Assessment-Based Approaches to Prevent Free Riding in Online Group Work

Kristiina Brusila-Meltovaara[1], Lasse Torkkeli[1,2] and Georgios Lampropoulos[3]
[1]LAB University of Applied Sciences, Lahti/Lappeenranta, Finland
[2]LUT University, LUT Business School, Lappeenranta, Finland
[3]University of Nicosia, Nicosia, Cyprus

Kristiina.Brusila-Meltovaara@lab.fi
Lasse.Torkkeli@lab.fi
lamprop.geo@gmail.com

Abstract: Online group work is widely used in higher education to promote collaboration, peer learning, and transferable skills, yet perceived unfairness and free riding remain persistent problems, especially in fully online courses where instructors have limited visibility into individual contributions. These concerns matter particularly in ethics and responsible management education, where fairness, accountability, and responsibility are important learning outcomes and not only assessment concerns. This study presents a theory-informed design case from a fully virtual master's-level course in ethics, governance, and responsible management at LAB University of Applied Sciences in Finland, delivered to 154 students across three iterations (2021–2023). The course was designed to address free-rider concerns through assessment-based methods rather than post-hoc surveillance or punitive monitoring. Drawing on the collective effort model of social loafing and on organisational justice theory, and analysing course documentation, assignment instructions, assessment rubrics, the participation statements that groups submitted as part of the assessed task, and instructors' reflections across the three iterations, the study develops a preventive fairness-by-design framework with three components: explicit expectations, assessed accountability, and values alignment. Each component targets a distinct free-rider risk and a corresponding dimension of assessment fairness. Expectations without accountability remain rhetorical, conversely accountability without expectations becomes surveillance, and both without values alignment result in a hidden curriculum in a course that teaches responsibility. The study shows how preventive assessment design can make contribution expectations visible, reduce ambiguity about what counts as responsible participation, and provide a legitimate basis for raising unequal contribution without framing students as suspects. The contribution is a transferable framework for fair online group assessment in value-laden subjects, specified as a set of design rules. The study argues that assessment design can operate as an ethical and preventive pedagogical tool against free riding when expectations, evidence, and consequences are made explicit and assessable at the start of collaboration.

Keywords: Online Group Work, Assessment Design, Free Riding, Fair Assessment, Responsible Management Education

1. Introduction

Group work remains a prominent feature of higher education because it can support peer learning, professional collaboration, and the development of transferable skills. In online and hybrid programmes, group assignments also provide a means of creating social presence and shared intellectual activity when students may otherwise experience learning as isolated and individualised (Garrison et al, 1999; Donelan and Kear, 2024). However, assessed group work is also one of the most contested forms of assessment. Students frequently worry that some peers will benefit from the group mark without contributing proportionately, while instructors are required to assess group outcomes with limited access to the processes through which those outcomes are produced (Davies, 2009; Hall and Buzwell, 2013).

Free riding also impacts trust, motivation, and students' perceptions of the fairness of the assessment. Early research on student group projects linked social loafing to project scope, group size, and satisfaction with the fairness of grades, and found that multiple peer evaluations can reduce loafing (Aggarwal and O'Brien, 2008). Subsequent work has shown that, besides deliberate opportunism, non-contribution can be attributed to various causes, such as poor coordination, low confidence, conflict, or misaligned expectations (Hall and Buzwell, 2013). This distinction matters because assessment designs that assume bad faith can encourage surveillance and defensiveness, whereas designs that clarify expectations and responsibilities can make fair participation easier. Prior research in expert and knowledge-intensive contexts likewise suggests that leadership plays a central role in shaping trust and engagement, which are closely connected to collaborative performance (Brusila-Meltovaara et al, 2025).

The problem becomes more evident in fully online courses, since online group projects create coordination, communication, and engagement challenges which, in turn, make contribution less transparent to both peers and teachers (Chang and Kang, 2016; Donelan and Kear, 2024). The standard response is often to add monitoring

technologies or end-of-task peer ratings. Reactive assessment strategies have been shown to mitigate social loafing by promoting cooperation and mutual support, but they intervene after contribution problems have begun to emerge (Arevalillo-Herráez, 2014). Such measures may be useful, but they position fairness as a retrospective control problem. This study proceeds from the premise that free-rider concerns should be prevented where possible through the structure of assessment itself.

The research question guiding the study is: How can assessment design be used preventively to reduce free-rider concerns and support fairness in online group work? To answer it, the paper presents a design case from an online master's-level course in ethics, governance, and responsible management, delivered in three iterations. The case is particularly appropriate because the course content concerns ethical behaviour, responsibility, and governance; its assessment therefore needed to align process with learning objectives, avoiding a hidden curriculum in which students study responsibility while experiencing assessment as unfair or opaque (Rasche and Gilbert, 2015). The contribution is a preventive fairness-by-design framework (Table 1) that connects three assessment-design principles (explicit expectations, assessed accountability, and values alignment) to specific free-rider risks, to the procedural, distributive and interactional dimensions of fairness, and to the enactment of responsibility in value-laden subjects. The argument is that clarity about expectations is typically offered as guidance around the assessment; in the framework, expectations, evidence of contribution, and consequences are built into the assessed task, so that fair participation is itself marked.

2. Theoretical Background

2.1 Free Riding, Social Loafing and Fairness in Group Assessment

Social loafing refers to reduced individual effort in collective tasks compared with individual tasks. The phenomenon has a long research tradition in social psychology (Latané et al, 1979; Karau and Williams, 1993). The collective effort model derived from Karau and Williams' (1993) meta-analysis locates its causes in three conditions: individuals do not expect their effort to be identifiable and evaluated, do not see it as instrumental to the collective outcome, or do not value that outcome. In higher education, loafing accordingly appears when individual effort is neither identifiable, consequential, nor required for a satisfactory group result. Free riding is closely connected with assessment fairness, since students may accept group work as a learning activity but reject it when equal marks appear to conceal unequal effort (Maiden and Perry, 2011; Hall and Buzwell, 2013).

Fairness in group work has distributive, procedural, and interactional dimensions. Distributive fairness concerns whether outcomes, such as marks, correspond to contribution; procedural fairness concerns whether the rules, criteria, and decision process are transparent and consistently applied; and interactional fairness concerns whether participants are treated with respect when concerns arise (Colquitt, 2001). Recent assessment research extends these justice dimensions to students' perceptions of peer assessment fairness in groupwork contexts (Rasooli et al, 2025). The distinction matters because not all unequal contribution can be interpreted as intentional loafing; participation problems may also arise from interactional and organisational difficulties within the group (Hall and Buzwell, 2013). A preventive design therefore needs to make expectations, evidence, and consequences explicit before group work begins, not only after a complaint is made (Börjesson et al, 2006).

2.2 Peer Accountability and Assessment Design

Peer and self-assessment are often proposed as solutions to free riding because they can make individual contribution more transparent. Reviews and meta-analyses show that peer assessment can support learning and can approximate teacher judgements when criteria are clear and students are prepared for the task (Topping, 1998; Falchikov and Goldfinch, 2000; Double et al, 2020). The timing and specificity of peer assessment matter: early or repeated peer evaluation can influence behaviour while a project is in progress (Brooks and Ammons, 2003), and visualising frequent peer-assessment data helps instructors identify emerging team-dynamic problems (Lu and van der Hoek, 2025). Contribution-index approaches make individual input explicit and can support perceptions of fairness (Yasin et al, 2025), anti-loafing measures combined with active learning can strengthen engagement (Bonache et al, 2026), and students' own preferences matter as measures become more consequential (Benning, 2024).

However, peer assessment is not automatically fair, as students may be reluctant to criticise peers, may overrate friends, or may lack confidence in their judgement. Hence, assessment design should combine peer accountability with transparent rubrics, structured reflection, and instructor moderation (Dochy et al, 1999; van

den Berg et al, 2006). This study accordingly treats peer accountability not as a separate scoring method but as one element of a wider assessment framework.

2.3 Online Group Work and Responsible Management Education

In online learning, effective group work requires more than placing students in virtual teams. Teaching presence, clear task design, and explicit communication norms are needed for students to collaborate productively (Garrison et al, 1999; Chang and Kang, 2016). Whether such clarity is already routine practice is an empirical question, and the evidence suggests not: Donelan and Kear's (2024) systematic review of online group projects identified a lack of clarity and preparation for students as one of three persistent challenges, alongside low and uneven participation and poor relationships, and pointed to careful design of fair assessment and clear guidance as the principal remedies. Technology-enabled peer assessment can help make engagement visible at scale, but it should form part of pedagogical design rather than substitute for trust (Gunning et al, 2022).

The responsible management education (RME) context adds a further requirement, since RME aims to impact values, attitudes, and intentions in addition to transmitting concepts themselves (Haski-Leventhal et al, 2022). If assessment practices are perceived as unfair, the assessment undermines the ethical content of the course. From a constructive alignment perspective (Biggs, 1996), assessment can therefore be understood as a preventive pedagogical structure that can influence expectations, behaviour, and responsibility during collaboration, and as a site where students practise responsibility, for instance by making fair contributions, acknowledging dependencies, and reflecting on accountability within a team.

3. Method

This study adopts a qualitative single-case design (Yin, 2018; Puusa and Juuti, 2020) and is best characterised as a retrospective, theory-informed design case. The assessment design was developed and applied by the course instructors as teaching practice, with the framework presented here constructed afterwards by analysing that practice across three course iterations. The study is not an intervention study, as no questionnaire, interview, or experimental data were collected from students for the purposes of this paper, and the implications of this are addressed in the Conclusion section.

The case is a fully virtual master's-level course in ethics, governance, and responsible management at LAB University of Applied Sciences (LAB) in Finland. The course runs annually and aims to provide students with the capability to assess a set of analytical tools and concepts to drive responsible decision-making, whilst highlighting the difference between compliance and ethically driven behaviour. The study covers the 2021, 2022 and 2023 iterations, with 50, 38 and 66 students respectively (154 in total). The course was compulsory in three fully online master's programmes: Regenerative Leadership, whose students came from engineering, business, nursing and social services backgrounds, and the business-oriented Tourism and Hospitality Management programme and its successor, Business Innovation, Culture and Creativity.

The case material consists of 1. the course documentation, assignment instructions, and assessment rubrics for each iteration; 2. the group reflection instructions and the anonymised participation and reflection statements that groups submitted as part of the assessed report, and 3. the instructors' systematic reflections, recorded after each iteration, on how the assessment design had functioned and what should be adjusted.

The framework was constructed abductively, moving between the theoretical background and the case material (Puusa and Juuti, 2020). First, the free-rider risks identified in the literature (non-identifiable or non-consequential effort, misaligned expectations, low online visibility of contribution, and non-malicious non-contribution) formed an initial coding frame, refined as the material was read. Second, the assessment documentation for each iteration was reviewed to identify the design decisions addressing one or more of these risks, and the groups' participation statements were read to establish how the requirement was interpreted in practice. Third, the design decisions were grouped by the point in the course at which they operate (before, during, and throughout group work) and interpreted through the lenses of organisational justice (Colquitt, 2001), constructive alignment (Biggs, 1996), and RME. While we refined the module execution across iterations, the core design remained throughout the three iterations, mainly due to practical reasons, i.e. the resourcing of the course module staying the same. The aim was not to claim causal effects on student behaviour, but to articulate a transferable design logic for educators facing similar assessment problems.

4. Case Design: Building Fairness into the Assessment

The course made expectations and consequences visible from the start. The assessment information on the learning platform set out the grading criteria from the first day of the course; the lecturers walked through the course outline in the opening session and specifically highlighted the grading criteria and the treatment of free riding, and all lectures were recorded for later access. Students were explicitly informed that free riders in a group would fail, and that plagiarism would also result in failure. Fair contribution and academic integrity were thus positioned as integral to the assessment design rather than as informal expectations.

The course assessment combined an individual assignment and a group assignment. In the group assignment, students selected a company or organisation and analysed its ethics, corporate governance, and responsible management on the basis of publicly available information, using analytical tools such as SWOT or Porter's five forces and proposing improvement measures. The task required both a presentation and a short written report. In the written report, groups were also required to comment on group participation and any possible free riders: they were instructed to list by name the members who had participated in producing the work and to state if a member had not participated at all. Each group was also assigned another group's work to review, and the group-work grade combined the quality of the analysis, the presentation, the peer review, and the group's written and oral reflection.

These elements were intended to prevent free riding in several ways. The individual assignment balanced shared responsibility with individual accountability, and requiring groups to comment on participation made contribution a visible and discussable part of the assessed task rather than a matter left to private frustration or retrospective complaint. Moreover, the inter-group review made each group responsible for engaging critically with the work of others. In practice, groups typically met the participation requirement briefly but explicitly, stating, for example, that participation had been equal, that each member had a defined role, that there had been no free riders, and that the work had followed a shared schedule. Such statements functioned as a simple but visible record of contribution.

The statements also captured a wider range of participation patterns than free riding alone: well-functioning collaboration in which information gathering was divided among members, meetings were easy to arrange, and tools such as Teams and WhatsApp supported shared file work and rapid coordination. This was evidenced by structured processes of several joint meetings with tasks divided between them and, in some cases, a member's inability to participate, after which the remaining members completed the assignment through an equal division of work.

5. The Preventive Fairness-by-Design Framework

The framework developed from the case is summarised in Table 1. We note that the framework is a design logic, in that it does not prescribe a particular peer-rating instrument or weighting, but specifies what an online group assessment must make explicit, when, and why, if it is to prevent free riding (instead of merely detecting it). Each component is defined by a design rule, the method implementing it in this course, the free-rider risk it targets, and the fairness dimension it primarily serves (Table 1).

The design rule for explicit expectations, which operates before group work begins, is that the definition of adequate contribution, the evidence by which it will be judged, and the consequences of non-contribution are published with the assessment criteria and reiterated in the opening session, rather than communicated informally or introduced once problems arise. The rule for assessed accountability, which operates during group work, is that evidence of contribution is produced by the group itself as a required, named, and graded element of the deliverable, alongside an individual component and an inter-group review. The rule for values alignment is that the assessment process is made to encompass the fairness, accountability, and transparency the course teaches, and that fair contribution is framed as a learning outcome to be practised.

The three components are interdependent, and the framework is therefore a whole rather than a "menu". Explicit expectations without assessed accountability remain rhetorical, because students learn that stated consequences are not enforced. In such a case for instance, assessed accountability without explicit expectations becomes surveillance, because students are asked to evidence contribution against a standard they were never given. Without values alignment, in a course on responsibility, the decoupling between espoused and enacted values is a problem that RME specifically seeks to overcome (Rasche and Gilbert, 2015). Transfer to other settings requires an assessed group deliverable to which a participation statement can be attached, as well as an individual assessment component so that marks can track individual effort. Moreover, the criteria for these

should be published in advance. The values-alignment component is strongest where course content is itself value-laden, but we see the first two components applying to online group assessment more generally. The framework complements extant quantitative peer-rating and contribution-index approaches (e.g., Gunning et al, 2022; Yasin et al, 2025). Whereas those provide finer-grained distributive evidence, our framework establishes and takes into account the preventive conditions under which such evidence is accepted as "fair".

Table 1: A preventive fairness-by-design framework for online group assessment

Design Principle	Mechanism in this Course	Free-Rider Risk Targeted	Justice Dimension (Colquitt, 2001)	RME / Alignment Rationale
Explicit expectations (before group work begins)	Failure consequences for free riding and plagiarism stated in the assessment information from the start; grading criteria visible on the platform from day one and walked through in the opening session; lectures recorded	Effort perceived as non-consequential or non-identifiable (Karau and Williams, 1993); misaligned expectations about what counts as participation (Hall and Buzwell, 2013)	Procedural (rules and criteria known in advance); signals distributive intent that marks will track contribution	Models transparency and clear standards from the outset, rather than asserting them only in the content
Assessed accountability (during group work)	Combined individual and group assessment; mandatory in-report participation statement naming any non-contributing member; grade composed of analysis quality, presentation, inter-group review and the group's written and oral reflection	Diffusion of responsibility and unidentifiable effort (Latané et al, 1979); low visibility of contribution online (Chang and Kang, 2016; Donelan and Kear, 2024); non-malicious non-contribution, for which the statement gives a legitimate channel (Hall and Buzwell, 2013)	Distributive (marks reflect effort); procedural (a consistent, assessed requirement, not ad hoc complaint); interactional (a non-accusatory route to raise issues)	Requires students to enact accountability by evidencing their own contribution and acknowledging dependence on others
Values alignment (throughout)	Assessment process built to embody the fairness, accountability and transparency the course teaches; fair contribution framed as a learning outcome to be practised, not only a grading rule	Hidden curriculum in which an unfair or opaque process contradicts the taught values (Rasche and Gilbert, 2015), eroding motivation to contribute	Makes enactment of all three dimensions an explicit object of learning (constructive alignment; Biggs, 1996)	Closes the say–do gap: students experience responsible governance in the assessment itself, not only in cases

6. Discussion

Viewed through the framework, the case illustrates how each principle targets a different fairness dimension: explicit expectations operate primarily on procedural fairness, assessed accountability on distributive fairness, and the non-punitive framing of contribution reporting on interactional fairness (Colquitt, 2001). This supports the view that fairness in group assessment depends on transparent procedures, visible contribution, and credible accountability (Colquitt, 2001; Dochy et al, 1999; Rasooli et al, 2025). Theoretically, the framework operationalises the collective effort model in assessment terms: explicit expectations address expectancy, the named participation statement addresses identifiability and evaluation, and the graded consequences address instrumentality (Karau and Williams, 1993). What the framework adds to the widely repeated advice to clarify expectations (Davies, 2009; Donelan and Kear, 2024) is location and timing: clarity is delivered inside the assessed task, with consequences attached before collaboration starts, and the group's own account of participation is graded (not informally invited). The mandatory group reflection and the combination of individual and group assessment were intended to make responsibility discussable before problems could escalate, consistent with earlier work on peer accountability and early intervention (Brooks and Ammons, 2003; Lu and van der Hoek, 2025; Yasin et al, 2025). The design also reflects constructive alignment in RME by asking students not only to analyse fairness and responsibility conceptually but to enact them in their own collaboration (Biggs, 1996; Boud and Falchikov, 2006; Haski-Leventhal et al, 2022; Rasche and Gilbert, 2015). Because the participation statement is itself a form of peer accountability, it is exposed to the reluctance to criticise peers, friendship bias, and uneven confidence noted above (Dochy et al, 1999; van den Berg et al, 2006). The design mitigates this by making the statement a required, named, and assessed element with consequences known in advance and subject to instructor moderation, but it does not remove the risk that groups under-report non-contribution.

7. Conclusion

This study indicates that assessment design can function as a preventive pedagogical tool against free riding in online group work. In the case analysed, fairness was supported through clear expectations, structured reflection on participation, and explicit alignment between course values and assessment practices, and these were developed into a three-component framework with stated design rules and boundary conditions. We also acknowledge several limitations for this study, mainly due to its design: For one, the framework was derived retrospectively from documentation, assessed group statements, and instructor reflection at a single institution, which also means that no student-perception, questionnaire, or interview data were collected. We acknowledge that thus, the study cannot claim causality on behaviour in individual student level. The statements analysed described predominantly well-functioning groups, and we note that a low amount of reported free riding does not necessarily in itself constitute evidence of prevention, since it can also mean a reluctance to report peers. Distinguishing the two would require separate student-perception data, to which we did not have access at the time or retrospectively now. Future research should therefore administer a fairness-perception instrument, such as that validated by Rasooli et al (2025), through the course platform at the end of each iteration and compare iterations in which the components are implemented in full with those in which they are not. Educators adopting the framework should also examine how students interpret the participation statement, and whether its non-accusatory form encourages or discourages the reporting of unequal contribution.

Ethics Declaration

This paper is based on course documentation, assignment materials, anonymised group-level participation and reflection statements submitted as part of assessed coursework, and the instructors' reflective analysis. No identifiable student data, student quotations, or personal information are reported in this paper. Ethical clearance was not required for the preparation of this paper.

AI Declaration

Microsoft Copilot was used to re-format the list of references to the conference format, to translate material from Finnish into English, and for proof-reading of the manuscript within Microsoft 365. Claude (Anthropic) was used in language editing the final revised version of the paper to ensure adherence to the maximal word count limits of the conference guidelines, resulting in some changes in sentences, structuring and style. The choice of literature, the analysis, and the final wording were determined by the authors, who reviewed, edited, and verified all AI-assisted suggestions.

References

Aggarwal, P. and O'Brien, C.L. (2008) "Social Loafing on Group Projects: Structural Antecedents and Effect on Student Satisfaction", *Journal of Marketing Education*, Vol 30, No. 3, pp 255–264. doi:10.1177/0273475308322283.

Arevalillo-Herráez, M. (2014) "Impact Evaluation of Reactive Assessment Strategies to Address Social Loafing by Promoting Student Cooperation and Encouraging Mutual Support", *Innovations in Education and Teaching International*, Vol 51, No. 5, pp 523–532. doi:10.1080/14703297.2013.785646.

Benning, T.M. (2024) "Reducing Free-Riding in Group Projects in Line With Students' Preferences: Does it Matter if There is More at Stake?", *Active Learning in Higher Education*, Vol 25, No. 2, pp 242–257. doi:10.1177/14697874221118864.

Biggs, J. (1996) "Enhancing Teaching Through Constructive Alignment", *Higher Education*, Vol 32, No. 3, pp 347–364. doi:10.1007/BF00138871.

Bonache, H., Lorenzo, M. and Rosales, C. (2026) "Strategies to Optimise Active Learning and Reduce Social Loafing", *Innovations in Education and Teaching International*, Vol 63, No. 1, pp 179–192. doi:10.1080/14703297.2025.2451788.

Börjesson, P.O., Hamidian, A., Kubilinskas, E., Richter, U., Weyns, K. and Ödling, P. (2006) "Free-riding in Group Work - Mechanisms and Countermeasures", *Proceedings of the 2nd Lund University Conference on Engineering Education Development*, Lund: Faculty of Engineering, LTH at Lund University.

Boud, D. and Falchikov, N. (2006) "Aligning Assessment With Long-Term Learning", *Assessment & Evaluation in Higher Education*, Vol 31, No. 4, pp 399–413. doi:10.1080/02602930600679050.

Brooks, C.M. and Ammons, J.L. (2003) "Free-Riding in Group Projects and the Effects of Timing, Frequency, and Specificity of Criteria in Peer Assessments", *Journal of Education for Business*, Vol 78, No. 5, pp 268–272. doi:10.1080/08832320309598613.

Brusila-Meltovaara, K., Torkkeli, L. and Pennanen, J. (2025) "Leadership Traits Maintaining Work Engagement During Change Negotiations", *European Conference on Management Leadership and Governance*, Vol 21, No. 1, pp 62–68. doi:10.34190/ecmlg.21.1.4132.

Chang, B. and Kang, H. (2016) "Challenges Facing Group Work Online", *Distance Education*, Vol 37, No. 1, pp 73–88. doi:10.1080/01587919.2016.1154781.

Colquitt, J.A. (2001) "On the Dimensionality of Organizational Justice: A Construct Validation of a Measure", *Journal of Applied Psychology*, Vol 86, No. 3, pp 386–400. doi:10.1037/0021-9010.86.3.386.

Davies, W.M. (2009) "Groupwork as a Form of Assessment: Common Problems and Recommended Solutions", *Higher Education*, Vol 58, No. 4, pp 563–584. doi:10.1007/s10734-009-9216-y.

Dochy, F., Segers, M. and Sluijsmans, D. (1999) "The Use of Self-, Peer and Co-Assessment in Higher Education: A Review", *Studies in Higher Education*, Vol 24, No. 3, pp 331–350. doi:10.1080/03075079912331379935.

Donelan, H. and Kear, K. (2024) "Online Group Projects in Higher Education: Persistent Challenges and Implications for Practice", *Journal of Computing in Higher Education*, Vol 36, pp 435–468. doi:10.1007/s12528-023-09360-7.

Double, K.S., McGrane, J.A. and Hopfenbeck, T.N. (2020) "The Impact of Peer Assessment on Academic Performance: A Meta-Analysis of Control Group Studies", *Educational Psychology Review*, Vol 32, pp 481–509. doi:10.1007/s10648-019-09510-3.

Falchikov, N. and Goldfinch, J. (2000) "Student Peer Assessment in Higher Education: A Meta-Analysis Comparing Peer and Teacher Marks", *Review of Educational Research*, Vol 70, No. 3, pp 287–322. doi:10.3102/00346543070003287.

Garrison, D.R., Anderson, T. and Archer, W. (1999) "Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education", *The Internet and Higher Education*, Vol 2, Nos 2–3, pp 87–105. doi:10.1016/S1096-7516(00)00016-6.

Gunning, T.K., Conlan, X.A., Collins, P.K. et al. (2022) "Who Engaged in the Team-Based Assessment? Leveraging EdTech for a Self and Intra-Team Peer-Assessment Solution to Free-Riding", *International Journal of Educational Technology in Higher Education*, Vol 19, Article 38. doi:10.1186/s41239-022-00340-y.

Hall, D. and Buzwell, S. (2013) "The Problem of Free-Riding in Group Projects: Looking Beyond Social Loafing as Reason for Non-Contribution", *Active Learning in Higher Education*, Vol 14, No. 1, pp 37–49. doi:10.1177/1469787412467123.

Haski-Leventhal, D., Pournader, M. and Leigh, J.S.A. (2022) "Responsible Management Education as Socialization: Business Students' Values, Attitudes and Intentions", *Journal of Business Ethics*, Vol 176, No. 1, pp 17–35. doi:10.1007/s10551-020-04593-3.

Karau, S.J. and Williams, K.D. (1993) "Social Loafing: A Meta-Analytic Review and Theoretical Integration", *Journal of Personality and Social Psychology*, Vol 65, No. 4, pp 681–706. doi:10.1037/0022-3514.65.4.681.

Latané, B., Williams, K. and Harkins, S. (1979) "Many Hands Make Light the Work: The Causes and Consequences of Social Loafing", *Journal of Personality and Social Psychology*, Vol 37, No. 6, pp 822–832. doi:10.1037/0022-3514.37.6.822.

Lu, Y. and van der Hoek, A. (2025) "Visualizing Frequent Peer Assessment Results to Uncover Problems in Team Dynamics", *2025 IEEE/ACM 37th International Conference on Software Engineering Education and Training (CSEE&T)*, Ottawa, ON, Canada, pp 365–375. doi:10.1109/CSEET66350.2025.00045.

Maiden, B. and Perry, B. (2011) "Dealing With Free-Riders in Assessed Group Work: Results From a Study at a UK University", *Assessment & Evaluation in Higher Education*, Vol 36, No. 4, pp 451–464. doi:10.1080/02602930903429302.

Puusa, A. and Juuti, P. (eds.) (2020) *Laadullisen tutkimuksen näkökulmat ja menetelmät*. 2nd edn. Helsinki: Gaudeamus.

Rasche, A. and Gilbert, D.U. (2015) "Decoupling Responsible Management Education: Why Business Schools May Not Walk Their Talk", *Journal of Management Inquiry*, Vol 24, No. 3, pp 239–252. doi:10.1177/1056492614567315.

Rasooli, A., Turner, J., Varga-Atkins, T., Pitt, E., Asgari, S. and Moindrot, W. (2025) "Students' Perceptions of Fairness in Groupwork Assessment: Validity Evidence for Peer Assessment Fairness Instrument", *Assessment & Evaluation in Higher Education*, Vol 50, No. 1, pp 111–126. doi:10.1080/02602938.2024.2354510.

Topping, K. (1998) "Peer Assessment Between Students in Colleges and Universities", *Review of Educational Research*, Vol 68, No. 3, pp 249–276. doi:10.3102/00346543068003249.

van den Berg, I., Admiraal, W. and Pilot, A. (2006) "Design Principles and Outcomes of Peer Assessment in Higher Education", *Studies in Higher Education*, Vol 31, No. 3, pp 341–356. doi:10.1080/03075070600680836.

Yasin, B., Burhan, O.K., Mustafa, F., Fata, I.A. and Komariah, E. (2025) "Student Contribution Index (SCI) in Science: A Measure of Contribution to Mitigating Social Loafing and Free-Riding in Team Projects", *Jurnal Ilmiah Ilmu Terapan Universitas Jambi*, Vol 9, No. 3, pp 1066–1078. doi:10.22437/jiituj.v9i3.42064.

Yin, R.K. (2018) *Case Study Research and Applications: Design and Methods*. 6th edn. Los Angeles: Sage.