing interesting and challenging exercises which can be undertaken by the groups in the time allowed and with the resources available.
- Giving clear instructions at the beginning of the exercise and monitoring progress.
- Providing guidance on working in groups and allowing time for students to learn these skills and reflect on how they can improve the effectiveness of the way their group is working.
- Including mechanisms which result in all students gaining a variety of experiences of different roles and exposure to a broad range of skills, such as verbal presentations and production of graphics.
- Assessing group processes as well as outcomes.
- Assessing individual contributions to the group, as well as assessing the group as a whole.
- Using peer assessment and self-assessment, as well as tutor assessment.
- Learning when to intervene, for example, if students misunderstand the task, and when it is better to leave students to work out their problems within the group.

Source: Based on: Healey et al. (1996, 169-170), with additional ideas from Burke (2011, 88-89); Davies (2009); Francis et al. (2022, 3-6); Gibbs (1995,4-6); Gibson (2008); Levin (2005, 9-19); UNSW (2023); & University of Westminster (nd a)

Livingstone & Lynch (2000, 326) suggest that **some of the concerns listed above can be regarded as “a kind of mythology** ... that exists amongst both staff and students and is not necessarily supported by the empirical evidence. This mythology may well be founded on a defensive attitude ...”. Unfortunately, previous poor experiences of group work, and, despite the good intentions of many staff, **“rather than learning to value group collaboration, students learn to hate it”** (Brown & McIlroy, 2011, 687). Moreover, Pokorny & Griffiths (2010) conclude, based on a survey of tutors and students in the business school at one university, that “what may be seen as the myths of group work (Livingstone and Lynch, 2000) are, on the contrary, the reality for many groups” (p.10).



To decrease negative experiences of Group Learning Activities (GLAs), Brown & McIlroy (2011) recommend:

“use of group work in formative rather than summative projects; building student confidence by providing a step-wise introduction to GLAs with open discussion of the positive and negative consequences of conflict; and the use of effective role modelling” (p.687).

My argument is that group work has an important role in student learning in higher education, but for it **to be effective it needs to be designed to meet the specific context**, including the level of the course, number of students, length of the project, intended learning outcomes, extent of diversity, mode of instruction, pedagogical approach, discipline, and learning spaces available. Flores & Bauman (2024, 109-120) provide a useful discussion of possible adaptations needed for designing effective group work for a variety of contexts, including a large, diverse, face-to-face graduate class, and a medium-sized, moderately diverse, wholly online undergraduate course. While recognising that no teaching method is going to be liked by all, given the myths that surround group work, both students and staff must be supported to maximise the benefits and minimise the challenges. Higher education practices and policies are context-dependent (Healey & Healey, 2018).



"Helen, you're the Team Leader,
why don't you jump first?"

4. Learning to work in a group

“Too many faculty members assign ambitious team projects and then leave the students to their own devices.” (Lang, 2022, 1)

Here I review the advice given in the literature about **how to build, develop, and maintain effective teams to enhance the quality of student learning** and respond to the lack of guidance often provided by staff indicated in the quote at the beginning of this chapter.

The University of Queensland (2018) has developed a useful instructor’s manual for **Proactively Ensuring Team Success**. The PETS process has several stages:

1. Before start of semester (setting up)
2. Start of semester (starting out)
3. During semester (along the way)
4. End of semester (getting over the line)
5. Reflection and review (where have we been?)

Build group work skills into learning outcomes

For groups to work effectively in higher education, staff must provide clear expectations and structure, give appropriate guidance and support, and be transparent about how and why group work fits into their courses (University of Queensland, 2024).

Students are often not aware of the benefits of the process of group work and staff may not reflect on the purposes of group work either. We often do not tell students why we are doing group work (Darby & Tallontire (2016). One of the simplest ways to address the issues about highlighting group work aims, is to have **explicit learning outcomes about the group work skills** that students are expected to achieve during the course (e.g. Cheruvelil et al., 2020). Then there is a need to ensure that these learning outcomes are addressed unambiguously in the pedagogic approach and assessment methods. In other words, there is clear constructive alignment between the course learning outcomes, teaching methods and forms of assessment (Biggs et al., 2023). For ways of assessing group work skills see [Chapter 5](#).

There is **no universal way of working effectively in groups** as it depends on the context. Hence what is appropriate for a first-year, fairly homogenous group of four, meeting face-to-face for five weeks, differs from that for a Masters level group of seven based in three different countries, meeting synchronously and asynchronously online in two different time zones over a semester. For a discussion of the individual and team-based factors that enable effective team collaboration for higher education learning and teaching, see Newell & Bain (2018).

Coping with free-riding

Free-riding or social loafing is a major concern in all disciplines. This is when group members do not contribute equally, or at all, to the group work. “For students to enjoy the process of group work, proper preparation before – and support during – the project needs to be provided” (Hall & Buzwell, 2013, 46). Some of the strategies for responding to the free-riding issue are listed in Table 2, many of which are elaborated on later in this chapter, and Chapter 5 Assessing teamwork.

However, care needs to be taken to explore the reasons for **social loafing**. It is **“not necessarily due to apathy or a deliberate attempt to do as little work as possible”** (Hall & Buzwell 2013, 37). In some cases, it may be due to the ostracism of group members because of perceived differences (see Chapter 6 Inclusion and diversity).

If students complain about a teammate not pulling their weight a good strategy is to ask them: "What did they say when you talked to them about it?". You could also suggest that they might approach the perceived slacker in a non-confrontational manner, by saying something along the lines of "I'm trying to get some members of this team to contribute more, and I wanted to seek your guidance on how to do that" (Vander Ark, 2016). One study found that communication quality and task cohesion significantly reduced social loafing in group projects (Lam, 2015). Another study found that with groups of 2 or 3, social loafing was not a problem because of strong cohesion among students and a sense of responsibility for one another (Hill, 2016).

Table 2 Strategies for reducing free-riding

1. Explain why working in groups is worth the frustration
2. Provide exercises in working effectively as a group, e.g., produce a 'rich picture' of the project (Healey et al., 2013)
3. Establish clear expectations for group members, by setting ground rules and/or using team contracts
4. Monitor groups to identify whether there is an issue early on
5. Increase individual accountability by combining group assessments with individual assessments
6. Teach conflict-resolution skills and reinforce them by role-playing responses to hypothetical team conflict scenarios
7. Provide training in communication skills
8. Assess group processes via periodic process reports, self-evaluations, and peer evaluations
9. Avoid random assignment as a team formation approach
10. Create small(er) teams
11. Remove the temptation to free ride by not having another major assignment due right before or after the group work

Sources: Benning (2022); Bhanawat (2022); Carnegie Mellon University (nd); Davies (2009); Gibbs (1995); Hall & Buzwell (2013); Hartley et al. (2022); Healey et al. (2013); Lam (2015); Shak (2016); University of Queensland (2018); & Vander Ark (2016)

Free riding video among dogs



Source: Bhanawat (2022)

Selecting teams

There is much discussion in the literature on whether team members are best **allocated to groups randomly, according to some criteria, or are self-selected**. However, there is little hard evidence that it makes much difference (Belbin, 2010; Huxham & Land, 2000), and each method has advantages and disadvantages (Burke, 2011; Frances et al., 2022; Gibbs, 1995).

It is often suggested that **randomly assigning students** to groups increases the diversity of team members, and distributes stronger and weaker students more evenly, but it can also mean students from minority groups may be isolated. Randomly allocated groups can also take longer to start work as members get to know each other. **Selecting students according to criteria**, such as previous grades, preferred group role(s), or diverse sets of skills and experiences, may help to ensure there is an equitable distribution of these characteristics between groups, but it can make the process of allocation difficult and overly bureaucratic. **Letting students choose who to work with** can reduce anxiety and uncertainty, but it can reduce diversity, and be perceived as unfair where strong or weak students end up in the same group. Moreover, friends often chat rather than focus on the task, and are often reluctant to give rigorous feedback to each other, which can make resolving group problems more difficult. A **compromise solution** would be to allow a pair or trio of students to work with another pair or trio, and any remaining students are allocated by the tutor. This has the advantage of not isolating under-represented and minoritised students, though it may make it difficult to build group cohesion as existing pairs or trios tend to continue to work together, and students who are allocated to a group may feel friendless.

One study found that when students choose their project group members they do so in line with what the academic research suggests will lead to high performance. The study concluded that “students who take account of the skills and knowledge of individual students, their ability to contribute to the management of the task at hand and the potential social cohesion of the members in the group are likely to perform better as a group” (Seethamraju & Borman, 2009, 38).

Whatever method of allocating students to teams is adopted, if there is a succession of assessed group tasks it may be sensible to **change group membership** to encourage a perception of fairness and avoid the recurrence of incompatible or unfortunate team mixes. Changing groups also allows students to work with different individuals and experience varying group dynamics.

How large should a team be?

Generally speaking, the shorter and simpler the task the smaller the ideal size of the group. Pairs or trios are sensible choices then. Where projects are complex and the groups will be working together for several weeks, then larger teams may be needed. This allows for a greater variety of experiences, skills and capabilities to be brought together to address the problem or issue involved. **In higher education, teams of four to six members are common where the task lasts for several weeks.**

Box 1. A democratic and student-centred approach to facilitating teamwork learning among first-year engineering students

The University of Adelaide developed an innovative and evolving approach to facilitating teamwork learning in a generic first-year mechanical engineering course. Principles of **inclusive, student-active and democratic pedagogy** were utilised to engage students on both the social and personal planes. Learner opportunities to facilitate, direct and lead the learning direction were emphasised. This emphasis encouraged a rich learning process and motivated students dismissive of the need to examine their communication skills and those who initially perceived the topic as a personal intrusion. Through the sharing of curriculum decisions, **a climate of trust, ownership and shared value** arose. Students chose from a range of tools across personality-type indicators, learning style indicators and hierarchies of human needs, to assist their capacity to express and discuss engineering designs and concepts. Peer teaching and collaborative exercises were incorporated to provide an authentic learning context and to further the student’s sense of ownership.

Source: Missingham & Matthews (2014)

Development of learning in teams

It is vital to allow groups sufficient time to develop trust in each other, which is essential for working effectively together (Bateman et al., 2022). This should be done at the beginning of the project (Jacob & Faily, 2019) (Box 1).



Source: [Quotesgram](#)

Tuckman & Jensen (1977) proposed the best-known model for how groups develop. They suggest that **teams develop in stages**, and if they can recognise this it can help them understand what is going on, and help them progress to the next stage (Francis et al., 2022; Gibbs, 1995; Open University, 2016; Richter et al., 2021).

1. *Forming*: The pre-team stage where people get to know each other.
2. *Storming*: the stage of conflict that many teams need to go through to achieve their potential. This is where genuine differences of values and opinions appear and get thrashed out and where personalities clash. During this stage, arguments about how the group is going to operate, who is in charge, who is going to do what and so on surface.
3. *Norming*: The consolidation phase in which group consensus is reached as to how to use the resources they have to apply to the task.
4. *Performing*: The group becomes effective concentrating on the development of the team, individuals, and the task at hand.

Teams can often not get to the performing stage without going through the previous stages.

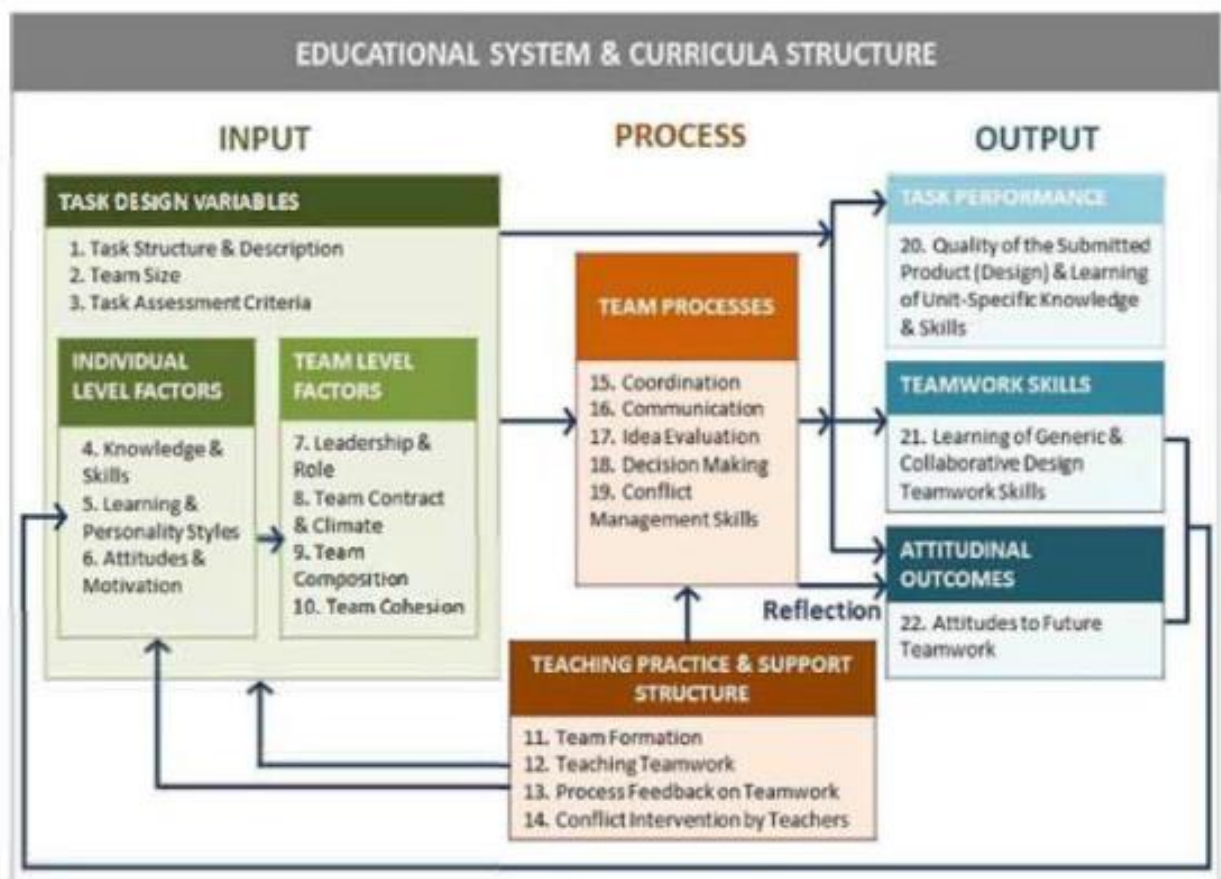
Individual, team and task needs are emphasised differently at each stage. Task needs are not highlighted until the latter stages. However, groups vary subtly and do not necessarily go through all of these stages.

"Some groups move quickly to 'norming' and 'performing' stages without any storming! It depends on the mix of personalities in the groups. Some groups work because the members fit in well with each other from the start and the group is soon focused on the task" (University of Bradford, nd, 17).

The Tuckman model and alternatives, such as the punctuated equilibrium model (Gersick, 1991), are not without their critics. They assume that all group members go through the stages at the same pace, change is unidirectional, and no account is taken of external influences (Hurt & Trombley, 2007). Moreover, they were developed to understand business organisations and do not readily translate into the context of student groups in higher education. Tuckman used an experimental design approach to build his model; hence, it is not based on empirical observations of groups in action. There are also suggestions that virtual groups may develop with different stages than face-to-face ones (Crosta & McConnell, 2010). Moreover, different models have different practical implications. For example, the punctuated equilibrium model of group development suggests that groups often move forward quickly, but reach a crisis point midway through, which they have to resolve before continuing. It is therefore important to include a review meeting at the halfway point (Hartley et al., 2022).

The **input-process-output (IPO) team framework** provides an alternative framework for understanding and analyzing group dynamics and team effectiveness (https://en.wikipedia.org/wiki/Input-process-output_model_of_teams). Tucker (2017) used this framework to analyse team learning in architecture design studios. Tan (2022) has developed his analysis further and proposed a student-centred learning framework for students to understand, apply, and evaluate their team learning processes in design pedagogy (Figure 5).

Figure 5. Input-process-output (IPO) framework of effectiveness in student design teams



Source: Tan (2021, 108)

Activities to help groups develop as teams

Undertaking explicit activities to help the team navigate the stages of group work can help them develop as an effective team (Box 2). Most of the exercises can be run by the student groups, but to ensure that they engage with the exercises, it may be necessary for the tutor to facilitate them during class time. Gilbert (2016) has developed the practice of embedding compassion as an assessed cognitive

competency in university group work (Box 3). Casper (2017) uses Lego to help build teams. Other useful advice is presented by the University of Waterloo (nd a) and the University of Westminster (nd a; b).

Box 2. Activities to help groups develop as teams

Gibbs (1994) suggests 27 exercises that groups can undertake to help them progress through the group work stages. For example, at the forming and storming stages, they can brainstorm **all the ways that they can wreck the group**. Students enjoy this, as it allows them to tell stories about their or their friends' previous poor experiences. It is then easy to turn the negatives into positives about how they would like their group to operate, set **ground rules, and agree on a group charter** (Hartley et al., 2022). The University of Westminster (nd a) provides a useful list of possible support measures to help students negotiate teamwork.

Well-organised, structured and purposeful meetings have an important role in effective group work. "Having a chairperson and an agenda, taking notes about what has been agreed, agreeing when and where to meet next, and what the next meeting will deal with – all these are regularly ignored by students with predictable consequences" (Gibbs, 1995, 42). Hartley et al. (2022, 42-45) provide a useful guide for students about organising meetings.

Group members need to play different **roles** for a team to be successful. This is more likely to occur when the students in a team have a range of strengths (Hartley et al., 2022). **Belbin (2010) devised a team inventory test**, which divides the potential roles that team members can take into three categories: people-focused, task-focused, and thinking-focused. "By surveying themselves and their teammates, students can identify not only the best ways they can contribute but also any potential shortfalls in their team, and then decide how best to collaborate to cover these gaps" (Bateman et al., 2022). According to Belbin, all the roles are needed for a successful team; with small teams, members may need to take on multiple roles. Gibbs (1994) provides a simplified version of Belbin's inventory. He distinguishes between the roles of innovator, investigator, chairperson, shaper, evaluator, team worker, organiser, and finisher (Appendix 1). Playing to the strengths of individuals in a team can make sense, but so can allowing students to play a range of roles, so they can develop personally.

Nearly all groups run into problems at some point. Friction and inappropriate behaviour from some or all members can occur. Using a neutral checklist of possible problems about **'What's going wrong?'** can help identify problems for discussion. Guidance on giving and receiving feedback should help groups **handle problems** (Hartley et al., 2022). The University of Bradford (nd, 27-30) gives useful advice on dealing with a range of problems that can lead to **conflict** within groups. For example, in response to someone getting upset if their ideas are challenged or rejected they give this advice:

"This problem usually arises because of the way an idea gets challenged in the group. The person who put forward the idea may feel personally rejected or insulted if their suggestions are scorned or insensitively rejected. If someone puts forward an idea, and others don't accept it, the objectors need to make clear that it is the idea that they want to challenge, and not the intelligence or integrity of the person proposing the idea" (p.27).

Other useful advice for dealing with common group work challenges is provided by Ryan (nd, 15).

At the end of the project, it is important to reflect on the process of working in the team, how the group worked together, what worked well, what problems were experienced, how the group handled them, and what should change to make the next team project more effective. This may lead to preparing a **group report on their experience of teamwork** or it may be written individually as part of the assessment (Hartley et al., 2022, 66-72).



Source: Hartley et al. (2022, 40)

Box 3. Developing compassion as a group work skill

Gilbert has been developing a **compassion-focused pedagogy** at the University of Hertfordshire for the last 15 years. He defines compassion as “*noticing* of distress and/or disadvantage to self or others, and a commitment to *take action* to reduce it.” His work is based on an analysis of weekly face-to-face group seminars, though it can be applied to other pedagogic situations where students regularly work in the same group. With the help of the tutor “a problematic issue is identified - such as the behaviour of a monopoliser, a shy non-contributor, ... and its significance for the group’s learning and social experience is evaluated; then a plan is formulated ... to address the issue kindly and proactively.” Interestingly he observes that although much of the literature refers to BME and international students experiencing the negative impacts of communicative barriers between students in task-focused groups, his research found the difficulties happen amongst and between white, local UK students too.

Recognising that the idea of compassionate skills could be controversial in some subjects he strategically re-termed them as ‘**group management skills**’. These included skills such as maintaining eye contact; using inclusive language; eliciting, encouraging, acknowledging; and checking understanding of the group when speaking. These skills are assessed by observation by the tutor and count for 30% of the seminar marks.

Source: Gilbert (2016)

Progression of teamwork

We cannot expect students to develop the skills of working effectively in groups from one or two experiences. They need practice working in different kinds of groups, with a range of sizes, over varied lengths of time, and with students from a diversity of backgrounds and demographics to accumulate sufficient knowledge, understanding and capabilities to be effective team members. As the utilisation of group work increases in higher education, students may gain a lot of experience. Too often, however, it is left solely to individual tutors as to how they incorporate group work within their modules, and this can lead to students receiving similar experiences several times. **Ideally, there should be an explicit across-institution group work strategy developed for programmes to ensure there is a progression of skill development, particularly across the core modules** (Box 4). Bradford (2000, 56-58) discusses the progression of teamwork in the undergraduate geography course at the University of Manchester.

One recent study of Vertically Integrated Projects, where undergraduate students engaged in long-term, large-scale, multidisciplinary projects embedded in faculty research, found that on average, individual leadership role ratings increased each semester through the third semester of participation (Sonnenberg-Klein & Coyle, 2024).

Development of learning in teams

It is vital to allow groups sufficient time to develop trust in each other, which is essential for working effectively together (Bateman et al., 2022). This should be done at the beginning of the project (Jacob & Faily, 2019).

Box 4. Progressive development of team skills in a geology programme

Year 1	
<i>Semester 1</i>	First profiling meeting with personal tutor includes review of team experience and skills. Core module involves a short team task for teams of three: no assessment of product or team skills. In parallel all students take a module entitled “Studying Geology” which includes among a range of technical and transferable skills a team skill development exercise and the establishment of a learning team to support all first-year studies.
<i>Semester 2</i>	Core module involves a modest lab-based project for teams of four where the product counts 25% of module marks. A reflective report on teamwork is not assessed but is discussed in a project debriefing seminar. Focus is on reviewing team skills. Second profiling meeting with personal tutor includes review of team experience and skills.
Year 2	
<i>Semester 3</i>	Core module involves a team fieldwork project over several weeks. Individual reports are written up for 75% of the marks with a team report about the team skills involved which counts 25% of the module marks. Focus on managing complex tasks in teams.
<i>Semester 4</i>	Several optional modules use team projects of various kinds requiring library research, each involving marks for the team product and peer assessment of contributions to the team, using a standard procedure and set of criteria. Focus on team research and team writing. Third profiling meeting with personal tutor includes review of team experience and skills.
Year 3	
<i>Semester 5</i>	Major fieldwork project undertaken in large teams with individual components assessed and the overall team map appraised as a team product. Several team skill development exercises while working in the field. Focus on taking on team roles.
<i>Semester 6</i>	Several modules involve various team tasks, all of which include an individual reflective essay on team skills allocated 25% of the marks. Integrated focus on all aspects of teamwork. Fourth and final profiling with personal tutor includes summary of team experience and skills for completed profile.

Source: Gibbs (1995, 36)

It is also worth highlighting that the teamwork exercises discussed above are not treated as a “one and done” check box activity for students. Repeating similar exercises in different team working contexts can be an important learning experience. These exercises need to be ‘baked into’ programme design.

5. Assessing group work

“Results show that students may instinctively prefer individual assessments but they perform best, and achieve greatest perceived development of key skills, in group assessment.”
(Knight, 2004, 63)

Although working in groups is a widely used practice in higher education, Meijer et al. (2020) conclude that there is a lack of practical methods and research literature relating to group work assessment. There is a need, they argue, to develop ‘**collaborative learning assessment literacy**’ (p.1222). Group work assessment lends itself well to the principles of **assessment for learning** (Mellor, 2012).

Methods of assessing group work and team skills

There are a variety of methods of assessing group work (Gibbs, 1995; McCrea et al., 2016; University of Queensland, 2018; University of Waterloo, nd b; Watkins, 2005). Traditionally the emphasis has been placed on the **product or outcome** of the task or project, such as through a **group report or a poster**; but attention is increasingly also being given to assessing the **process** of group work, such as by keeping a **group journal and/or writing a reflective essay**. This could include identifying what they would do differently next time to improve the process of working in a group. **Oral presentations** may be used to assess both the product outcomes of the project and the skills of presentation. **Vivas and exams** may also be used to assess individual contributions. Each of these methods may be used to give **formative or summative feedback**.

If you have an **explicit learning outcome** about developing the skills of working in groups, as I suggest in Chapter 4, then it follows that it should be assessed. This may be done by **identifying key team skills**, such as chairing meetings; performing specific team functions (e.g. secretary, ideas person); and negotiating; and then asking groups to assess their performance using agreed checklists (Gibbs, 1995). Alternatively, the **contributions of members to various group tasks**, such as ideas and suggestions; data collection/collation/analysis; and report writing, production and editing, may be assessed using peer and self-assessment (Healey & Addis, 2005) (Box 5).

Ohland et al. (2012) have developed a **rating scale to measure team-member contributions in five areas based on the team effectiveness literature** – contributing to the team’s work, interacting with teammates, keeping the team on track, expecting quality, and having relevant knowledge, skills & abilities (Appendix 2). It is called the **Comprehensive Assessment of Team Member Effectiveness – Behaviorally Anchored Rating Scale (CATME-BARS)**. It assumes the team has been working together for some time. It may also be used at the beginning of a project to help make team members aware of the key elements of team effectiveness based on their previous experiences of working in teams, and to start the process of self-assessment that may be followed up by keeping a learning journal (Moon, 1999). A web-based version of the rating scale may be licensed from [CATME](#).

An alternative self-assessment of teamwork skills was developed by Lencioni (2005). He identified five **dysfunctions of a team** – lack of trust, fear of conflict, lack of commitment, avoidance of accountability, and inattention to results. These are expressed as a pyramid where each level must be completed to move on to the next one (Figure 3). Based on these he devised an instrument that can be used by all team members to assess how a team is performing and as a basis for discussion and agreeing on actions to be undertaken for improvement (see <https://bcpsqc.ca/wp-content/uploads/2018/08/1.0-Team-Assessment-Questionnaire.pdf>). Care needs to be taken in interpreting the findings in a higher education learning context as the model was devised to explore the operation of teams who have worked together for some time in the workplace, and some of the terms used, such as ‘performance’, ‘team reputation’, and ‘titles and status’, do not transfer well to learning in universities.

Whatever form the assessment takes it must be **clearly communicated**. “The key questions the students will home in on are what will be assessed, when and how will it be evaluated, and who will be assessing it” (Francis et al. 2022, 17).

Figure 3. Qualities of high-performing and dysfunctional teams



Source: Based on Lencioni (2005)

Tutor, peer and self-assessment

Tutors usually assess the product outcomes of projects as they know the subject material; they may also sometimes assess the processes of working in groups if the project is largely undertaken in the class or laboratory and they can observe and mentor the students in action. However, in most group work projects, **the only people who know how the group operates are the students themselves**; hence **peer and self-assessment is the only valid way to assess the process of group work**. However, we cannot expect students to do this effectively from day 1. As I argued in the last Chapter, there needs to be a developmental strategy for the programme. It cannot be left to individual module tutors. Moreover, “including SA [self-assessment] and PA [peer-assessment] strategies in student tasks enhances the students’ perceived sense of fairness in the assessment process” (Ion et al., 2023, 1). Self- and peer evaluations, training students for group work assessments, group formation, group size, and the role of academics and technology in facilitating group processes were dominant themes in a systematic literature review of studies to improve group-based assessments in higher education (Tumpa et al., 2022). There are many advantages of peer- and self-assessment, as well as some potential challenges (Table 3).

Table 3. Peer and self-assessment

Advantages

- Students are already self-assessing and peer-assessing quite naturally
- Tutor assessment is not sufficiently valid, reliable or transparent
- Peer and self-assessment deepen students' learning experiences
- They let students into the assessment culture
- They help students become autonomous learners
- They help students develop skills relating to life-long learning
- They help students to gain much more feedback than would otherwise be possible
- Reduces marking load of staff
- Self-assessment gets students to reflect on their own work, and can open up productive student–tutor dialogues
- Students' performance in traditional assessments is enhanced

Potential challenges

- Reticence about providing negative information on fellow students
- Reluctance to cover a full spectrum of marks, with realistic maxima and minima
- Collusion that disadvantages some individuals
- Reluctance to fail another student

Source: Based on Race (2001) and Watkins (2005)

Group assessment, individual assessment, and group assessment combined with peer and self-assessment

There is much debate as to whether all team members should be given the same mark, whether team members should be assessed individually, or whether it is better to distribute the group mark between individuals to reflect differences in the quality of their contributions, and if so, how best to do this (Meijer et al., 2020). Each method can elicit student behaviour that is misaligned with the objectives of collaborative learning.

The main case for **giving all team members the same mark** is that **all members should take joint responsibility for the outcomes of the project**. It is also quicker than marking individuals, and redistributing marks can be complex, but it can encourage free-riders (see Table 2). Maiden & Perry (2011) tested several different ways of **dealing with free-riders** at the University of Wolverhampton (Table 4). They conclude that “it is the attempt to address free-riding that is significant rather than the particular method chosen” (p.460).

Table 4. Assessment methods for managing and overcoming free-riding

1. *Two-card trick* – Issue of yellow and red ‘warning’ cards to noncontributors
2. *Viva warning* – Use of an individual viva to assess contribution for non-contributors
3. *Team-led individual* – Formative group work helps with individual summative assessment
4. *Exam follow on* – Second assessment, an examination needs knowledge of group work from first assessment
5. *Divided mark* – Overall score is allocated to a group and apportioned individually based on students' views of relative contributions
6. *80/20* – The tutor gives 80% of marks on the product of the group work; group members award 20% of the total grade for their contribution, through the completion of a confidential questionnaire

Source: Maiden & Perry (2011, 455)

On the grounds of fairness, it is argued that **individuals should be credited for the quality of their work**. As Gibbs (1995, 9) points out: "It is individuals who gain qualifications, not teams, and some way has to be found to allocate marks fairly to individuals within teams." **Marking the contribution of each team member individually** may seem fairer, but it can be difficult to distinguish between individual and group contributions and can discourage genuine collaboration.

Redistributing group marks between team members can **incentivise all students to work to the best of their ability**. Bright students can obtain their best marks as long as their team members recognise the quality of their contribution, while potential 'free-riding' students are encouraged to pull their weight, as their peers could mark them down and they might fail the task. Hence this method is less likely to lead to misaligned behaviour than group or individual assessment, but some students may be unwilling to mark down friends and be overly harsh on other students who do not pull their weight. If this approach is adopted, it is important to be transparent about the process at the beginning of the project to persuade bright students that they will benefit from their contributions and to convince the potential slackers that they will be penalised if they rely on other team members to do most of the work (Healey et al., 1996; Healey & Addis, 2004). Checkpoints during group activity allow team members to offer each other formative feedback and highlight where their peers are performing well or could contribute further. At the end of the project, a group discussion of performance, allowing each team member to clarify their contribution, followed by an anonymous peer assessment can facilitate fair and appropriate grading.

Many projects use a mixture of group marks and individual marks, with some tasks assessed by the tutor and others by peer and self-assessment. Sometimes the peers are the other team members and sometimes they are the members of the other groups (Box 5).

Box 5. Assessing group work in a final year capstone project using tutor, peer and self-assessment

Issues in Environmental Geography ran for about a decade at the University of Gloucestershire as a **final-year capstone module**, and an earlier version ran at Coventry University for several years. Students worked in groups of 4-6 on local environmental issues. **The semester-long course was assessed through a group report (60%), an oral presentation (30%); and an individual learning journal and reflective essay (together counting for 10%).** All team members received the same mark for the group presentation, which was assessed by the students in the other groups because they were the audience and were in the best place to assess the processes of giving effective presentations (Appendix 3). The tutors marked the group projects, the learning journals, and the student reflections on working in groups.

The marks given for the group project were redistributed among group members using peer and self-assessment of the quality and effectiveness of their contributions on a five-point scale to five group processes (ideas and suggestions; leadership, group organisation and support, minute taking; data collection/ collation/ analysis; report writing, production and editing; and preparing/ giving verbal presentation) (Appendix 4). The tutor applied the redistribution by multiplying the group mark by the ratio of each individual's average score to the overall average for the group so that students were not seen to be taking away or adding marks to each other. For example, if the group project mark was 60%, and the group's overall average score was 3.5. Student A, whose average score was 3.0, would receive a mark of 51% for the project ($60 \times 3.0/3.5$); while Student B, whose average score was 4.0, would be given 69% ($60 \times 4.0/3.5$). The average mark for the module was consistently about 3-5 percentage points higher than for other modules taken by the same students, reflecting the benefit of working in teams. The difference in marks was confirmed by the external examiners.

Source: Healey et al. (1996); Healey & Addis (2005)

Not all teamwork has to be summatively assessed. **Formative feedback** can play a critical role in developing teamwork skills and give students confidence in areas in which they have previously little experience, such as carrying out a research project. A well-scaffolded design can encourage students to develop a learning-oriented approach rather than a performance-oriented approach (Meijer et al., 2020) (Box 6).

Box 6. Enhancing students' participation through non-assessed teamwork

Unassessed weekly teamwork is used in a business research methods module for postgraduate students at the University of Westminster, the majority of whom are international students with diverse educational backgrounds. The team-based learning activities are designed to encourage students to apply research concepts and skills actively, to take on independent learning responsibilities, and to work together in small, self-directed groups on collaborative tasks. The weekly learning activities aim to prepare students for their final individual assessment at the end of the semester, which is a research proposal leading into their final project.

The reasons for using teamwork are explained at the beginning of the course. **Students work together in self-selected groups of four on a collective task each week.** The task revolves around the concepts covered in the lecture of the previous week. This allows time for students to do the relevant reading and group discussion and then put together their team's homework. The activities include: choosing a research area; defining a focused and specific topic; researching and evaluating credible sources such as journal articles, texts, book chapters or newspaper articles around the chosen working topic; using the university's required referencing style to draft a list of references; designing a short online survey and interview questions around the topic; and presenting the mini project.

During the arrivals week, when students first join the course, students have two sessions related to teamwork. One session is on how to work collaboratively within multicultural teams; another session is 'getting to know each other'. At the sessions, students learn about each other's backgrounds and strengths and share their views on how to work effectively within teams, how to face common challenges in communication, task allocation and work contributions, and how to tackle issues caused by differences.

Each week the team upload their progress on their project on Blackboard. **The tutor provides weekly feedback on the discussion platform that is visible to all groups.** The feedback is reinforced in the following week's lecture and seminar. The focus of team-based learning activities is on learning progress with the support of the tutor's timely formative feedback, as well as collaborative learning within informal learning teams. These are valuable opportunities for students to support each other and learn together. Also, **small tasks every week act as a scaffolding that prepares those students who have little experience carrying out a research project.**

Source: Wang (2022)

There is no one 'right' way to assess group work and the development of team skills. Whether to assess the products or processes of teamwork, and whether this should be by tutors or by the student team members, through self- and peer-assessment, or some combination of these methods, depends on the institutional, disciplinary and module contexts as well as the nature of the student cohort and aims of the tutors involved. Whatever approach is adopted, the details and rationale must be clear from the outset.

6. Inclusion and diversity

“Group work approaches that consider diversity and promote equitable participation by all students, enhance the culture of the learning environment and are more likely to lead to productive group interactions.” (McPherson et al., 2019, 1)

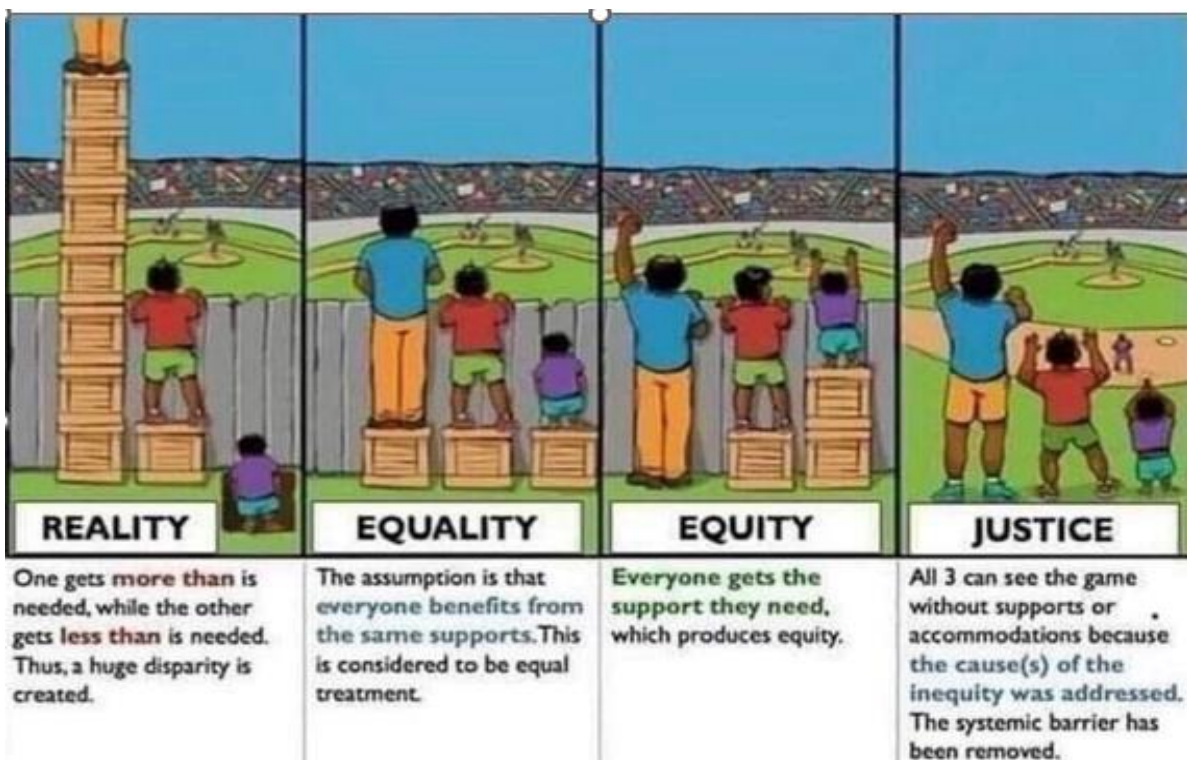
Equality, equity and justice

The UK has enacted **equality legislation to safeguard the interests of staff and students with certain protected characteristics**. These characteristics are age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, sex, sexual orientation, and religion and belief. As in current disability equality legislation, it is permissible to treat a disabled person more favourably than a non-disabled person. It remains lawful to make reasonable adjustments concerning employment, education and services to ensure that there is true equality of opportunity for disabled people (Equality Challenge Unit, 2010). **Inclusivity also includes welcoming cultural diversity** and the differences in the lived experiences that serve to differentiate collective populations from one another.

Developing an **inclusive curriculum** is about:

- Designing effective and varied learning, teaching and assessment practices for *all* students.
- Focusing on learner *differences*, not learner *difficulties*.
- Valuing and working with *differences* to enrich learning for all.
- Making adjustments which are good teaching and learning practices to benefit *all* students.

Hence developing **inclusive working in groups** is more about promoting equity and justice than upholding equality.



Reality: Some people have greater access to different spaces and resources than others based on their identity e.g. gender, race, disability, sexual orientation etc.

Equality: Treating people the same, but not everyone needs the same support, some people need more, and some people need less

Equity: People are given the support that they need

Justice: Removing the barriers that people require support against in the first place.

An interesting recent study has explored a novel **Peer Assessment Fairness Instrument** to explore factors driving students' perceptions of fairness during group work processes based on **concepts of justice** (Rasooli et al., 2024). They argue that:

"... the efficacy of peer assessment for facilitating fair group-work processes can be defended if students perceive that they have (a) been treated respectfully by peers (i.e. interactional justice ...) (b) received their deserved grades based on their group contributions (i.e. distributive justice ...), and (c) had classmates enacting professional groupwork procedures (i.e. procedural justice ...)" (p.3).

Staff need to take account of the diversity among the students that they teach, particularly as in teamwork these can affect the social dynamics of the group. Classes taught by the same member of staff can vary significantly in the nature and extent of their diversity. For example, a Masters' course may consist primarily of international students; whereas an undergraduate course may be primarily populated by domestic students. The length of time available for the group project affects the ability of tutors to respond to the diversity within their classes.

"Student diversity (e.g. differences in backgrounds, learning approaches) presents a particular challenge to temporary or short-term groups where there may be less time and opportunity to negotiate differences and achieve high levels of cohesion. It should not be surprising, then, that in such circumstances, more homogeneous groups of students report higher levels of motivation and success" (Lizzio & Wilson, 2005, 375).

It is important **to avoid 'othering' and stereotyping** groups by labelling them by their characteristics (e.g. age, race, disability, gender, class, international, first nation). This can lead to individuals with the same characteristics being treated as if they are the same. **Individuals have multiple categorisations**, which can lead to as many intra-group differences as there are similarities. Rodriguez-Knutsen (2023) points out that such **intersectionality** can have a profound impact on people's life experiences. For example:

"... although a white woman and a Black woman might both experience bias based on their gender, a Black woman may experience additional bias based on her race. However, if this Black woman comes from a wealthy background, she might receive additional opportunities that a low-income white woman might not – though this won't erase the inherent biases she'll experience based on race, gender, and other possible factors."

Rodriguez-Knutsen argues that **intersectionality matters because it "helps us assess the difference between equity & equality** and analyze how different forms of oppression and inequality reinforce one another."

Supporting individuals and teams through challenges linked to diversity

"A fundamental way of reducing the barriers various groups of students tend to experience when confronted with a course where team work is a critical component is to ensure that *all participants feel included, understood, and guided through the trials and tribulations of working with people they do not know well and might not trust yet.*" (Flores & Bauman, 2024, 89, 91).

Individuals and teams are likely to have *different* learning development journeys as they experience working with students with different histories, identities and skills. Flores and Bauman (2024) identify a four-stage approach to achieving a supportive learning environment (Box 7).

Box 7. A four-stage approach to achieving a supportive learning environment for teams

*Step 1. Reconceptualizing **diversity and others' humanity*** – Building an inclusive environment begins by avoiding simplistic conceptualizations of diversity that I touch on above. Adopting a **process-oriented approach** emphasises that every interaction in the team is between multidimensional human beings “acting and interacting within a context of history, cultural norms, power relations, and social institutions rather than as unidimensional representatives of (demographic) categories” (Litvin, 1997, 206).

*Step 2. Explicitly confronting **marginalization*** – Marginalization can affect academic performance and well-being. By purposively confronting these social outcomes can minimise some of the negative team dynamics between marginalized and non-marginalized students.

*Step 3. Embrace an **inclusive pedagogy*** – This can lead to improvement in the performance of marginalized students. For example, **decolonizing the curriculum** creates “spaces and resources for a dialogue among all members of the university on how to imagine and envision all cultures and knowledge systems in the curriculum, ... what is being taught and how it frames the world” (Keele University, 2019).

*Step 4. Developing **intercultural competencies*** – This can help individuals work with others in their team who are somehow different from themselves. Facilitating these personal development journeys is complex, time-intensive, and challenging.

Source: Based on Flores & Bauman (2024, 91-95)

“... educators must proactively and consistently learn to facilitate these types of inclusive and interculturally effective interactions to ensure *the likelihood of achieving team work learning goals for all*” (Flores & Bauman, 2024, 95).

Here I will look at two illustrative examples of supporting equity and intercultural groups to undertake teamwork – disabled students and international students. Many of the principles discussed apply to students with other protected categories and other marginalised groups.

Supporting disabled students to undertake teamwork

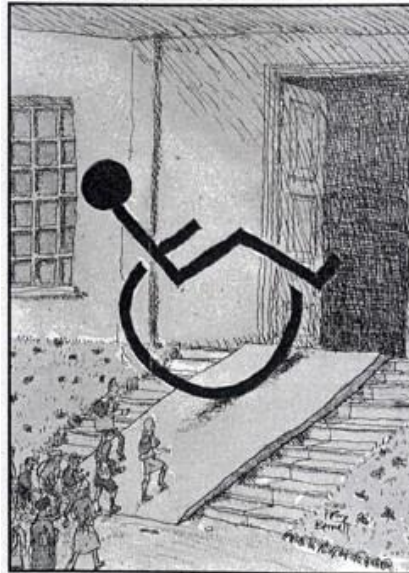
An inclusive approach to supporting disabled students undertaking teamwork **attempts to remove the distinction between teaching and assessing disabled and non-disabled students**. It follows a social model of disability rather than a medical model, in that it emphasises that people are disabled by barriers in society, not by their impairments or differences (Fuller et al., 2004). Far fewer adjustments for disabled students would be required if learning, teaching and assessment were designed to be inclusive from the beginning.

Synthesising the findings from four different research projects on the learning experience of disabled and non-disabled students in higher education, Healey et al. (2006, 41) conclude that:

“In terms of learning needs it is **invidious to treat disabled students as a separate category**; rather they fall along a continuum of learner differences and share similar challenges and difficulties that all students face in higher education; sometimes the barriers are more severe for them, but sometimes not.”

They go on to argue that **in the long term, the main beneficiaries of the disability legislation that HE providers need to make suitable adjustments in advance are the non-disabled students**.

“One unintended consequence of this (disability) legislation is that as departments and institutions introduce more flexible learning and alternative ways of assessment for disabled students, demand is likely to rise for giving greater flexibility for all students. **Disability legislation may prove to be a Trojan horse** and in a decade, the learning experiences of all students may be the subject of greater negotiation” (Healey 2003, 26).



Several suggestions for designing group work to support disabled students are displayed in Box 8.

Box 8. Designing group work tasks for inclusivity for disabled students

The group work task should be designed for everyone, so think about the differing needs of students while you are in the design stage rather than as an add-on later. Some points to consider in your design:

- Allow extra time for reading (this may be needed for students with dyslexia, fatigue/pain or ‘brain-fog’ due to medication or poor mental health).
- Allow extra time for thinking (this may be needed for students with dyslexia, dyspraxia etc.).
- Allow student groups a choice of modes of communication, both synchronous and asynchronous, for a particular task. The best choice for a group will depend on the individual needs of the students in that group (different things may suit students with hearing impairment, visual impairment, or dyslexia). There are lots of different tools for sharing: Dropbox, One Drive, Google Docs, Adobe Connect, email, Microsoft Teams, Zoom, Facebook, wiki, and VLE Moodle workshop tool.
- Allow plenty of choices wherever possible.
- Make the time frame for the task long enough to enable groups to choose different modes/times of interaction.
- If the group will be creating/sharing content, they may need some basic training on making something accessible e.g. writing figure descriptions, colour redundancy/colour contrast, size of text, copying and pasting in a graph rather than putting in as a screenshot or an image. For example, if the group is creating a video, they may need to learn how to use YouTube subtitles.
- Order the tasks such that one person isn’t held up by waiting for someone else to produce their output, as far as possible. Knowing others are waiting for you can be anxiety-inducing for some students, whilst waiting for others may be anxiety-inducing for other students.
- Design tasks so that if one student chooses not to participate then it doesn’t disadvantage the rest.
- If the task includes a presentation element, allow students to choose who does it.

Source: Based on Open University (nd, 1-2)

This is an area in which Artificial Intelligence (AI) is having a significant impact. For example, students with dyslexia, dyspraxia, and attention deficit hyperactivity disorder (ADHD) can struggle with written assignments. AI chatbots, such as Jasper, can help these students tidy up both the structure and spelling of their written work (Schutz, 2024).

Box 9. Dimensions of the Interaction for Learning Framework for enhancing interaction between domestic and international students

(1) Planning interaction

Planning interaction involves academic staff including peer interaction activities in the design of their subject. It is the linking between the learning outcomes and planned teaching and learning activities that draw upon student diversity to develop subject knowledge and skills in working across cultures. The framework recognises the importance of assessment in developing a purpose for interaction between domestic and international students.

(2) Creating environments for interaction

The focus in this dimension is on the strategies that can be used to increase students' participation in the first weeks of classes. The main goals are to develop students' confidence in interacting with other students from diverse cultural and linguistic backgrounds and to provide opportunities for students to move out of their cultural comfort zones.

(3) Supporting interaction

In this dimension, learners are informed about the expectations and benefits of working across different cultural and linguistic groups for their learning. Its main purpose is for students to understand the value of peer interaction and to set up the ground rules and expectations for learning tasks. Helping students understand the value of making these connections to enhance their own learning is a critical component of the framework.

(4) Engaging with subject knowledge

The first three dimensions are important in preparing domestic and international students to work together. The main purpose of this dimension is to use linguistic and cultural diversity to engage with subject knowledge. This may include drawing on different skills, learning strategies and cultural experiences to co-construct subject knowledge.

(5) Developing reflexive processes

In this dimension, learners move beyond individual understanding so that they can utilise the knowledge base available within the community of learners. The key objectives of the fifth dimension of interaction are to promote higher levels of interaction and cognitive engagement through peer feedback and assessment to enhance students' critical thinking and reflection on their learning.

(6) Fostering communities of learners

In this dimension, learners demonstrate independence and are able to move across different cultural contexts. The main purpose of this dimension is to use diversity as a resource for independent learning between domestic and international students.

Source: Arkoudis et al. (2010, 5)

Supporting international students to work with domestic students in teams

The growth in the number of international students in UK higher education means that understanding **cultural differences** between students from different countries and between them and domestic students, as well as possible differences in the Mastery of English, is critical in designing inclusive

experiences for all, particularly in group work (Turner, 2010). Arkoudis et al. (2010) have developed an **Interaction for Learning Framework** that suggests responses to the challenges faced by teams containing a mixture of domestic and international students (Box 9). Their report includes many useful examples of practical experiences of encouraging these interactions using different group pedagogies (Box 10).

Box 10. Group projects, with knowledge of different cultures as a core component of the project

Group projects are commonly employed by academics to facilitate peer learning, and such projects can also be purposefully designed to enhance peer interaction among students from diverse cultural backgrounds.

Example: Patrick, an academic teaching a postgraduate course in consultancy, has students undertake research projects in teams. The teams are formed to include students from diverse cultural backgrounds. As a group, the students identify 'clients' – industry or other partners outside the university – and work with them to understand a particular 'problem' worthy of research. International students are also encouraged to select data or research problems from their home countries. Each group needs not only to draw on the relevant data from the organisation but also to explore the relevant context for the problem. In this way, many students are exposed to unfamiliar cultures. Each student has a specific and significant role in the project, yet the project also requires collaboration throughout the whole process, from data collection to analysis and reporting. Patrick notes: *Students are very pleased with the experience as they interact with peers and clients from diverse backgrounds and learn about different cultural perspectives.*

Source: Arkoudis et al. (2010, 16-17)

In Anglophile countries, such as the UK, North America and Australasia, **the cultural norm is individualistic** and many students are used to asserting their views. Debate, interaction, and expression of opinions are encouraged (University of Bradford, nd). **In many Eastern countries, the culture is more consensual and collectivist**, and students learn by imitation and observation. "To air one's unformed opinions on a half-understood subject can seem like the height of arrogance to a student from such an educational background" (University of Bradford, nd, 18). The University of Bradford (nd) report goes on to suggest that:

"Most international students with little previous experience of group work in education are driven hard by their need to succeed, and most will make a determined effort to fit in with the cultural norms of the host country and with their allocated group" (p.18).

This may apply where the international students are in a minority but is less so where the majority of students on a module come from the same overseas country, such as China. The report continues:

"This process of adjustment can be eased by all students being aware that their peers may share very different experiences of group work. It should not, therefore, be assumed that a quiet member of a group has nothing to say, or is opting out of the discussion. It may be that their previous experience has not prepared them for this new situation - and they need time to weigh it up. For this reason, it is often a useful experience for students to share their cultural experiences of group work at an early stage of group formation" (pp.18-19).

There is, however, a danger that some of the points discussed above may give a stereotypical view of cultures, as **the differences between individuals within both Western and Eastern cultures are as**

great as they are between the cultures (Ryan & Carroll, 2005). By adopting an inclusive approach to supporting equity and intercultural groups:

“... we will also be more generally inclusive of a broader range of learners. Students with little family experience of higher education, mature students, students with disabilities, students from disadvantaged backgrounds and Indigenous students may face similar difficulties [to international students]” (Ryan & Carroll, 2005, 6).

7. Working in groups face-to-face, online or blended

“All teachers and trainers in online or in blended situations need to understand that creating successful networking for learning is not merely about the choice of technology but also about critical human skills and understanding.” (Jaques & Salmon, 2007, 277)

Before the COVID-19 pandemic, most group work in universities took place **face-to-face**, where students got together for a specific time at a specific location. For group work, there are many benefits of face-to-face working. Students can communicate with each other and their tutor purposively and intensively. “The ability to meet in person, observe body language, discuss project details, receive immediate feedback, and resolve conflicts positively impacts the team process” (Flores & Bauman, 2024, 55). There is evidence that teams working face-to-face are more successful than online teams. For example, one study found that face-to-face teams scored higher average marks than those online (Barak & Usher, 2019), while another found that regular face-to-face meetings proved to be a predictor of success in undergraduate software engineering groups (Jacob & Faily, 2019). However, caution is needed in interpreting these findings, as both studies were undertaken pre-COVID-19, students have since become much more used to working in groups online, and the communication tools have improved.

With the onset of COVID-19, virtually all courses went **online** and many tutors and students had to learn for the first time how to work effectively in groups in an online environment where learners are not physically present. The experience of tutors who already taught distance learning courses online was in high demand. The main advantage cited of online courses is their flexibility, where students can join in anywhere and anytime with a computer and internet connection. Students working online **synchronously** can talk with tutors and team members via Teams, Zoom, or other video conferencing software, and use chat rooms and break-out rooms. **Asynchronous** participation using discussion boards gives students time to read, reflect and edit their responses before uploading them. However, it delays group decisions and makes it more difficult to engage in discussions and brainstorming. The use of a collaborative web platform, such as Padlet, can support active blended learning both synchronously and asynchronously.

Post-pandemic, many courses returned to face-to-face mode, but combinations of online and face-to-face learning have become increasingly popular. These may take a variety of forms (Panopoto, 2021). Although they are sometimes all referred to as forms of **blended learning**, strictly speaking, blended learning combines traditional face-to-face sessions with *supplementary* online learning outside the classroom. With **hybrid learning**, some of the face-to-face sessions are *replaced* by online learning. There is some evidence that suggests such combinations may achieve a higher level of team collaboration than a fully online approach (Lim & Yoon, 2008), but technological advances in communication may have changed that finding. Another form of learning is **hyFlex learning** (an abbreviation for hybrid and flexibility). In this mode, students can choose whether to participate face-to-face, online synchronously, or online asynchronously, and they can switch between these modes. Hyflex group work offers students more options for communication but has the same drawbacks as online groups and causes uncertainty as to which mode of communication team members are going to choose for any particular meeting.

A recent review of the nature of online learning pre-, during, and immediately post-COVID-19 warns that

“merely forming a discussion group, providing reading materials, assignments, and the technology for it to function does not lead to a deep and meaningful learning experience. To enhance students’ learning in an online learning environment, instructors need to create an

effective learning community where students feel connected with their peers and the faculty/teacher, and engage in well-designed collaborative learning assignments/tasks” (Singh et al., 2022, 157).

The importance of socio-emotional interactions during online collaborative work is also emphasised in a study of the impact of COVID-19 on four cross-disciplinary team projects at TU Delft (Kalmar et al., 2022). These findings reinforce the need to include interactive and social opportunities as important aspects of instructional design in online group projects (Vogel & Wood, 2023).

Many of the articles on the **student and tutor experiences of group work in online and blended environments** raise similar concerns to those expressed by students in face-to-face contexts, including absent group members, free-riders, personality clashes, students working cooperatively rather than collaboratively, unfairness when all students receive the same group mark. Much of the advice they give for responding to these challenges is also similar, including motivating students by designing authentic projects, training students to work effectively in groups, fostering an understanding of diversity, and redistributing group marks between team members to reflect the quality of their work (Donelan & Kear, 2018; Hilliard et al., 2020; Matthews-DeNatale et al., 2024; McKay & Sridharan, 2024). For example, a recent review of the literature on the challenges and implications of online group projects found that

“Key challenges were: low and uneven participation by students; a lack of clarity and preparation for students; and poor relationships. Strategies for addressing challenges were: careful design of projects, particularly regarding fair assessment; clear guidance and preparation of students; and practical and emotional support throughout, to encourage confidence and engagement” (Donelan & Kear, 2023, 1).

However, we need to pay attention to Baran et al.’s (2013) warning against replicating face-to-face teaching practices when teaching online; and heed the argument that the **shift to online and blended learning is a paradigmatic shift** in higher education (Thomas & Thorpe, 2019). Among the differences are the need to recognise the greater importance of peer-facilitated learning in online environments (Jaques and Salmon, 2007; Thomas & Thorpe, 2024); and the need for the tutor to “be incredibly proactive in guiding, supporting, and providing feedback to relentlessly helping each team to work productively” (Flores & Bauman, 2024, 120).

It is widely recognized that in a virtual learning environment, merely forming a discussion group, and providing reading materials, assignments, and the technology for it to function does not lead to a deep and meaningful learning experience. To enhance students’ learning in an online learning environment, instructors need to **create an effective learning community** where students feel connected with their peers and the faculty/teacher, and engage in well-designed collaborative learning assignments/tasks (Singh et al., 2022, 157).

Thomas & Thorne (2019, 69) conclude that “with appropriate training and support for teachers and peer facilitators, online group work may be part of the pedagogical solution for encouraging deep approaches to learning in large-scale, online-learning environments.” Some suggestions for staff and students organising online group work are listed in Box 11.

Box 11. Suggestions for staff and students organising online group work

- Remember that **online teamwork is always teamwork**; hence, most of the advice for developing face-to-face groups also applies to online groups.
- **Rethink the role of the teacher and the student.** Online student groups have a greater degree of autonomy, peer learning is more important, and teachers need to play more of the role of facilitators.
- Provide clear, explicit purposes or objectives for all group work ensuring there is a clear **constructive alignment** between the course learning outcomes, teaching methods and assessment methods (Biggs et al., 2023).
- Clarify **roles and responsibilities** for all participants. This could be part of the ground rules team members agree.
- Effective teams **regularly reflect** on how they are going about tasks and supporting each other socially.
- Agree on what **technologies** team members are going to use to communicate with each other and that everyone has access to them and is comfortable using them. Recognise that online communication is not the same as face-to-face communication, particularly if some of it is asynchronous.
- Equip online group facilitators with a **toolkit of strategies** to allow group members to communicate effectively and establish an effective social presence.

Sources: Based on: Baran et al. (2013); Hartley et al. (2022); Jaques & Salmon (2007); Thomas & Thorpe (2019, 68); & University of Westminster (nd c)

8. Pedagogic approach

“... all of these forms of small-group learning promote active engagement in learning and student-to-student interaction in small groups, resulting in enhanced student motivation and achievement and the development of critical- and creative-thinking capabilities. Proponents of any small-group learning approach have much more in common with one another than with proponents of passive learning modalities such as the lecture.” (Davidson & Major, 2014, 45)

Group learning is central to many different pedagogies, including **inquiry-guided learning** (Lee, 2012), **research-based learning** (Healey & Jenkins, 2009), **problem-based learning** (Savin-Baden & Major, 2004), **cooperative learning** (Johnson et al., 1991), **collaborative learning** (Panitz, 1999), **team-based learning** (Michaelson, 1992), and **Student-Centred Active Learning Environment with Upside-down Pedagogies (SCALE-UP)** (McNeil et al., 2017) (Box 12). All are examples of **experiential** (Healey & Jenkins, 2000) and **active learning** (Healey & Healey, 2020); although each approach has developed separately and differs in philosophy and approach.

“The challenge is that **there are so many approaches that making a choice can be daunting**, and, at times, it can be difficult to make distinctions between the myriad variations of specific group-learning approaches” (Davidson & Major, 2014, 8).

Box 12 Team-based learning (TBL) and Student-Centred Active Learning Environment with Upside-down Pedagogies (SCALE-UP), UK

Nottingham Trent University (NTU), Anglia Ruskin University (ARU), and the University of Bradford (UoB) undertook a joint project on *Scaling up Active Collaborative Learning for Student Success*. Whereas ARU and UoB both used TBL, NTU used SCALE-UP.

TBL is an active, collaborative learning and teaching strategy which uses a particular sequence of individual study, group work, immediate feedback, teacher-facilitated discussion and debate to create a motivational framework for students' learning. TBL takes a **flipped approach** to learning, with students being provided with or directed to learning resources to engage with before formal classes. The incentive to engage with the pre-class content comes from a readiness assurance process (RAP), which includes a short summative individual readiness assurance test (iRAT) immediately followed by an identical team test (tRAT) to foster discussion, debate, and peer learning. Students and academic staff receive immediate feedback on team performance, allowing a focused class discussion on any troublesome course concepts. The majority of class time is dedicated to application exercises where students learn how to use their new knowledge to solve authentic, real-world problems, make collaborative team decisions, justify their decisions to other teams during discussion, and debate, all facilitated by an academic teacher.

SCALE-UP is an active, collaborative mode of learning which offers an alternative to didactic and discursive pedagogies like lectures and seminars. In SCALE-UP, lectures are replaced by problem-solving and enquiry-based activities carried out in strategically assigned groups. To foster collaborative learning, the re-designed classroom environment incorporates circular tables and technologies to enable students to share their work in small groups and in 'public thinking' spaces. These elements are supported by '**upside-down pedagogies**' such as **flipped learning, peer teaching, and rotating group roles**. The shift away from lectures frees up class time for students to focus on the more difficult aspects of the material, to work at their own pace, and to receive on-the-spot feedback on their work from peers and the tutor.

Source: McNeil & Borg (2019)

Hence it is not surprising that many small group learning activities have developed in higher education *without* explicit reference to an underlying pedagogic framework. As argued in the quote at the beginning of this chapter, there is plenty of evidence of the effectiveness of these active approaches to learning, whether underpinned by explicit theoretical frameworks or not, compared to passive approaches (Healey & Healey, 2020; Kuh, 2008).

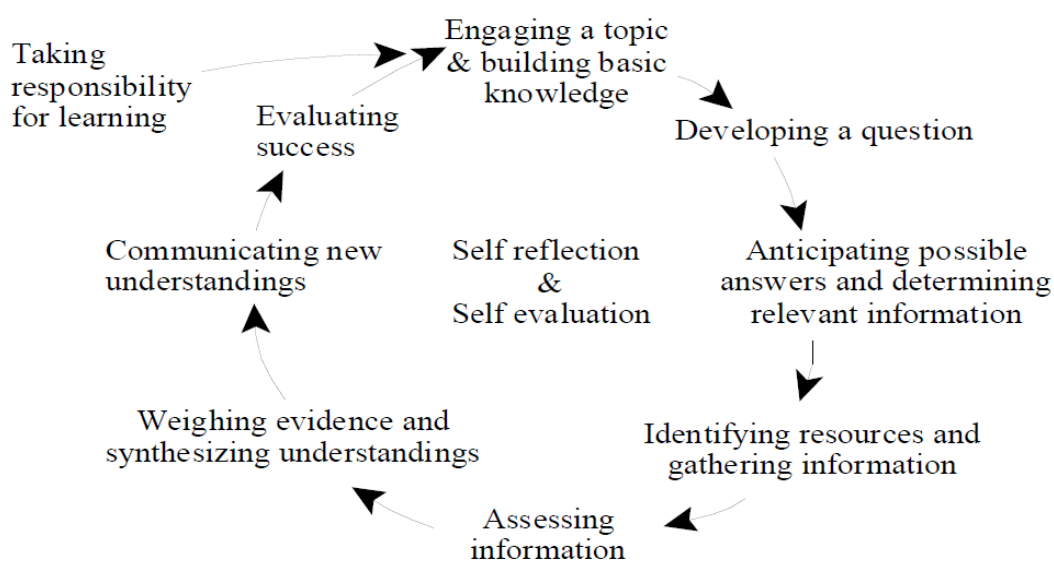
Group learning in projects

As I noted in Chapter 2, our primary focus is on students undertaking projects in groups, though many of the arguments apply to other forms of group learning (Richter et al., 2021). This may include a variety of approaches, including **inquiry-guided learning, research-based learning, and project-based learning**. Learning in groups is central to these approaches, although some learning activities may be undertaken by students individually. Although each approach has distinct elements, the three approaches overlap, particularly in the skills developed in their application. However, there are differences in how they are defined in the literature, and sometimes the terms are used interchangeably (Guo et al., 2020; Healey & Jenkins, 2009; Lee, 2012; Levy & Petrulis, 2012).

Here I use the term **inquiry-based learning (IBL)**, as a generic label incorporating all three approaches as a pedagogy that “enables students to experience the processes of knowledge creation (Spronken-Smith, 2008, 1). The main components of IBL are illustrated in Figure. 4. The focus of the activity may be on one or two of these components (e.g. identifying a research question or collecting and analysing information), but I suggest that students should be taken right through the process at least once a year and not leave it until the final year project or dissertation to go through all the stages.

IBL may be used as an alternative to attending a lecture(s), for students to learn about **existing knowledge which is new to them**. It may also be used for students to undertake research, where they are **creating new knowledge for society** (Levy and Petrulis, 2012). There is evidence that a well-designed IBL course may have beneficial impacts on student learning. Staff should also reflect on the experience of running IBL projects and make changes as appropriate. Powell et al. (2008) discuss what they learnt from three successive implementations of the same IBL course, including the importance of “the students’ perceptions of the activity; engaging and maintaining the students’ motivation; and how embedded the activity is in the curriculum” (p.1).

Figure 4. The inquiry process



Source: Justice et al. (2007a)

Examples of group-based project learning activities across the curriculum follow, covering the use of IBL in induction (Box 13), in a final-year capstone environmental consultancy project (Box 14), and in an Engineering Masters course design project with the brief to produce a working prototype of their invention (Box 15). An interesting set of Irish case studies that contrast the experiences of inquiry and problem-based learning has been compiled by AISHE (Barrett et al., 2005).

Box 13. Students undertook small group projects during induction at the University of Gloucestershire, UK

In 2007 over 650 students in the Faculty of Education, Humanities and Science undertook **discipline-based inquiry projects during induction week**. This involved them working in small groups to collect information from the library and the field, analyse it, present it to tutors in novel ways, and receive formative feedback. For example, the human geographers and the sociologists researched the experience of Gloucester residents of 'the Great Flood of 2007'. The Biologists and the Psychologists investigated primate behaviour at Bristol Zoo, while English Literature students visited an arboretum and explored the use of trees in literature. Social and academic activities were integrated, **the students and staff had fun, and, importantly, they made friends, all before going to their first class**. The approach was developed and initially supported, by the Centre for Active Learning. Other Faculties in the University developed their versions of developing undergraduate research as part of induction. It also proved a significant staff development activity for both the academic tutors in designing inquiry-led activities and the library staff who changed their approach to library induction to support the specific student research projects.

Source: Healey & Jenkins (2024, 99)

Box 14. Giving students first-hand experience of research-based consultancy in environmental management at the University of Queensland, Australia

Inquiry-based learning in teams is used in the final year capstone course for the Environmental Management, Rural Management Environmental Tourism and Tropical Forestry degrees at the University of Queensland's Faculty of Natural Resources, Agriculture and Veterinary Science to give students experience in **research-based consultancy**. It is a year-long course, team-taught by an interdisciplinary staff (in recent years, a social scientist and an ecologist for the internal students, a multi-skilled environmental manager taking the external students). The staff solicit suitable 'problems' and clients among their contacts, for instance from government agencies, non-governmental organisations, land care groups, or the private sector. The staff may help the client mould the topic to achieve appropriate degrees of difficulty, and equity in workload and difficulty across the student groups. The students work like consultants to their clients, coping if the client changes the brief during the year (as many do a couple of times). They work in groups of about six students. The clients come to campus at least three times, for an initial briefing to their students, and presentations at the ends of the first and second semester. They liaise with the students all year, usually off campus at their offices, and by phone and email. The staff give a flexible program of lectures in the first semester, to prepare the students with skills they need towards each forthcoming step of their tasks, and in group processes. At the end of the year, their report is 'published' (printed and bound) for the clients. Peer and self-assessment are used to distribute group marks among the contributors.

Source: Healey & Jenkins (2024, 44)

Box 15. Group-based integrated Masters' project to develop professional mechanical engineers at the University of Manchester, UK

At Manchester, the Year 4 group design project aims to **treat the students as professional engineers with the brief to deliver a successful working prototype of their invention**. Students are allocated to groups of 5 to 6 according to their position in the previous year's class list. At the end of week 1 of the year, each team perform a 'Dragon's Den' style pitch to tutors to make the case for their preferred project from a list of eight to ten project briefs (e.g. design in plastic to help to alleviate the suffering of disaster victims; low energy log splitter; or portable coffee maker). The next task is to make an oral presentation in Week 5 describing the basic idea that the group is working on, and bidding for a budget to build the prototype. This is typically £300 to £600 and excludes the cost of technician time or indirect University overheads. Tutor support is provided throughout the two semesters during the weekly Friday afternoon sessions. In weeks that do not have a formal presentation event, the tutors see each group individually to coach, probe, act as clients and provide advice as necessary.

Assessment is based on:

- Semester 1, week 5 oral pitch to convince the tutors that they have a good concept design and can justify their budget request (10%).
- End of first-semester evidence that they have engaged with the technical staff, finalised their designs, purchased the necessary items and managed their budget (10%).
- Demonstration of the working prototype in week 9 of the second semester (40%).
- In week 10 the groups must submit user and technical manuals for their device (25%).
- 500-word individual reflective commentary with the central question: 'What did you learn that would make your next project more successful?' (15%).

An element of peer assessment involves the groups undertaking anonymous assessments of their teammates twice in semester 1 and twice in semester 2.

Source: Healey (2024, 53)

9. Disciplinary context

“When faculty members begin to look seriously at their own teaching and their own students learning, they bring their disciplines’ intellectual styles and resources to the task.” (Huber, 2006, 69)

Disciplines may be conceptualised as providing **distinct ways of thinking and practising** that are “not confined to knowledge and understanding” but also “take in skills and know-how, [and] an evolving familiarity with the values and conventions governing communication within the relevant disciplinary and professional community” (Hounsell & Anderson, 2009, 72). Disciplines have distinct approaches to their research and pedagogy that reflect their subject matter, and many have signature pedagogies, for example, using laboratories in the sciences and studios in art and design subjects (Healey et al., 2023).

Disciplines are not, however, unique, and there are many **commonalities between disciplines**, for example, similarities in teaching methods, such as the use of lectures and small group work projects (Healey et al., 2023). Nevertheless, how group work operates in a laboratory and a design studio differs in some respects reflecting how knowledge is constructed in the sciences and the arts. In one study of **group work in the laboratory** (Magin, 2008), it was observed that a significant amount of time, and sometimes the majority, was taken up with activities related to group processes, including:

- “decision-making in planning; sharing information and communicating ideas on the nature of the problem and determining what information sources were required;
- allocation of responsibilities - who does what in the conduct of the experiment;
- resolving differences of opinion concerning the interpretation and validity of results obtained;
- deciding whether further measurements or a 're-run' of the experiment were required, and determining the general form of their reporting of the experiment” (p.107).

In contrast, in a study of a 12-week **group project in an architecture design studio**, some differences were noted from projects in many other disciplines (Sober, 2009). These included that in many cases there was a live project with a real client; and, although most of the module was student-led,

“One of the key strengths of art and design learning and teaching in a studio environment is the frequency of formative feedback and it is naturally important that after each team meeting more traditional tutorial sessions still take place” (p.2).

A word of caution is needed here. **Simply putting students in small groups in a laboratory, a studio or any other learning environment does not mean that the students will learn either knowledge or skills;** that depends on the quality of the learning design and the appropriateness with which it meets the local context.

Much of the literature on group work and developing teamwork skills is in the business area; these are important topics also for other subjects. The takeup of different teamwork pedagogies also has a discipline dimension.

“Collaborative learning has been used mostly in the humanities, some in the social sciences, but rarely in other sciences or professional programs. Cooperative learning has been used mainly in the sciences, mathematics and engineering, the social sciences, and professional programs. PBL in various forms has been used across the board, but in its pure forms, it has been used most extensively in the health professions” (Davidson & Major, 2014, 9).

Some teamwork methodologies are associated with particular disciplines. For example, **Scrum** is an agile methodology developed in technological businesses that has been adapted to interdisciplinary professional courses in computer science in recent years (Persson et al., 2011), though it has also been used in the humanities (Jurado-Navas & Munoz-Luna, 2017). It is a process used to enhance **project-based learning** in which students, in teams of 4 to 9 members, can learn to self-manage their time and resources for meaningful learning. Following the principles of students as partners (Healey et al., 2014), students are given significant autonomy in deciding how to solve the problem set. The students take on roles associated with real-world scenarios. The '*product owner*' is the teacher who proposes the topic to be worked on by the students. The '*scrum master*' is the student leader of each team who facilitates communication between group members and the teacher, and plans the team meetings. The role of the scrum master usually rotates among the different group members. Within a scrum framework, project development is an iterative incremental approach emphasising continuous improvement conceived as a succession of short fixed work cycles called '*learning sprints*' (every 1-4 weeks) with regular progress meetings (daily or 2-3 times a week). The latter are stand-up meetings to encourage brevity (Figure 6).

Figure 6. Stages and features in a scrum methodology



Source: Jurado-Navas & Munoz-Luna (2017)

Below I illustrate some examples of how group work has been used in IBL in languages (Box 16), broadcast journalism (Box 17), History (Box 18), Biosciences (Box 19), and Mechanical Engineering (Box 20). Thorley & Gregory (1994) have collected together **case studies of group-based learning** from a wide range of disciplines and professional areas. A student-team-based project-led approach to engineering education is discussed by Powell & Weenk (2003). Examples from other disciplines may be found by searching the literature (Healey & Healey, 2023) and looking at the archived websites for the 24 UK Subject Centres (Healey, M. 2023).

Box 16. Language students work in teams on international market research projects at Leeds Metropolitan University, UK

For almost 15 years, all the final-year undergraduates on language degrees at Leeds Metropolitan University worked in teams of four over a full year to undertake **international market research projects on behalf of local businesses**, following project briefs prepared for them by the managers in those businesses. The students practise the skills they have developed in their course (applied languages, teamwork, time management, research, project management, data analysis, report-writing, presenting recommendations and so on) in an authentic commercial environment.

The students appreciate that they are not working on a case study but with actual products and professionals who teach them about expectations in a professional environment. Over the years, those products have included fashion jewellery, specialist woven fabrics, language services, bathroom equipment and even high-speed, crash-proof shutter doors. Students are particularly fascinated by the company or factory tours as, for many of them, it will be the first time they have ever seen behind the facade of a business. The employers also prize the experience as they get valuable research undertaken that can assist them with their strategic development of international markets.

Source: Healey (2024, 19)

Box 17. “Newsweek”: Authentic group work in Broadcast Journalism at the University of Gloucestershire, UK

In the Broadcast Journalism (BJ) program, “Newsweek,” **students ran their own multi-media newsroom** including radio, television and online news for an entire week. The experience used the learning cycle of action, reflection and progression over a concentrated period in a real-world setting, thereby increasing its impact.

Designed as a final assessment, “Newsweek” was the second part of a unit of learning. The first half consisted of lectures, seminars and workshops in a room incorporating radio and television studios. In this environment, students can try out various roles such as producer, reporter or presenter before applying to their peer colleagues for the role they would like to adopt during “Newsweek.” During the week the students produced ten 15-minute radio, television and online news reports. Students selected one program each from TV and radio plus an online story to put forward for assessment, providing a group mark worth 50% of the award for this unit.

The development of this assessment posed certain challenges. Colleagues were concerned about the academic rigour of the experience, and students were uncomfortable with equally shared group marks. Despite initial scepticism, however, this approach initially used only with final-year students, was taken up at the intermediate level in Broadcast Journalism and incorporated into the documentation for new courses in Journalism at the BA and MA levels.

Source: Jenkins & Healey (2012, 32-33)

Box 18. History students contribute research findings to a website at Victoria University, Canada

History 481: Micro History and the Internet, is a learner-centred and research-oriented course in which the main activity is primary archival research on various aspects of life in Victoria, British Columbia from 1843 to 1900. Initial course activities include orientation to the historical archives in Victoria and basic website creation skills. Students work in small groups on a research project and **the final research 'product' of the course is a website and not a standard research paper**. The course has been developed with the support of local community groups and another university. It is one of the international innovative examples of **digital history** where the web is used as a research tool and a means of disseminating research and developing student web skills. The course began in 2002 by John Lutz. Now it is augmented annually with the results of the research from this and related courses as well as contributions from members of the larger community.

Source: Healey & Jenkins (2024, 56)

Box 19. Students work in group laboratory projects in biosciences at the University of Leeds, UK

As one option for their **final year dissertation students work collaboratively**, in a team of 3-4, to undertake a programme of research, based either in their supervisor's laboratory or in the teaching laboratories. The format of the project varies between groups; they could all be undertaking similar studies or addressing different elements of a research question (e.g. using different techniques or pharmacological agents). The design of the studies and ongoing development of the project are decided collectively by the group. At the end of the programme of research, all data is shared, but each member of the group writes their dissertation and delivers their oral communication independently.

Source: Healey & Jenkins (2024, 77)

Box 20. Introducing students to staff research: Department of Mechanical Engineering, Imperial College, London, UK

This activity was a feature of the first-year course in Mechanical Engineering at Imperial College London.

- In January of their first year mechanical engineering students were divided into 10-15 groups of 4-5 students
- Each student group was given an **engineering 'artefact'** e.g. a safety razor; or the bottom frame of a bicycle
- In the next few weeks these student groups could knock on the doors of any of the department's research groups or staff, and ask questions around the issue of **'what research are you doing that might affect how this artefact will look like and function in around 5 years?'**
- At the end of the term all student groups presented a poster which provided a summary of their findings
- The poster session was held in a large public space in the department with some 700 attending; academic staff, support staff, postgraduates and first year and other students.

Source: Healey & Jenkins (2024, 80)

10. Roles of tutors, mentors and students

“The stance that students should ‘take responsibility for their learning’ does not necessarily mean that they should be left to their own devices or naïve capabilities to manage the group experience. ... a staff member’s role is not so much to directly guide student learning groups, but more to facilitate their capacity for self-guidance.” (Lizzio & Wilson, 2005, 377)

Group work involves managing relationships and **relationships are emotional experiences** (Healey, R. L. & France, 2022).

Too many tutors adopt a ‘sink or swim’ approach to managing group work. For example, team projects “are often assigned without providing students with the information or guidance needed to ensure a productive experience that allows students to develop the skills necessary to work effectively in teams” (Flores & Bauman, 2024, 71). **Group facilitator behaviours can, however, damage group work if they over-interfere.** Race and Brown (2000, 99–109) provides some practical suggestions for limiting the damage. For example, the main role of the facilitator is to ask questions rather than to give answers.

There is **no one best way of facilitating group work**. Tutors need to be prepared to play multiple roles at different points during the life cycle of a group project. I have already touched on some of these in Chapter 4 on Learning how to work in a group. Flores and Bauman (2024, 96-152) identify **four stages in the preparation and implementation of teamwork for tutors** who have the necessary resources (e.g. time, assistance and competencies):

1. Create and sustain a supportive learning environment for all
2. Structure and facilitate teams’ creation and evolution
3. Instruct teamwork theory and dynamics for sensemaking
4. Facilitate skills development cycles (practice-assessment-reflection)

Francis et al. (2022) express the different roles more simply in Table 5.

Table 5. Role of the lecturer at different stages of the group work process

Stage	Strategy
Before	Outline assignment expectations. Explain the assessment processes. Facilitate group formation: - Allocation of roles. - Communication strategies. - Conflict resolution.
During	Encourage groups to: - Set goals and allocate tasks. - Review progress. - Support resolution of issues if required. - Identify issues early to ensure positive learning outcomes. - Reflect on process, not just product.
After	Help students reflect on the experience and highlight strengths and weaknesses. Provide timely, meaningful feedback.

Source: Francis et al. (2022, 13)

Mentors may also be used to support student group work. They are commonly senior students who have taken the course previously (e.g. Capstick & Fleming, 2001). Many students in the sciences gain research experience in a tiered model, under the mentorship of post-docs, graduate students, and/or more experienced undergraduate peers (e.g. Hejmadi, 2008). The example of mentoring in Vertically Integrated Project programmes was mentioned in Chapter 2. Here undergraduate students are encouraged to work continuously on the same project (gaining academic credit) throughout their University career. The constant throughput of students means that new students joining the team “can build on the successes of, and learn lessons from, students who have gone before them” (Strahan et al., 2019, 1314). “Students mentored in a tiered team have reported appreciating a supportive environment for learning” (Shannan et al., 2015, 366). Sometimes staff may play the role of mentors (e.g. Lukes et al., 2023).

The amount of support that is desirable is dependent on many factors, including the length of the exercise, the previous experience of the participants, and the aims of the module. For example, in a 12-week project-based inquiry module, a three-hour session at the beginning dedicated to working in teams, with group work exercises, mentoring and feedback, built-in as the module proceeds may be appropriate (e.g., Cheruvelil et al., 2020; Healey et al., 1996).

It is often forgotten that the **student team members can support each other** to develop the skills of working in teams and to make their groups a success. Some of the exercises they can use are outlined in Chapter 4 (Gibbs, 1994). The **values underpinning partnerships** are detailed in Table 6. These were developed to support students working in partnership with staff, but many may also apply to students working with other students, though the design of the project or task is usually the responsibility of the member of staff and there are fewer power differences between students. It would be useful for teams to discuss which of the values might apply to their group at their first meeting along with agreeing on more practical ways of working as a group. Some of the agreed ways of working might be included in a group contract. Partnership values are also central to the *University of Westminster student partnership framework* (Araneta et al., 2022).

Table 6. Partnership values

Authenticity: the rationale for all parties to invest in <u>partnership</u> is meaningful and credible.	Honesty: all parties are honest about what they can contribute to partnership and about where the boundaries of <u>partnership</u> lie.	Inclusivity: there is equality of opportunity and any barriers (structural or cultural) that prevent engagement are challenged.
Reciprocity: all parties have an interest in, and stand to benefit from, working and/or learning in partnership.	Empowerment: power is distributed appropriately and ways of working and learning promote healthy power dynamics.	Trust: all parties take time to get to know <u>one-another</u> and can be confident they will be treated with respect and fairness.
Courage: all parties are encouraged to critique and challenge practices, structures and approaches that undermine partnership, and are enabled to take risks to develop new ways of working and learning.	Plurality: all parties recognise and value the unique talents, perspectives and experiences that individuals contribute to partnership.	Responsibility: all parties share collective responsibility for the aims of the partnership, and individual responsibility for the contribution they make.

Source: Higher Education Academy (2015)

It may also be useful to explore **partnership core considerations** in developing a group project (Table 7).

Table 7: Partnership core considerations in developing a group project

1. **Assumptions and expectations:** Partnership can be practised in a range of ways depending upon the aim of the engagement, the time available, and the contextual constraints. There is no 'perfect' partnership no matter how experienced the partners may be. Consider the different assumptions and expectations of all parties and work towards a common understanding of what to expect within your partnership.
2. **Power relations and hierarchy:** Higher education identities, learning and teaching relationships, and individual motivations to participate in a partnership are all entwined with power relations and hierarchies. Power differentials may not be overcome entirely, but we can discuss ways in which all parties might 'push back' against them.
3. **Diversity and inclusivity:** There is no single student experience, individual experiences are influenced by their contexts, e.g. age, gender, ethnicity, disability, class, etc., we can potentially learn most from those students who are marginalised because they are often the students we hear from least. Consider how to embed flexibility into your partnership practices to enable students from diverse backgrounds to engage (e.g. working arrangements and sharing of views).
4. **Emotions, attitudes, and behaviours:** Partnerships are fundamentally about relationships; as such they are emotive experiences. Like all relationships, vulnerabilities may be laid bare and there is the potential for conflict. Consider how partners will manage both the positive and negative emotions that may emerge through the course of a partnership and plan approaches to addressing conflict.
5. **Time and commitment:** The timeframe of a partnership activity may be limited by external factors such as budgetary constraints (e.g. funding amount and/or completion required within the financial year) or the timetable (e.g. length of session and/or nature of room). But most commonly time is a factor in terms of what people feel able to give. Typically, people find time for things they believe to be important. Consider the variable amounts of time all parties can commit to the partnership to enable the goals that are important to them to be achieved.
6. **Appropriate recognition and reward:** Partnership can occur at many different scales, from an in-class activity with a whole cohort, to a single student working on an extended project for several months. Students may be compensated for their time through incentives (e.g. vouchers), academic credit (e.g. Work Based Learning), volunteering recognition (e.g. Higher Education Achievement Report), or remuneration (e.g. UniJob). Consider what can reasonably be achieved in relation to the compensation resource available and scale the partnership activity accordingly.
7. **Spaces for failure:** Working in partnership is challenging, it requires courage and risk taking. All parties need to feel safe to try new things and not be fearful of the consequences should things not go to plan. Consider what 'failure' might mean within your partnership and how to make space to support one another should you not achieve your desired outcomes.

Source: Healey, R. L. (2023)

11. Physical learning spaces

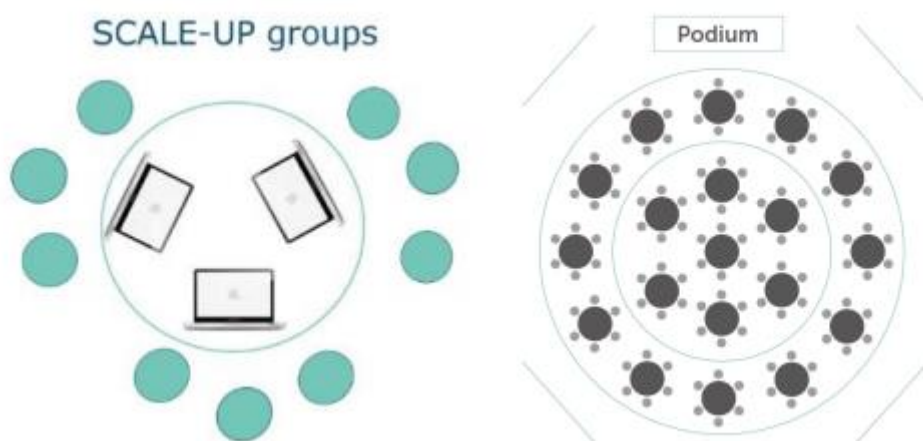
“To create a genuinely sticky campus, universities would benefit from designing spaces from the inside out, prioritising the needs and experiences of the student community rather than designing an impressive building and retrofitting the educational and social spaces around it.” (Benson, 2019)

Face-to-face and blended project group work require different physical learning spaces on campus than is needed for transmission teaching and independent learning. The larger the cohort, the greater the pressure on small group spaces. This chapter draws on a previous report I wrote for the Centre for Education Teaching Innovation, University of Westminster on *The design of physical learning spaces in supporting learning and engaging students on campus* (Healey, 2022). Please refer to that report for the details of the references cited here.

It is recognised that **physical spaces interact with digital spaces**, and increasingly the design needs to take place in tandem so that students on campus can interact with students and others off-campus (Beatty, 2019; Leijon & Lundgren, 2019). However, the focus here is on the design of physical spaces on campus to support small group work.

There has been a significant increase in the design of learning spaces to support **active and collaborative learning**, particularly in **authentic learning** settings. **Discipline and professional-specific learning spaces**, such as studios in art and design and architecture, laboratories in sciences, and workshops in engineering, are essential for many forms of authentic learning. Here I focus on **generic learning spaces designed for active and collaborative learning**. Some active and collaborative learning pedagogies, such as **SCALE-UP** and **team-based learning (TBL)**, have recommended room layouts (Figure 6). Others, such as **inquiry-based learning**, are less definitive and refer to the desirability of spaces that allow groups of various sizes to work comfortably and efficiently in collaboration.

Figure 6. Furniture layouts for SCALE-UP and large team-based learning classes



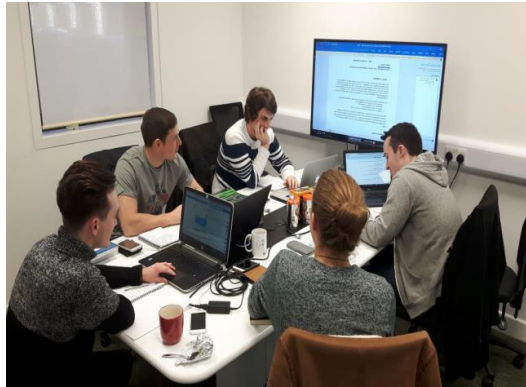
Sources: McNeil et al (2017, 20); McNeil & Borg (2019, 14)

Designing a sticky campus refers to a strategy to encourage students to ‘stick around’. Formal small group learning spaces include collaborative learning suites (Photo 1) and bookable active learning spaces (Photo 2). Informal learning spaces vary considerably in terms of furniture and layout (to support different group sizes) and also vary from silent to active collaboration/noisy environments. One thing that does seem to be consistent is the need for informal spaces to have reliable Wi-Fi and be near good coffee!

Photos 1-2 Designing a 'sticky campus' at Abertay University



A collaborative learning suite



A bookable active learning room

A recent review of the literature found that, as far as **formal learning spaces** are concerned, the type of classroom (e.g., traditional versus an active learning studio) has less impact on student engagement than the type of teaching (Oliveira et al., 2022). Another study evaluated the use of **social learning spaces** in sciences at one university (Matthews et al., 2009, 2011). They found that it enhanced student engagement by fostering active learning, social interaction, and student belonging. Moreover, students who used these spaces demonstrated higher levels of engagement compared to those students who did not use these spaces.

The **challenge** is to design high-quality physical spaces for small group work that are aligned to institutional principles and priorities, and help create a '**sticky campus**' that is attractive to students to come and spend time in, to learn formally and informally as part of their higher education experience.

12. Strategic initiatives

“... teamwork pedagogy ... is afforded or constrained by a range of inter-related and dynamic interactions. These include how teamwork pedagogy is conceptualized in the institutional context, the degree of experience and proficiency educators bring to teamwork pedagogy, and the perceptions of students concerning teamwork in the learning context.” (Riebe et al., 2016, 621)

A range of **educational strategies to incorporate research and inquiry into the curriculum** is shown in Table 8. All of them include group work as part of their strategy. All of them faced challenges in sustaining the initiatives. Justice et al. (2009) discuss the challenges of introducing IBL as components of traditional courses, as IBL courses, and as inquiry-based degree programs. At McMaster, the main strategies administrators used to overcome resistance to change were to promote discussion of the concept of inquiry and develop a feeling of ownership regarding the idea of inquiry “so that those who were interested in the notion would be prepared to defend it with other faculty members” (p.853). A more recent analysis of creating the desire to promote the research-education nexus at Amsterdam University of Applied Sciences also found that for change to be successful many conversations between stakeholders are essential, but these need to take place within a clear framework and sense of direction provided by senior management (Griffioen, 2023). They eschew a cookbook approach and emphasise the need to embed change in the culture of their institution and the Dutch higher education system.

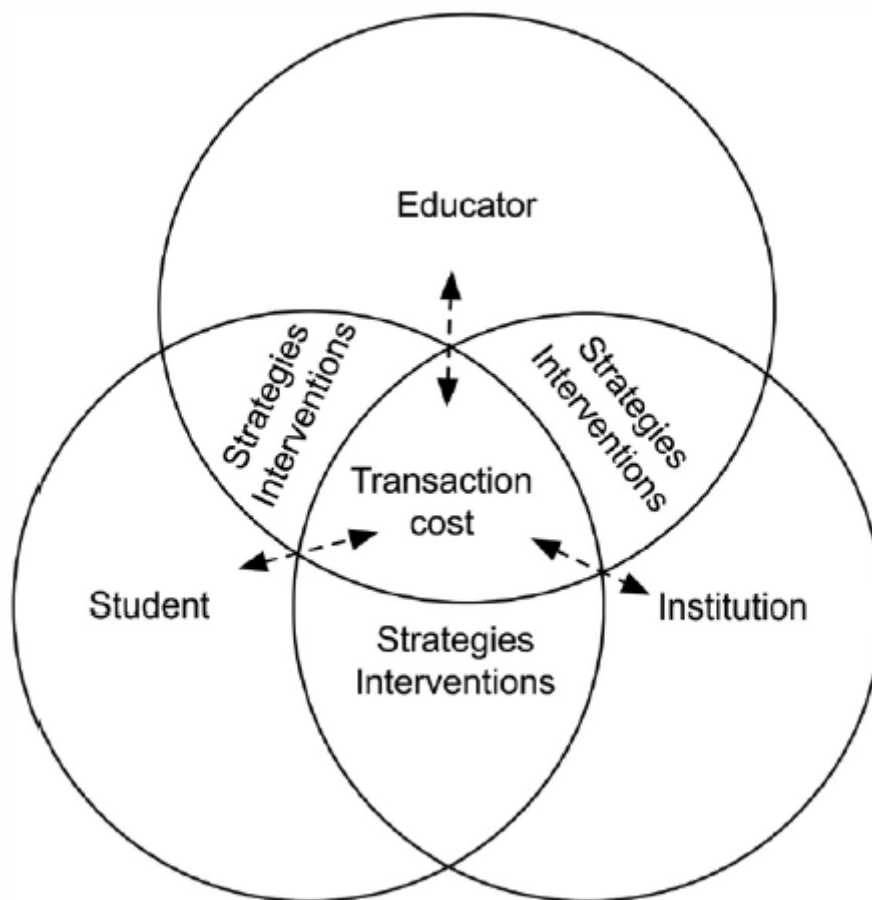
Table 8. Institutional examples of embedding research and inquiry

Higher Education Provider	Institutional approach	Further information
University of Adelaide, Australia	Small group discovery experience	University of Adelaide (nd)
Humboldt University of Berlin, Germany	Research-based education	Deike (2014)
University of Lincoln, UK	Student as producer	Crawford et al. (2015); Neary (2014)
Maastricht University Netherlands	Extending problem-based learning to research-based learning	Bastiaens et al. (2017)
McMaster University, Canada	Problem-based and inquiry-based learning	Knapper (2007); Justice (2009)
Miami University, US	Student as scholar	Hodge et al. (2011)
Olin College of Engineering, US	Group project-based entrepreneurial engineering design projects	Kearns (2004)
Quest University, Canada	Research-based education	Helfand (2016)
Roskilde, Denmark	Problem-oriented project-based learning	Andersen et al. (2015)
University College London, UK	Research-based education and the connected curriculum	Fung (2017)
University of Applied Sciences Amsterdam, Netherlands	Research-education connections	Griffioen (2023)

Source: Based on Healey and Jenkins (2018, 58), where the details of the references cited may be found

Strategic initiatives, around the design, development, and maintenance of effective teamwork pedagogy, often involve a trade-off between costs and benefits. Riebe et al. (2016), quoted at the beginning of this chapter, conceptualise these as **transaction costs** between educators, students and institutions (Figure 7).

Figure 7. Transaction cost interactions with group work



Source: Riebe et al., 2016, 621

“Some of these transaction cost interactions can be imposed, for instance, by attempting to meet employer expectations (Burbach et al., 2010); can be considered a function of educator preparedness to develop resources (Albon & Jewels, 2014), devise strategies and interventions (Kedrowicz & Nelson, 2007), and teach teamwork skills (Jackson et al., 2014); the readiness of students to willingly participate in teamwork learning activities (Bacon, 2005); and the resources available to institutions which precipitate a focus on the teaching and learning of teamwork (Ahern, 2007)” (Riebe et al., 2016, 635-636, where the details of the references cited may be found).

Group work strategies should recognise that **teamwork and individual work are complementary**, as students obtain different knowledge and skills from the two methods. The choice between working separately or in groups depends on the preferences of staff and students, the size of the class, the complexity of the project, and what discipline and transferable skills the students are expected to learn. In some programmes, group work projects dominate in the first and second years, while individual projects are more common in the final year. However, the amount of group work has increased over time in all years, and in some programmes is seen as an alternative to the independent final-year dissertation (Healey et al., 2013). The development of skills is just as important for students, as the extension of their knowledge. A **group-based final-year capstone project**, perhaps sitting alongside an individually undertaken dissertation, which builds on earlier group work projects, could be a sensible strategy to ensure there is a **progression in the development of teamwork skills**, as well as the enhancement of other skills.

Strategic group work initiatives have several prerequisites for success (Box 21).

Box 21. Prerequisites for strategic group work initiatives

- Linking to the education strategy as a priority for the institution
- Incorporating in programme and module learning outcomes
- Recognising what progression in teamwork skills means
- Inspiring engagement of students and staff
- Ensuring staff and student training in designing and undertaking teamwork
- Accounting for time taken in the existing workloads of staff and students
- Countering negative experiences of students and staff
- Ensuring equity, diversity and inclusion policies are enacted in the way teams operate
- Recognising how the operation of group work varies between the modes of delivery, the pedagogic approaches, and the disciplines
- Designing suitable physical learning spaces for small group work face-to-face and blended
- Meeting employer expectations about graduate teamwork capability
- Putting in place evaluation frameworks for new initiatives

Some universities have developed group working guidelines to support curriculum leaders and ensure good practices across the institution. For example, the University of Queensland (2024) guidelines include:

- Where group work is assessed, it is necessary to explicitly state the need for group work as its own learning outcome.
- When implementing group work it is important to consider students' prior experience of working in teams, which may be evident from their prior courses and/or year level of their degree program.
- Team dysfunction needs to be identified as early as possible and appropriate strategies put into place to manage any issues as they arise.
- Links are provided to relevant student and staff resources.

Box 22. Team projects at Roskilde University, Denmark

At Roskilde “**problem-oriented Project Learning (PPL)** is the cornerstone of a university-encompassing system that pervades the formal curriculum from day one. Students’ research orientation is standard and a key feature of the university’s vision and strategy” (Andersen *et al.*, 2015, 22). From Roskilde’s founding in 1972, students working in project teams supported by staff have been central to its undergraduate and postgraduate curricula. Project work constitutes 50% of the student workload and its assessment. “Much of the coursework is designed to support and shape this project work. Each semester consists of project work and two or three courses. The courses are either subject-oriented (e.g. ‘sociology’, ‘political science’...) or method-oriented (‘qualitative methods’, ‘quantitative methods’...), but all of them are meant to prepare for and support project work within the particular theme chosen for the semester” (Andersen *et al.*, 2015, 23). Project write-ups must include systematic literature searches, an overview of current research, a discussion of research design etc. While staff may help to shape project proposals their main task is to support the students’ self-directed learning. However, a recent development is in part to orientate the project themes to staff research interests. A central concern is to demonstrate the relevance of this research-mindedness, and problem-solving skills to future employment, and to support that there is a strong focus on linking projects to outside agencies and companies.

Sources: Andersen et al. (2015); <https://www.youtube.com/watch?v=rVa02W6Zl7Y>

Three strategic initiatives to engage students in IBL using group work follow. In the first example, half of all students' work is spent undertaking team projects (Box 22). In the second case study, students from across the university work on Group Research Opportunity Undergraduate Projects (GROUPS) (Box 23). Details of how a group-based IBL course for social sciences had a significant impact on students' subsequent performance features in the final example (Box 24).

Box 23. Group Research Opportunity Undergraduate Projects (GROUPS) at the London School of Economics, UK

LSE GROUPS provides undergraduates at the London School of Economics and Political Science with the opportunity in the final two weeks of the summer term to work full-time in **cross-disciplinary, cross-year groups on an inquiry-based research project of their choice under the umbrella of a broad theme**. In 2024 the theme is 'Power and politics'. During the two weeks, the students come up with their research questions, carry out a literature review, design their methodology, conduct their research and then write up their papers culminating in their presentation at an academic conference on the last day of the project. Each group of students is supported in this process by a research supervisor, as well as through qualitative and quantitative resource sessions which run throughout the two weeks. During the two weeks of LSE GROUPS, students learn a great deal about the research process itself as well as the challenges and opportunities of working in groups. In 2023 there were nine research groups each with 5 or 6 students.

Source: <https://info.lse.ac.uk/staff/divisions/Eden-Centre/Eden-events-and-programmes/LSE-GROUPS>

Box 24. Students engaged in an introductory group-based inquiry-based learning course for social sciences at McMaster University, Canada

For many years McMaster University ran a **first-year course for Social Sciences based on inquiry**. It was typically taught in groups of no more than 25 students assigned to an instructor, who were subdivided into groups of four or five students. All of the groups had the same curriculum, reading material, process of assessment and goals that were outlined in a detailed compendium. The classes met for 12 three-hour concurrent sessions. Class time consisted of a combination of exercises and tasks for building the students' critical abilities and time for students to share ideas about their inquiries with other students. Students investigate aspects of a broad social science theme, such as 'self-identity', and addressed a common inquiry question, such as: 'Why do images of ethnicity, race, gender, sexuality, age, class, or abilities help to create aspects of personal and community identity?' The student groups had to propose their inquiry question, such as: 'Why do some children apparently become violent after watching violent cartoons while others seem to be unaffected?' They had to justify why the question was important in relation to existing literature. They then investigated the question through a process that involved developing and testing hypotheses using secondary sources. Hence **they learnt how to learn through undertaking an inquiry of their choosing**. There is strong research evidence of the positive impact of this inquiry course on the subsequent performances of students who took the course during the rest of their studies at McMaster University.

Sources: Justice *et al.* (2007a, 2007b); Chiappetta Swanson *et al.* (2014)
http://www.youtube.com/watch?v=i9idE_uClpc

12. The future of group work in higher education

“We increased student learning and satisfaction when working in research teams by (1) including in the syllabus a teamwork learning objective ... and (2) designing and implementing exercises that teach students the value of working in a team and how to be part of an effective student team ... We also used individual and team reflections on team functioning, following formal online team assessment.” (Cheruveli et al., 2020, 18)

This review and guide for staff about facilitating students to collaborate effectively working in groups clearly shows the many benefits of teamwork and the variety of ways the challenges faced by staff and students can be eased. However, to be effective group work needs to be designed to meet the specific context, including the level of the course, number of students, length of the project, extent of diversity, mode of instruction, pedagogical approach, discipline, and learning spaces available. As we look to the future we need to add the changing external context to this list, particularly the rapidly changing communication technologies and the potentially disruptive impacts of generative artificial intelligence (gen AI).

I invited colleagues who kindly agreed to comment on an earlier draft of this guide about what they thought the future of group work in higher education might be. Two sent me a substantial set of comments. Peter Hartley emphasised the impact of changing communication technologies (Box 25), while Neil Ralph identified how the nature of group work may change in emphasis in a range of ways (Box 26). A theme in both is the impact of gen AI. So I asked **ChatGPT “What are the future likely trends in project group work in higher education?”**. It came up with a comprehensive list of predictions (Box 27). Only time will tell which predictions are the most accurate. Interestingly none of them explicitly mentioned the role of employers and the likelihood that they will increasingly emphasise the importance of the graduates they recruit having evidence of their experience of working effectively in groups.

Box 25. What is the future of group work in higher education? Response from Peter Hartley

Your text covers the main issues which will occur in groups that meet face-to-face so I think the speculation that needs to happen is about the future applications and implications of generative AI and related technologies (Beckingham et al., 2024). In terms of specific implications for groups and teamwork, what will happen when (and/or how much) students use the facilities that are increasingly being offered in apps like Teams and Zoom et al.? We already have the promise of features including automatic transcription of the conversation; production of minutes; and the opportunity to search the ‘group history’ (if the software has a complete record of all group conversations then we can do searches such as ‘when did we talk about X, and what did we decide?’). In the very near future, we are promised the opportunity to interrogate and have a ‘live discussion’ with the AI ‘agent’ which is running all these features in the background, especially now that we can talk to your friendly GPT. We can throw that keyboard away at last! Or can we?

This opens the possibility for students to have meetings (ideally face-to-face) for more extended planning and discussion with Teams (or equivalent) running in the background as a ‘record-keeper’ and information source, supplemented by short online progress meetings (also with Teams etc. providing support) without the need to get everyone together in one location. There is also the possibility of similarly supported hyflex meetings if the students are on top of the technology.

Box 26. What is the future of group work in higher education? Response from Neil Ralph

Meeting new educational challenges

We are likely to see some changes in emphasis:

- *Enhanced digital collaboration:* Creation of digital labs designed specifically with group work in mind. Virtual collaboration tools and online platforms will facilitate group work beyond physical boundaries, enabling students to engage in collaborative projects regardless of their location.
- *Integration of authentic and global challenges:* Group work can be tailored to incorporate real-world challenges, providing students with practical experiences more closely aligned to the complexities of their future careers.
- *Personalized learning experiences:* Designed to accommodate different learning preferences, allowing students to customize their learning experiences to suit their individual needs.

Co-creation with students of group work activities

Engaging students in the design of group work activities can enhance their sense of ownership and motivation. In the future, universities may increasingly involve students in the co-creation of group work, ensuring that activities are relevant, engaging, and aligned with learning objectives. This approach promotes student agency, empowers them to take an active role in shaping their educational experiences and allows for the personalisation of the learning experience.

Implications of changing generations and their differing needs

As higher education welcomes Generation Z and Generation Alpha, understanding their unique characteristics and preferences is crucial. These generations are digital natives who value collaboration, diversity, and experiential learning. The future of group work should consider:

- *Technologically-driven engagement:* Leveraging technology to facilitate communication and collaboration, as Generation Z and Generation Alpha are accustomed to digital interaction.
- *Flexible and agile structures:* Adapting group work structures to accommodate shorter attention spans and a desire for immediate feedback.
- *Emphasis on diversity and inclusion:* Promoting diverse perspectives within groups to reflect the values of these generations and prepare them for globalized workplaces.

Challenges of increasing class sizes

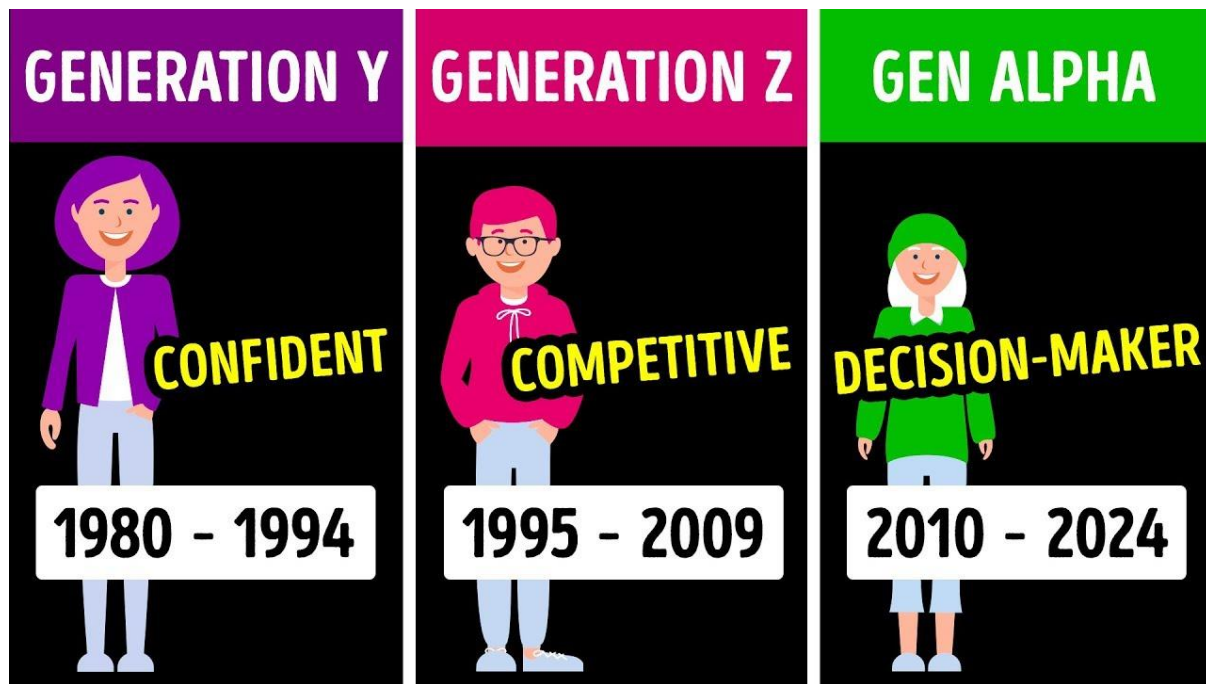
With growing enrolments, larger class sizes pose challenges for effective group work implementation.

Future strategies may include:

- *Scalable solutions:* Implementing scalable group work models that can accommodate larger cohorts without compromising the quality of learning.
- *Robust support systems:* Providing adequate support and resources to both students and educators to manage larger groups effectively.

Interdisciplinary and cross-disciplinary group learning

An increased emphasis on interdisciplinary and cross-disciplinary collaboration. Group work offers a platform for students to integrate knowledge from various disciplines, fostering creativity and innovation. Universities may encourage interdisciplinary group projects to address complex societal issues and prepare students for multidimensional problem-solving.



Box 27. What are the future likely trends in project group work in higher education? Response from ChatGPT (version November 30, 2022, using no prompts) on June 5, 2024

The future of project group work in higher education is likely to be shaped by several key trends driven by technological advancements, pedagogical innovations, and evolving student needs. Here are some likely trends:

1. Increased use of technology and digital collaboration tools

- *Virtual collaboration platforms:* Tools like Zoom, Microsoft Teams, and Slack will become integral, enabling students to collaborate effectively, regardless of their physical location.
- *Project management software:* Platforms like Trello, Asana, and Monday.com will help students manage tasks, deadlines, and responsibilities more efficiently.
- *AI and machine learning:* AI-powered tools will assist in project management, providing insights, automating routine tasks, and enhancing productivity.

2. Interdisciplinary and cross-institutional projects

- *Interdisciplinary collaboration:* Students will increasingly work on projects that require knowledge from multiple disciplines, fostering a broader skill set and innovative thinking.
- *Global collaboration:* Partnerships between institutions across different countries will become more common, promoting cultural exchange and diverse perspectives.

3. Emphasis on soft skills and real-world problem solving

- *Soft skills development:* There will be a stronger emphasis on developing skills like communication, teamwork, leadership, and problem-solving.
- *Real-world applications:* Projects will increasingly be designed to address real-world problems, often in collaboration with industry partners, giving students practical experience and enhancing employability.

4. Personalized and adaptive learning

- *Tailored projects:* Projects will be designed to cater to the individual strengths and interests of students, using data and analytics to provide personalized learning experiences.

- *Adaptive learning technologies*: These will help create customized learning paths and project assignments that adapt to the progress and needs of each student.

5. Sustainable and socially responsible projects

- *Focus on sustainability*: Projects will often address sustainability and environmental issues, reflecting the growing importance of these topics in society.
- *Social responsibility*: There will be an emphasis on projects that promote social good, community engagement, and ethical considerations.

6. Hybrid and blended learning models

- *Hybrid project work*: A blend of in-person and online project work will become the norm, providing flexibility and accommodating different learning preferences.
- *Flipped classrooms*: The flipped classroom model, where students learn the theoretical components online and engage in practical, collaborative projects in person, will gain traction.

7. Gamification and interactive learning

- *Gamified projects*: Incorporating game design elements into project work to enhance engagement, motivation, and learning outcomes.
- *Interactive learning environments*: Virtual and augmented reality technologies will create immersive learning experiences for project work.

8. Enhanced assessment and feedback mechanisms

- *Continuous assessment*: Ongoing assessment methods, including peer reviews and formative feedback, will be used to provide timely insights and improve learning outcomes.
- *Data-driven insights*: Analytics will be used to track student performance and group dynamics, helping instructors provide targeted support and interventions.

9. Inclusive and accessible learning

- *Accessibility*: Ensuring that project tools and resources are accessible to all students, including those with disabilities.
- *Inclusive practices*: Fostering an inclusive environment where diverse voices and perspectives are valued and integrated into project work.

10. Focus on lifelong learning and professional development

- *Skills for the future*: Projects will be designed to equip students with skills that are relevant for the future workforce, including digital literacy, critical thinking, and adaptability.
- *Professional development*: Opportunities for students to engage in projects that build their professional network and prepare them for their future careers.

These trends reflect the evolving landscape of higher education, where technology, inclusivity, and real-world relevance are becoming increasingly important in shaping the future of project group work.

Key takeaways

1. **“Students probably learn more during group work than any other form of teaching during their higher education journey.”** (Francis et al., 2022, 3). This is because collaborative group work helps
“develop a range of soft skills including communication, empathy, teamwork, conflict resolution, leadership and self-management; all skills highly sought after by employers, recruiters and other key stakeholders” (McKay & Sridharan, 2024, 221).
2. This **report aims** to provide a practical, evidence-based review and guide for staff in higher education about facilitating students to collaborate effectively in groups to enhance learning in all disciplines. Its target audience is staff using group work with their students, academic developers supporting staff and students to make the most of teamwork as an effective pedagogy, and senior managers and programme leaders developing institutional, departmental and programme-level strategies to promote effective and fulfilling group work learning.
3. Group work has an important role in student learning in higher education, but for it **to be effective it needs to be designed to meet the specific context**, including the level of the course, number of students, length of the project, extent of diversity, mode of instruction, pedagogical approach, discipline, and learning spaces available.
4. There is **no universal way of working effectively in groups**. Among the advice given is building group work skills into learning outcomes, choosing an appropriate way of selecting teams and team sizes to meet the context, and recognising that most teams develop in stages.
5. Many strategies may be adopted to reduce **free-riding or social loafing**. But it should be recognised that it is “not necessarily due to apathy or a deliberate attempt to do as little work as possible” (Hall & Buzwell 2013, 37).
6. Universities should develop explicit across-institution group work strategies for programmes to ensure there is a **progression of skill development**, particularly across the core modules.
7. Consider **assessing the process of working in groups**, using self and peer assessment, as well as the product or outcome of the project. **Redistributing group marks** between team members can incentivise all students to work to the best of their ability.
8. Developing **inclusive working in groups is more about promoting equity and justice than upholding equality**. Individuals and teams are likely to have *different* learning development journeys as they experience working with students with different histories, identities and skills.
9. The **modes of learning delivery** – face-to-face, online, or blended – have different benefits and challenges for students and staff in undertaking group work.
10. Group learning is central to many different **pedagogies**. Still, there are so many to choose from that it is unsurprising that many small group learning activities have developed in higher education *without* explicit reference to an underlying pedagogic framework.
11. **Inquiry-based learning (IBL)** may be used as an alternative to attending lectures, for students to learn about existing knowledge which is new to them. It may also be used for students to undertake research, where they are creating new knowledge for society.

12. **Simply putting students in small groups in a laboratory, a studio or any other learning environment does not mean that the students will learn either knowledge or skills;** that depends on the quality of the learning design and the appropriateness with which it meets the local context.
13. **Too many tutors adopt a ‘sink or swim’ approach to managing group work.** There is **no one best way of facilitating group work.** Tutors need to be prepared to play multiple roles at different points during the life cycle of a group project.
14. **Mentors may be used to support student group work.** Discussing which of the values underpinning partnerships apply to their group at their first meeting can help the team get off to a good start.
15. **Face-to-face and blended project group work require different physical learning spaces on campus than is needed for transmission teaching and independent learning.** Formal small group learning spaces include collaborative learning suites and bookable active learning spaces.
16. A range of **educational strategies to incorporate research and inquiry into the curriculum** is identified. All of them include group work. For change to be successful many conversations between stakeholders are essential, but these need to take place within a clear framework and sense of direction provided by senior management. Strategic initiatives, around the design, development, and maintenance of effective teamwork pedagogy, often involve a **trade-off between costs and benefits between educators, students and institutions.**
17. Group work strategies should recognise that **teamwork and individual work are complementary,** as students obtain different knowledge and skills from them. The choice between working separately or in groups depends on the preferences of staff and students, the size of the class, the complexity of the project, and what discipline and transferable skills the students are expected to learn. A **group-based final-year capstone project,** perhaps sitting alongside an individually undertaken dissertation, could be a sensible strategy to ensure there is a **progression in the development of teamwork skills,** as well as the enhancement of other skills.
18. **Future trends in project group work in higher education are debatable** but include adaptation to rapidly changing communication technologies and gen AI; co-creation with students of group work activities; emphasis on diversity and inclusion; interdisciplinary group learning; personalised and adaptive learning; sustainable and socially responsible projects; blended learning models; and focus on lifelong learning and professional development.

Further reading

Many of the older references on group work contain material that is still relevant today. However, older work makes much less use of technologies, such as online tools and video conferencing.

Arkoudis (2010): *This Australian project, originally titled 'Enhancing domestic and international student interaction', explores the benefits of, and obstacles to, interaction among students from diverse cultural and linguistic backgrounds.*

Davies (2009): *Reviews some of the literature on using group work as a form of assessment in tertiary institutions. He outlines the considerable advantages of group work but also its systemic associated problems. The paper concludes by providing recommendations for how to maximise the advantages of group work while trying to minimise the disadvantages.*

Donelan & Kear (2023): *This paper presents the findings of a systematic literature review identifying the key challenges of online group projects, together with strategies to address them.*

Flores & Bauman (2024): *Set out a step-by-step guide to implementing a theoretically robust team work-centric approach to business education. It details specific approaches educators can take to effectively play different roles, such as that of the facilitator, instructor and coach.*

Gibbs (1994): *This manual presents 27 exercises to be used by teams of students who want to work effectively and enjoyably on a group project or learning activity.*

Gibbs (1995): *This guide is designed to help tutors plan the productive use of student teams. It complements Gibbs (2004).*

Hall & Buzwell (2013): *Explore the problem of free-riding in group projects. They found that numerous underlying reasons can lead a student to not contribute equally to a group even if he or she is willing.*

Hartley et al. (2022): *Use examples of real students' successful group projects to help students tackle group assignments.*

Healey (2022): *The focus of this report, for the University of Westminster, is on developing and designing physical spaces that will encourage attendance on campus that are meaningful, worthwhile, and engaging, are inclusive, and facilitate transformational, authentic, and personalised learning.*

McKay & Sridharan (2024): *Investigate student perceptions of the effectiveness of a technology-enhanced groupwork assessment on student learning outcomes, including teamwork skills and self-evaluative judgement skills.*

Rasooli et al. (2024): *This study developed a novel Peer Assessment Fairness Instrument to explore factors driving students' perceptions of fairness during group work processes.*

Riebe (2016): *This systematic literature review explores the trade-off between costs and benefits, conceptualised as transaction costs, between educators, students and institutions implementing process-oriented teamwork pedagogy in higher education.*

University of Queensland (2024): *Provides an excellent example of an institutional group work policy that addresses the needs of curriculum leaders. It draws on an Instructor's manual (University of*

Queensland, 2018), which is supported by an edX course (University of Queensland, nd) that runs for 4 weeks (6-8 hours a week).

Vogel & Wood (2023): *Examine how the transition from in-person to online instruction following COVID-19 restrictions, impacted group work in higher education contexts.*

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Appendix 1. Ascertaining strengths of team member's roles (after Belbin, 2010)

Team roles	Primary strength	Secondary strength
Innovator Produces ideas, imaginative, unorthodox, radical clever, uninhibited. (Can be over-sensitive, prickly. May need careful handling.)		
Investigator Finds things out, always knows someone who ..., brings information back to the team, enthusiastic, gregarious. (Can be lazy and complacent.)		
Chair Self-confident, commands respect, good speaker, thinks positively, good at guiding the team. (Can be domineering, bossy.)		
Shaper Energetic, drives everyone along, needs to succeed, makes things happen. (Can be disruptive and argumentative, impatient and a problem if things don't go their own way.)		
Evaluator Careful, makes intelligent judgements, tests out ideas, evaluates proposals, helps the team avoid mistakes. (Can become isolated and aloof, pessimistic or over-critical.)		
Teamworker Sympathetic, understanding, sensitive, shows a strong concern for social interaction, leads from behind. Places the team above personal concerns. (May be indecisive.)		
Organiser Methodical, hard-working, reliable, orthodox, turns ideas into plans which are feasible and gets down to tasks which need doing. (Can be inflexible and uninspiring.)		
Finisher Painstaking, conscientious, follows through and works hard to finish things properly. Meets deadlines and pays attention to detail. (Can be over-anxious and perfectionist.)		

Source: Gibbs (2004, 10-11)

Appendix 2. Assessing team member effectiveness among higher education students (CATME-BARS)

Comprehensive Assessment of Team Member Effectiveness—Behaviorally Anchored Rating Scale (BARS) Version

	Your name					← Write the names of the people on your team including your own name. This self and peer evaluation asks about how you and each of your teammates contributed to the team during the time period you are evaluating. For each way of contributing, please read the behaviors that describe a "1", "3," and "5" rating. Then confidentially rate yourself and your teammates.
Contributing to the Team's Work	5	5	5	5	5	- Does more or higher-quality work than expected. - Makes important contributions that improve the team's work. - Helps to complete the work of teammates who are having difficulty.
	4	4	4	4	4	Demonstrates behaviors described in both 3 and 5.
	3	3	3	3	3	- Completes a fair share of the team's work with acceptable quality. - Keeps commitments and completes assignments on time. - Fills in for teammates when it is easy or important.
	2	2	2	2	2	Demonstrates behaviors described in both 1 and 3.
	1	1	1	1	1	- Does not do a fair share of the team's work. Delivers sloppy or incomplete work. - Misses deadlines. Is late, unprepared, or absent for team meetings. - Does not assist teammates. Quits if the work becomes difficult.
Interacting with Teammates	5	5	5	5	5	- Asks for and shows an interest in teammates' ideas and contributions. - Improves communication among teammates. Provides encouragement or enthusiasm to the team. - Asks teammates for feedback and uses their suggestions to improve.
	4	4	4	4	4	Demonstrates behaviors described in both 3 and 5.
	3	3	3	3	3	- Listens to teammates and respects their contributions. - Communicates clearly. Shares information with teammates. Participates fully in team activities. - Respects and responds to feedback from teammates.
	2	2	2	2	2	Demonstrates behaviors described in both 1 and 3.
	1	1	1	1	1	- Interrupts, ignores, bosses, or makes fun of teammates. - Takes actions that affect teammates without their input. Does not share information. - Complains, makes excuses, or does not interact with teammates. Accepts no help or advice.
Keeping the Team on Track	5	5	5	5	5	- Watches conditions affecting the team and monitors the team's progress. - Makes sure that teammates are making appropriate progress. - Gives teammates specific, timely, and constructive feedback.
	4	4	4	4	4	Demonstrates behaviors described in both 3 and 5.
	3	3	3	3	3	- Notifies changes that influence the team's success. - Knows what everyone on the team should be doing and notices problems. - Alerts teammates or suggests solutions when the team's success is threatened.
	2	2	2	2	2	Demonstrates behaviors described in both 1 and 3.
	1	1	1	1	1	- Is unaware of whether the team is meeting its goals. - Does not pay attention to teammates' progress. - Avoids discussing team problems, even when they are obvious.
Expecting Quality	5	5	5	5	5	- Motivates the team to do excellent work. - Cares that the team does outstanding work, even if there is no additional reward. - Believes that the team can do excellent work.
	4	4	4	4	4	Demonstrates behaviors described in both 3 and 5.
	3	3	3	3	3	- Encourages the team to do good work that meets all requirements. - Wants the team to perform well enough to earn all available rewards. - Believes that the team can fully meet its responsibilities.
	2	2	2	2	2	Demonstrates behaviors described in both 1 and 3.
	1	1	1	1	1	- Satisfied even if the team does not meet assigned standards. - Wants the team to avoid work, even if it hurts the team. - Doubts that the team can meet its requirements.
Having Relevant Knowledge, Skills, and Abilities	5	5	5	5	5	- Demonstrates the knowledge, skills, and abilities to do excellent work. - Acquires new knowledge or skills to improve the team's performance. - Able to perform the role of any team member if necessary.
	4	4	4	4	4	Demonstrates behaviors described in both 3 and 5.
	3	3	3	3	3	- Has sufficient knowledge, skills, and abilities to contribute to the team's work. - Acquires knowledge or skills needed to meet requirements. - Able to perform some of the tasks normally done by other team members.
	2	2	2	2	2	Demonstrates behaviors described in both 1 and 3.
	1	1	1	1	1	- Missing basic qualifications needed to be a member of the team. - Unable or unwilling to develop knowledge or skills to contribute to the team. - Unable to perform any of the duties of other team members.

Source: Ohland et al (2012, 626)

Appendix 3. Peer group assessment of oral presentations (as discussed in Box 5)

Title:

Presenters (Group Number):

Date:

Everyone (in the audience) should give a score to each of the categories below using the following scoring system:

0, 1, 2, 3, 4, 5 where 0 is unsatisfactory and 5 is exceptional

The total marks should reflect the honours degree classifications:

< 40: fail; 40-49: third; 50-59: 2.2; 60-69: 2.1; 70+: 1st

Hence 2s and 3s should be the most common scores awarded

CATEGORIES

1. Voice clearly audible, lively and varied, and maintained eye contact
2. Delivery at an appropriate speed and kept to the time limit
3. Visual aids (and handouts) used effectively and appropriately
4. Material clearly explained
5. Appropriate coverage, level of detail and integration
6. Showed critical appreciation of subject
7. Account logical in sequence with appropriate introduction and conclusion
8. Maintained audience interest/ involved the audience
9. Group responded well to questions
10. Overall impression that group had sound grasp of topic

Total =

Total x 2 = %

The strongest points about the presentation were:

The presentation would have been even better if:

Appendix 4. Peer and self-assessment proforma used to redistribute group project marks (as discussed in Box 5)

Your name:

1. List the names of your team in the table below.
2. Allocate points to each member of your team, including yourself, for each project process using the following grading scheme, where average refers to the average contribution of members of *your* group to that particular process:

1 Minimal, or did not contribute in this way

2 Below average

3 Average

4 Above average

5 Outstanding

3. You are encouraged to be frank and honest in allocating scores.
4. Sum the number of points allocated to each person and calculate the overall number of points you have given to your team.

	Project process score					
Group members in alphabetical order including yourself	1	2	3	4	5	TOTAL
A.						
B.						
C.						
D.						
E.						
F.						
OVERALL TOTAL						

Comments: Use this space if you wish to draw to the attention of the tutor any particular points about either the way your group operated or the assessment procedures.

