

A STUDY OF STAKEHOLDER PERSPECTIVES ON ESTABLISHED CHARACTERISTICS AND AREAS FOR DEVELOPMENT IN A COOPERATIVE STATE UNIVERSITY IN GERMANY

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Abstract

Cooperative state universities have become an integral part of the German higher education system. Ongoing social, technological, and labour market changes, however, require continuous development of structures, curricula, and institutional conditions. This study evaluates (a) the relevance of established characteristics and (b) potential areas for development using a multilateral perspective. An online survey was distributed to all stakeholders of the Baden-Wuerttemberg Cooperative State University, yielding responses from 2,401 students, 184 professors, 1,504 external lecturers, and 1,118 dual partners. Results indicate that most established characteristics were considered relevant, with the highest approval for alternating theory-practice phases and the lowest for intensive study programmes. Regarding areas of development, stakeholders identified potential for adapting the programme design to developments in artificial intelligence, strengthening the theory-practice linkage, ensuring non-discriminatory access, or fostering life skills. Compared to other groups, professors expressed the lowest approval rates for these development areas. Overall, the findings suggest that the current system requires fine-tuning of existing elements rather than a fundamental structural transformation.

1 Introduction

The establishment of Professional Academies (Berufsakademien) in the German federal state Baden-Wuerttemberg more than fifty years ago transferred the principle of dual vocational training to the tertiary sector. Characteristic features of this concept include, among others, (a) contractual relationships between companies or social institutions (i.e., dual partners) and students, (b) curricula that specify workplace-based course content, and (c) typically parity-based representation of the institutions involved in relevant governance bodies (Deuer & Träger, 2015).

The success of this new educational model is reflected in the rapid growth of new locations first within the federal state of Baden-Wuerttemberg itself and subsequently throughout Germany. Moreover, the German Council of Science and Humanities (Wissenschaftsrat) has repeatedly

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acknowledged its important role in the German education system. Specifically, this new educational model has been recognised as offering a promising means to further diversify the German higher education system (Wissenschaftsrat, 1993). It has been emphasised that, although its profile differs from that of universities of applied sciences, the education provided may be considered equivalent in terms of overall professional qualification (Wissenschaftsrat, 1994). A specific indicator of the success is that, in evaluations of newly established professional academies in other German federal states, the system in Baden-Wuerttemberg was used as a benchmark (Wissenschaftsrat, 1996; Wissenschaftsrat, 2004).

The transition from the Professional Academies Baden-Wuerttemberg to the Baden-Wuerttemberg Cooperative State University (Duale Hochschule Baden-Wuerttemberg) was another milestone. This transition entailed full equality of status under higher education law compared with other types of higher education institutions. This status further increased the relevance of dual education programmes and sustainably consolidated their position within the German higher education system. Today, dual programmes are also offered by universities of applied sciences and some universities. Moreover, the disciplinary range has expanded beyond business, engineering and social work to fields such as health and nursing (e.g., Jürgensen et al., 2023). Although smaller in quantitative terms than other types of higher education institutions, the more than 140,000 students (about 5%) enrolled in dual education programmes in the winter term 2023/24 demonstrate that the dual education system has established itself as an integral part of the German higher education landscape (Centrum für Hochschulbildung, 2024).

Considering the ongoing social, technological, and labour market changes, cooperative state universities, like all higher education institutions, face the challenge of continuously developing their structures, curricula, and institutional conditions (Loorbach & Wittmayer, 2024). These challenges include the diversification of student populations, increasing international competition, or a growing emphasis on quality assurance and outcome-oriented governance (Hazelkorn, 2015). Moreover, digital disruption is reshaping teaching, learning, and work processes (Scholkmann et al., 2024). In this context, dual education programmes must be designed to attract both students and partner companies. For students, they should provide a high-quality, future-oriented pathway with clear prospects for development and employment. For companies, they represent a promising instrument for recruiting and retaining skilled workers. The long-term sustainability of dual study programmes therefore depends on the extent to which they succeed in integrating the interests and expectations of both sides into a balanced educational system.

Against this backdrop, the present study pursues two main objectives. First, it examines how established characteristics of cooperative state universities are perceived as relevant by different stakeholders (i.e., students, professors, external lecturers, and dual partners). Surveying different stakeholder groups may provide richer information than the predominant single-stakeholder approaches in existing research, which often focus, for example, solely on students' perspectives (e.g., Luekitinan, 2018). While research often focuses on specific aspects of dual education, this study focuses on both the relevance of organisational features (e.g., the regular change between theoretical and practical phases) and teaching or practice-oriented elements (e.g., practice-oriented examination formats). This evaluation can provide a solid basis for cooperative state universities to effectively address ongoing social, technological, and labour market changes (Loorbach & Wittmayer, 2024). By understanding to what extent these characteristics are still valued, institutions can better adapt their structures, curricula, and institutional frameworks to align with the evolving needs and expectations of the different stakeholders (de Groot et al., 2025). Second, the study further explored the relevance of potential areas for development in four domains of cooperative state universities that are highly relevant in higher education systems: (1) programme design, (2) practice- and research-orientation, (3) equality of opportunity and study access, and (4) sustainability, internationalisation, and personality development. This aim responds to the need for higher education institutions to continuously develop and adapt to societal change (Loorbach & Wittmayer, 2024).

2 Methodology

2.1 Procedure

An online survey was sent to all relevant stakeholders associated with the Baden-Wuerttemberg Cooperative State University in the summer term 2025. The stakeholders included students, professors, external lecturers, and dual partners. Of the 30,685 students contacted, 2,401 (7.82%) completed the survey. Of the 901 professors contacted, 184 (20.42%) completed the survey. Of the 6,732 external lecturers contacted, 1,504 (22.34%) completed the survey. Of the 5,861 dual partners contacted, 1,118 (19.08%) completed the survey.

2.2 Survey

The survey comprised several sections addressing established characteristics of cooperative state universities as well as potential areas for development.

2.2.1 Established characteristics of cooperative state universities

Regarding established characteristics, the survey addressed organisational and teaching/practice-related topics. For both topics, three questions were asked, in which the participants were asked to rate the relevance for each characteristic on a 7-point Likert scale from 1 (very unimportant) to 7 (very important). There was no possibility to add free comments in the survey.

The questions about organisational aspects addressed (1) the regular change between theory-phases and practice-phases, (2) the feasibility of completing within the standard period of study, and (3) the intensive study programme with 210 ECTS credits in six semesters. The questions about teaching/practice-related aspects addressed (1) the small-group teaching approach in the theory phases, (2) the high proportion of lecturers from professional practice, and (3) practice-oriented examination formats.

2.2.2 Areas for development

Regarding areas for development, four domains were included: (a) programme design, (b) practice- and research-orientation, (c) equality of opportunity and study success, and (d) sustainability, internationalisation, and personality development. For each domain, four aspects were addressed. The participants were again asked to rate the relevance for each characteristic on a 7-point Likert scale from 1 (very unimportant) to 7 (very important). Again, the survey did not include open-ended comment fields.

For the domain of programme design, questions were asked about (1) adaptation of curricula and assessment methods to changes brought about by Artificial Intelligence, (2) development of new hybrid and flexible teaching formats, (3) extension of the curriculum, and (4) promotion of interdisciplinarity in dual study programmes. For the domain of practice- and research-orientation, questions were asked about (1) strengthening the linkage between theory and practice, (2) the practice- and labour-market-oriented design of study programmes, (3) strengthening research activities, and (4) the promotion of an entrepreneurial culture in dual study programmes. For the domain of equality of opportunity and study success, questions were asked about (1) ensuring equal and non-discriminatory access to higher education, (2) the promotion of women and the strengthening of gender equality, (3) the promotion of inclusion, and (4) the reduction of student dropout rate. For the domain of sustainability, internationalisation, and personality development, questions were asked about (1) promotion of sustainability and climate protection at the university, (2) the promotion of mental health and well-being among students, (3) the development of personal and social competencies (life skills), and (4) advancing the internationalisation of academic studies.

2.3 Statistical analysis

For the analyses, responses were dichotomised by comparing respondents who rated an item above the midpoint of the scale (values 5–7) with those who rated it at or below the midpoint (values 1–4). We deliberately chose this procedure for two main reasons. First, our research questions focus on whether stakeholders regard an aspect as at least somewhat important rather than neutral or unimportant. Distinguishing clearly between “(rather) important” and “not (rather) important” may be relevant for decision-making, where management and policy actors typically need to know which aspects reach a clear threshold of perceived importance across stakeholder groups. Second, more practically, the dichotomisation facilitates communication of results to non-academic audiences (e.g., dual partners) by allowing the use of easily interpretable percentages (e.g., “X% of students consider this aspect (rather) important”) and straightforward group comparisons.

3 Results and discussion

First, the results regarding the established characteristics of cooperative universities including the two subsections on organisational characteristics and teaching/practice-related topics are shown and discussed. Subsequently, the results on areas for development with the four domains programme design, practice- and research-orientation, equality of opportunity and study success, and sustainability, internationalisation, and personality development are presented and discussed.

3.1 Established characteristics of cooperative state universities

3.1.1 Organisational characteristics

The percentages of agreement for all three topics across the different stakeholders are shown in Figure 1.

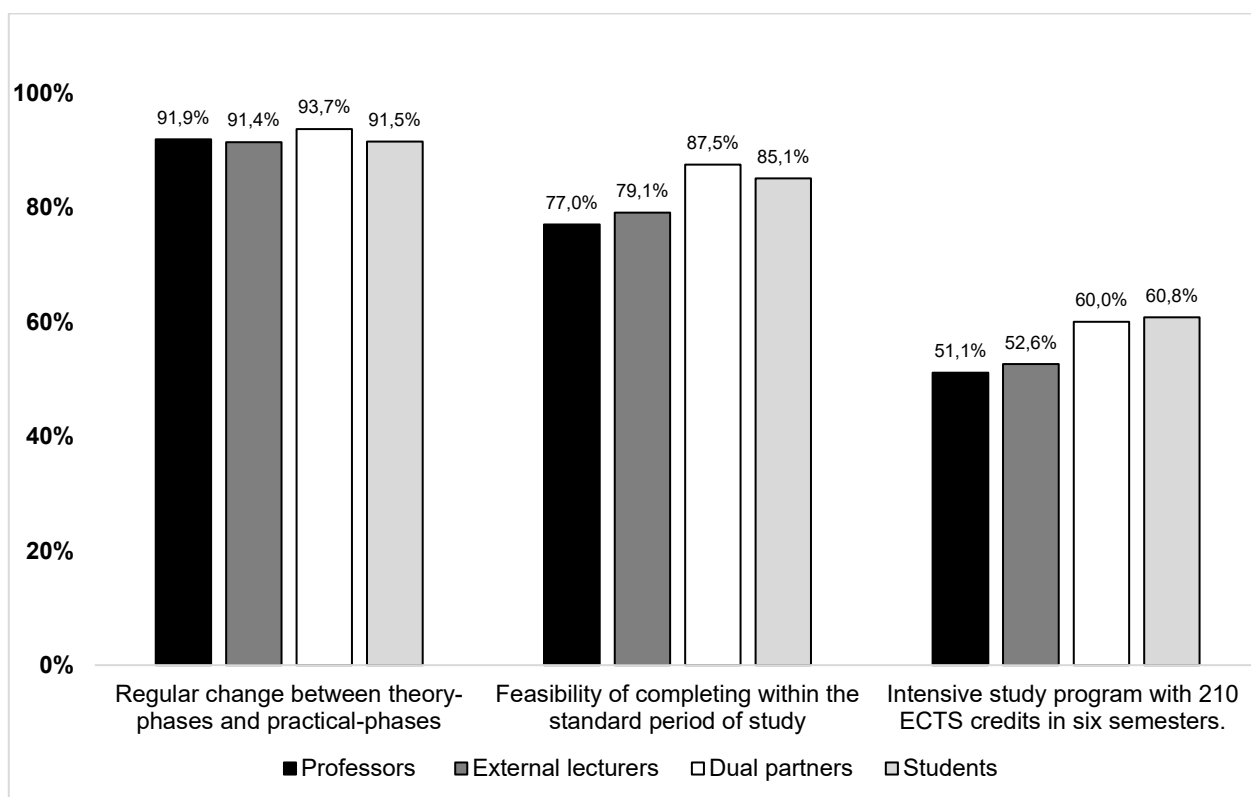


Figure 1. Relevance of organisational characteristics

Stakeholders acknowledge the regular change between theory and practical phases with agreement rates above 90% in all groups. This result shows a broad consensus across the groups and is consistent with the idea that this regular change is the essence of cooperative state universities (Gerstung-Jungherr & Deuer 2025a). It enables the integration of scientifically grounded knowledge and professional application, as theoretical content can be promptly tested in practice. Practical experiences can, in turn, be reflected upon during the theoretical phases. This characteristic is not only a key attraction of dual study programmes (Deuer, 2017), but also marks their distinction from other study formats.

The vast majority also agreed that it should be feasible to complete the studies within the standard period of study. This characteristic entails that a well-structured study programme that can be completed within a defined period provides reliability and enables efficient planning both for students and for the cooperating companies. Because students (85.1%) and cooperating companies (87.5%) are more directly affected by this, it can also explain the slightly lower ratings given by professors (77.0%) and external lecturers (79.1%).

Compared to the other two characteristics, the agreement for the relevance of an intensive study programme with 210 ECTS credits in six semesters was considerably lower (between 51.1% and 60.8%). This characteristic offers students formal advantages, for example with regard to access to master's programmes. For the dual partners, the concise and structured duration of study may allow a large amount of knowledge to be conveyed within a short period of time. At the same time, however, it is associated with a high workload within a comparatively short period of time and thus places high demands on students. The comparatively low rating of its relevance gives rise to several possible interpretations. It is conceivable that the formal advantages of the intensive study programme are not fully known to all stakeholders or play only a subordinate role in everyday study life. Moreover, the intensive study programme may primarily be perceived as an additional source of stress and strain (Olson et al., 2025).

3.1.2 Teaching/practice-related topics

The percentages of agreement for all three topics across the different stakeholders are shown in Figure 2.

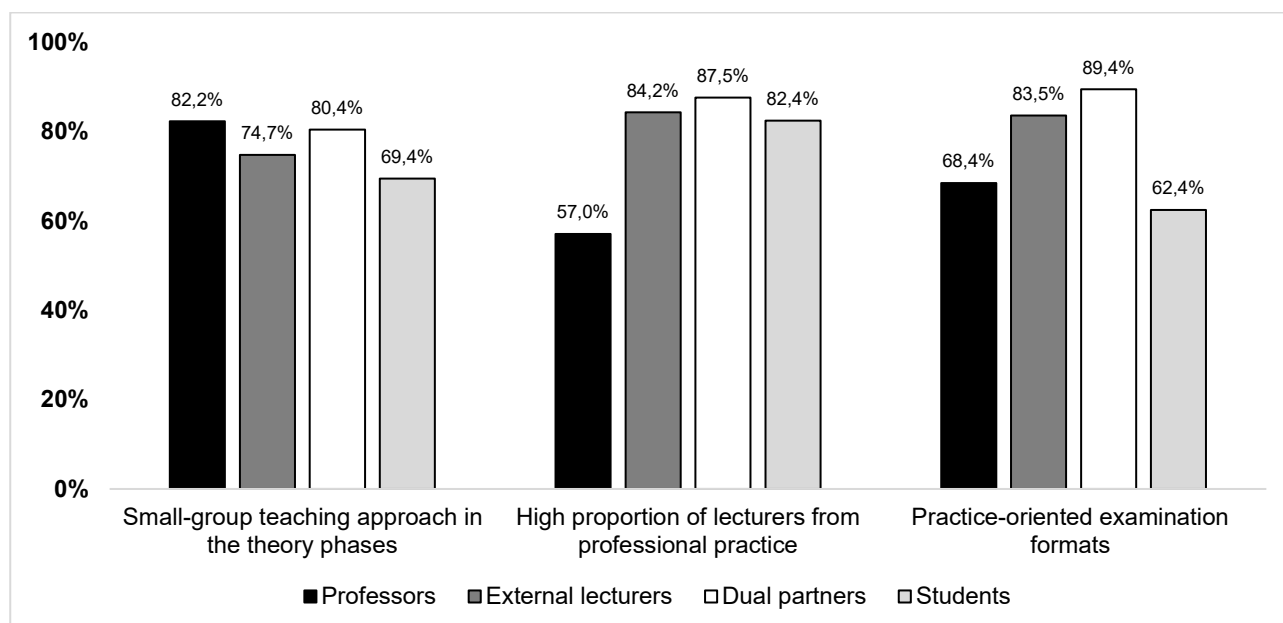


Figure 2. Relevance of teaching/practice-related characteristics

The small-group teaching approach in the theory phases is particularly valued by professors (82.2%) and dual partners (80.4%), while the agreement rates are slightly lower for students (69.4%)

and external lecturers (74.7%). Small groups allow intensive supervision and promote the continuous exchange between lecturers and students. Due to the small size of the groups, instructional content can be more rigorously oriented towards concrete practical examples, while individual professional experiences are systematically incorporated into the teaching sessions. This teaching method not only facilitates individualised learning, but also fosters a high degree of interactivity, which in turn enhances the sustainable transfer between theoretical knowledge and practical application (Silseth & Furberg, 2024). Students may not directly perceive the advantages of small groups or may already regard the existing group sizes (typically up to 30 participants per course) as relatively large. It is possible that comparisons with traditional lectures at universities remain abstract for many students because they often lack personal experience with large lecture halls and anonymous teaching environments as a reference point.

Students, dual partners, and external lecturers view the high proportion of lecturers from professional practice as highly important with agreement rates between 82.4% and 87.5%. Lecturers from professional practice can provide current specialist knowledge, real-world problem scenarios, and valuable professional experience to teaching, thereby making an important contribution to the strong applied orientation of dual study programmes. Particularly in highly dynamic and practice-oriented fields (e.g., artificial intelligence), they may possess up-to-date expertise that meaningfully complements and enriches the scientifically grounded teaching process (Deuer, 2019). The agreement rate of 57.0% is considerably lower among professors. This discrepancy points to differing perspectives and role conceptions among the stakeholders involved. While external lecturers understandably assess their own contribution as particularly relevant, and dual partners primarily expect a strong practical orientation in teaching, students benefit directly from realistic impulses and current practice examples. In contrast, professors are more likely to evaluate the involvement of external teaching staff in a more nuanced manner. In addition to didactic quality, curricular integration, and the long-term safeguarding of academic standards, implicit role demarcation may also play a part (Taylorson et al., 2025). For instance, when external practical expertise is perceived not merely as a complement but at times as a potential competitor to one's own disciplinary authority.

Regarding practice-oriented examination formats, both dual partners (89.4%) and external lecturers (83.4%) view them as highly relevant, while the agreement rates are lower for students (62.4%) and professors (68.4%). The high agreement rates for dual partners and external lecturers can be attributed to the fact that practice-oriented examination formats promote the application of theoretical knowledge in real or realistically simulated professional situations. Thus, they make an important contribution to strengthening problem-solving competencies (de la Fuente et al., 2023). Project work plays a central role in this regard, in which students address specific issues from their organisational environment, apply theoretical concepts, and systematically reflect on the results. In this way, project works combine scientific requirements with practical relevance and renders the application-oriented character of dual study programmes directly visible in performance assessment. In contrast, students may perceive traditional examination formats as advantageous with regard to predictability, transparency, and equality (Fink et al., 2025). These formats provide comparable conditions and assessment criteria, whereas individual practice-based projects are often experienced as difficult to compare due to the highly diverse organisational contexts, available resources, and varying levels of support from training staff. In contrast, traditional examinations may appear to students as less dependent on organisational factors. From the perspective of professors, increased supervisory and assessment effort, as well as the limited comparability of examination performance, may influence their perception.

3.2 Areas for development

3.2.1 Programme design

The percentages of agreement for all four domains across the different stakeholders are shown in Figure 3.

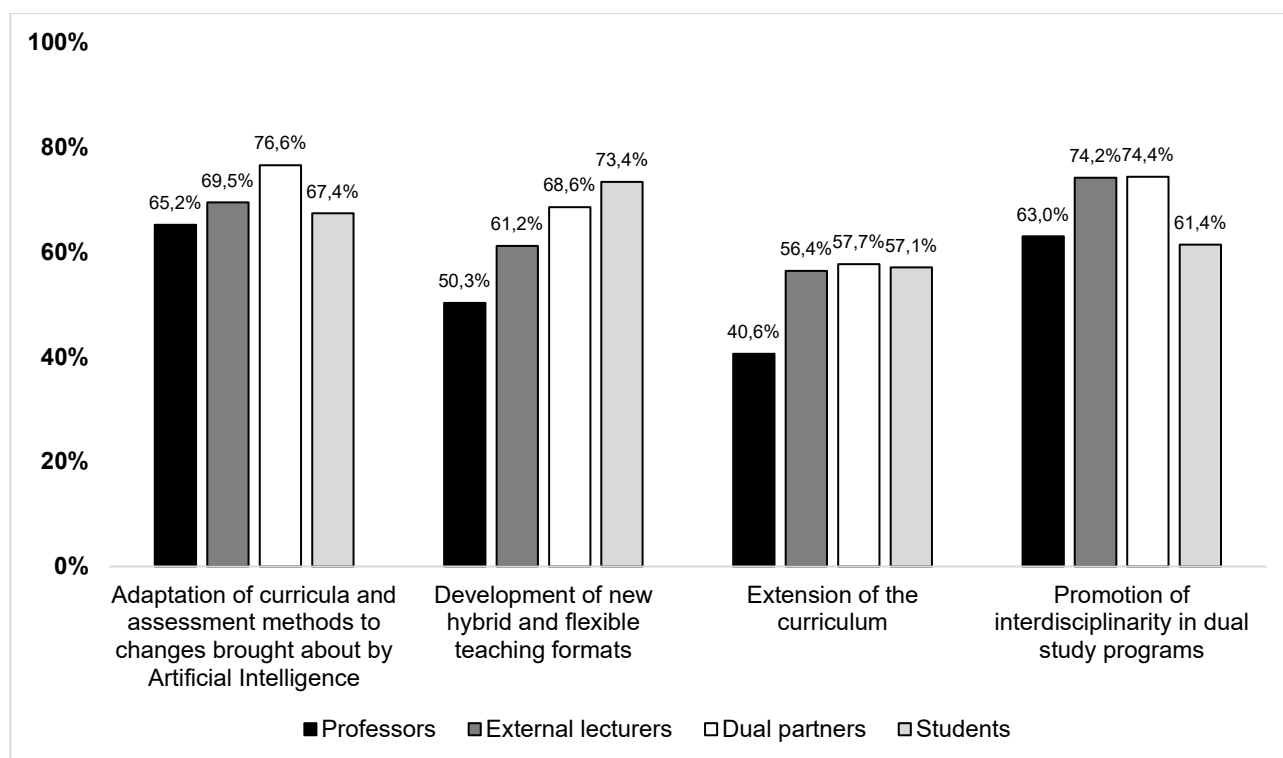


Figure 3. Programme design

Generally, all stakeholders view it as important to adapt curricula and assessment methods to changes brought about by artificial intelligence. The agreement rate is highest for dual partners (76.6%) compared to the other three groups (between 65.2% and 69.5%). The comparatively high level of approval among dual partners underscores its labour market and practice-oriented relevance. It points to a growing expectation that artificial-intelligence-related competencies should be addressed not merely selectively, but systematically and embedded within the curriculum of dual study programmes (Long et al., 2025). These adaptations may pertain both to course content and to didactic and assessment methods (Gerstung-Jungherr & Deuer, 2025b). At the curricular level, this implies, for example, a stronger integration of Artificial Intelligence-related foundations, fields of application, and ethical issues into existing modules. Moreover, it can refer to the development of independent courses on data analysis, algorithmic thinking, or the reflective use of Artificial Intelligence tools in professional contexts. At the same time, the increasing use of Artificial Intelligence-supported tools necessitates an adaptation of examination formats, such as more project- and competence-oriented assessments, open task formats, reflexive components, or the targeted inclusion of Artificial Intelligence as an approved working instrument.

The agreement rates regarding the development of new hybrid and flexible teaching formats vary considerably between the different stakeholders. While agreement among professors is lowest, at 50.3%, students have the highest agreement rate with 73.4%. This distribution points to different interests across the groups. Students may particularly benefit from temporal and spatial flexibility, which facilitates the reconciliation of study requirements with practical phases and private commitments (Deuer, 2021). For external lecturers, who are often not permanently present at the university location, hybrid formats also constitute a pragmatic prerequisite for their teaching activities. For dual partners, greater flexibility in teaching can also be advantageous because it simplifies the coordination between organisational deployment phases and academic learning. By contrast, the comparatively lower agreement rate among professors suggests that traditional face-to-face formats continue to be regarded as particularly effective didactically, or that hybrid teaching formats are associated with increased administrative efforts (see also Hettler et al. 2021).

The agreement rates for an extension of the curriculum are relatively low between 40.6% among professors and 57.7% among dual partners. The overall moderate approval ratings suggest

that the current range of subjects is generally perceived as appropriate, while additions are considered helpful. The comparatively lower level of approval among the professors can be partly explained by the fact that professorships are typically appointed for clearly defined subject areas, structurally limiting the scope for substantive extension.

The promotion of interdisciplinarity in dual study programmes is valued slightly more highly by dual partners (74.4%) and external lecturers (74.2%) than by students (61.4%) and professors (63.0%). Overall, this result points to broad support for cross-disciplinary approaches within dual study programmes. The high level of approval among dual partners and lecturers underscores the importance of interdisciplinary competencies for addressing complex professional demands (Vladova et al., 2025). This primarily involves the targeted linkage of traditional academic disciplines with adjacent fields. In this context, new study programmes may emerge or existing ones may be further developed, for example through interdisciplinary project work or cross-programme courses.

3.2.2 Practice- and research-orientation

The percentages of agreement for all four domains across the different stakeholders are shown in Figure 4.

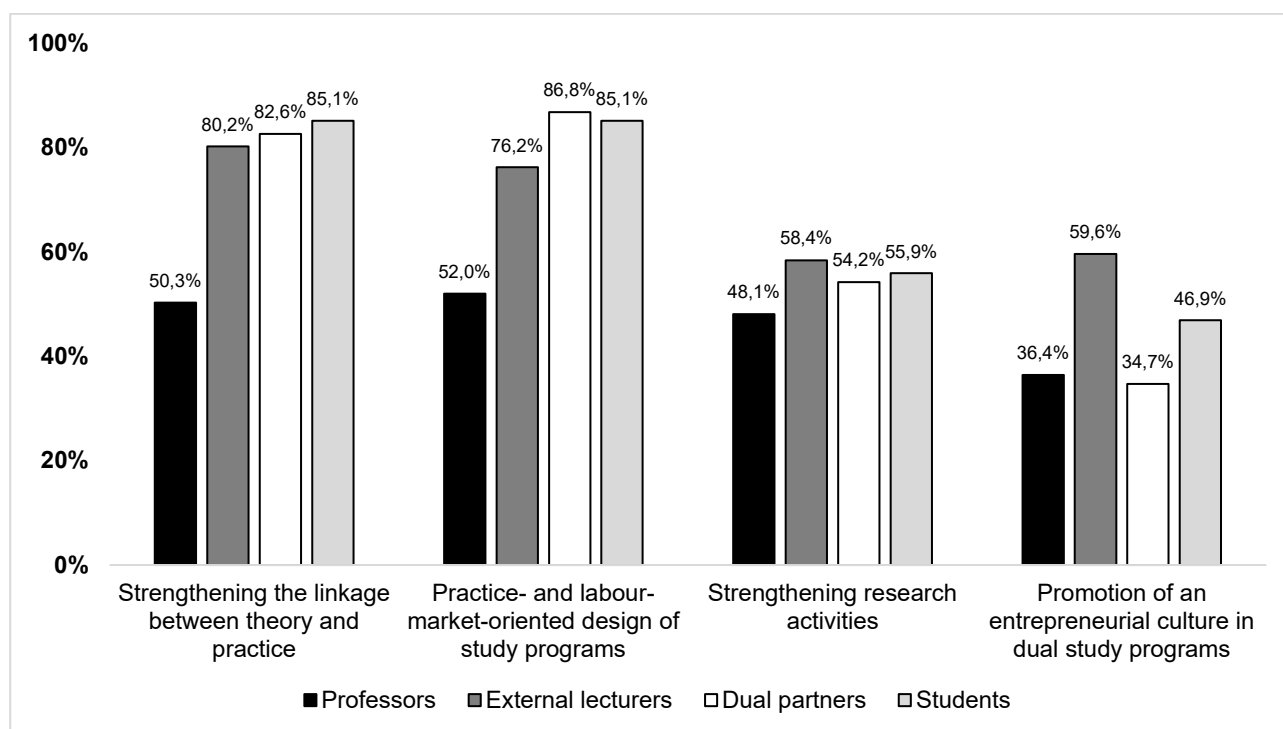


Figure 4. Practice- and research-orientation

Students, external lecturers, and dual partners clearly support the idea of strengthening the linkage between theory and practice (agreement rates between 80.2% and 85.1%). The linkage between theory and practice is viewed as the essence of dual education systems (Gerstung-Jungherr & Deuer, 2025a). A central question typically concerns how practical phases within organisations and academic course content can be more closely aligned, so that they complement one another and enable a sustainable, labour-market-relevant development of competencies (Deuer, Mieze-Mangold & Thieme 2024). The lower agreement rate of the professors (50.3%) indicates that a considerable proportion of professors already regard the status quo as sufficient or perceive limits to further strengthening the linkage.

Students (85.1%), dual partners (86.8%), and slightly less external lecturers (76.2%) view a more practice- and labour-market-oriented design of study programmes as highly important. The agreement rate of the professors is again considerably lower with 52.0%. Overall, this reveals a clear

expectation among three of the four stakeholder groups that study programmes should be more strongly oriented toward current and future labour market requirements. The comparatively lower approval rate among professors points to distinct assessments of the status quo as well as potential conflicts between scientific standards and immediate labour market orientation.

Approval rates for the strengthening of research activities are generally moderate, ranging from 48.1% among professors to 58.4% among external lecturers. An explicit research mandate came with the transformation from Professional Academies to Cooperative State Universities in Germany. Since then, practice-oriented and transfer-focused research formats have emerged, often closely linked to dual partners. In addition to practice-related research projects, this also includes the integration of current practical issues into student projects and theses. Furthermore, new approaches have been developed in order to enable research-based learning (Kolano et al., 2023). The comparatively moderate approval among professors may indicate that existing research activities are already regarded as sufficient. Moreover, structural conditions such as limited time resources, teaching obligations, or the absence of research infrastructure may be perceived as constraining factors for further intensification of research activities.

The highest approval for promoting an entrepreneurial culture in dual study programmes is given by external lectures with 59.6%, while the approval ratings are considerably lower for dual partners (34.7%) and professors (36.4%). The comparatively low level of approval among dual partners may be explained by the fact that most cooperating companies primarily regard dual study programmes as an instrument for recruiting and retaining their own skilled workforce (Deuer, 2022). The more reserved evaluation on the part of the professors may be related to the typical career trajectories of graduates, which are predominantly characterised by dependent employment rather than self-employment. Thus, the promotion of entrepreneurial competencies may be perceived as a complementary, but not as a central profile characteristic of dual study programmes.

3.2.3 Equality of opportunity and study success

The percentages of agreement for all four domains across the different stakeholders are shown in Figure 5.

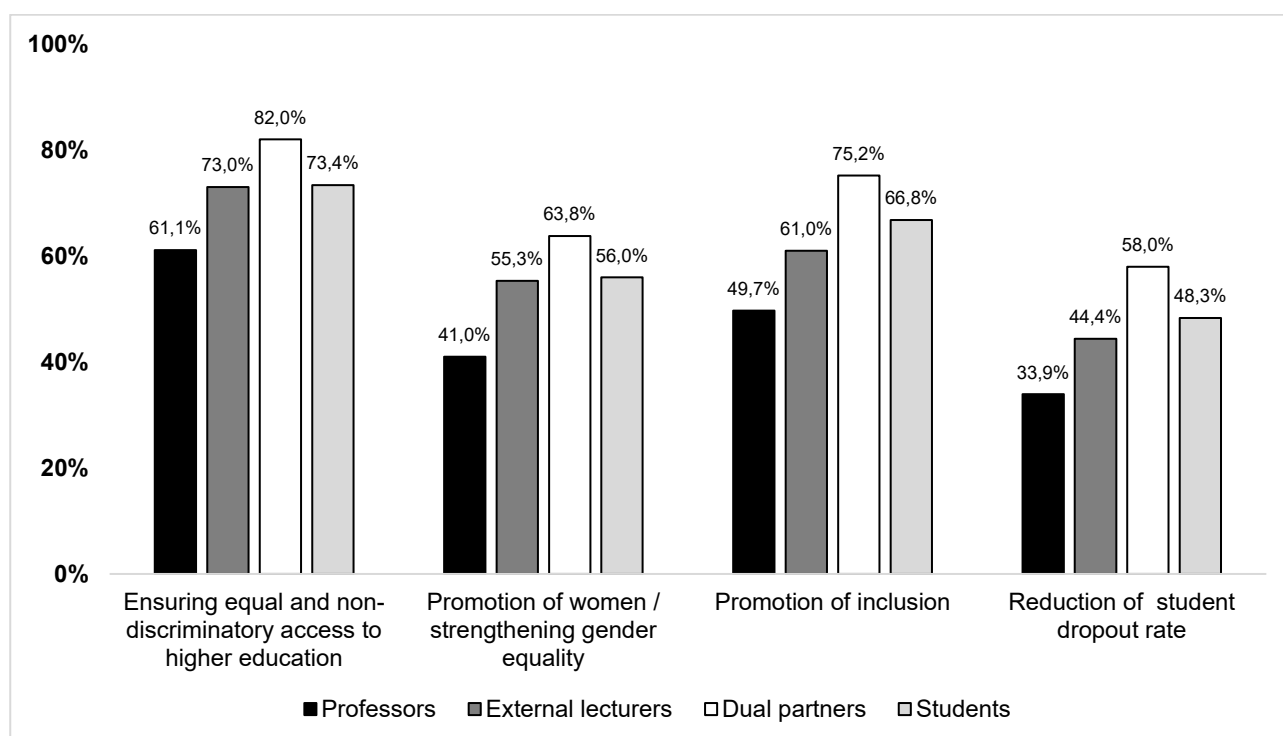


Figure 5. Equality of opportunity and study success

All stakeholder groups generally agree on the relevance of ensuring equal and non-discriminatory access to higher education. The approval is highest for dual partners (82.0%) and lowest for professors (61.1%). Overall, these findings highlight that equity of opportunity is perceived as an important objective of dual study programmes. In fact, dual study programmes have a comparatively high permeability with proportion of students from non-academic family backgrounds than traditional universities (Deuer, 2024). The particularly strong support from dual partners underscores the importance of a diverse and inclusive student representation supporting the long-term safeguarding of skilled labour (for a review of diversity in higher education see Resch, 2023). At the same time, dual partners bear a special responsibility in this regard, as the selection of students lies exclusively within their remit. The enrolment at the university in a dual study programme is only possible if a study contract with a dual partner has already been concluded. Consequently, the recruitment and selection processes of the companies directly determine the extent to which equity of opportunity is actually realised within dual study programmes.

The approval rates for an enhanced promotion of women / strengthening gender equality range between 40.1% among professors to 63.8% among dual partners. The lower approval rate among professors may suggest that existing structures are already perceived as sufficient. Moreover, it may be that issues of gender equality in the context of dual study programmes are not regarded as a specific target. It can also not be ruled out that equality measures are partly associated with concerns that they might stand in tension with principles of performance, claims to excellence, or the idea of selecting the best candidates (Petrova-Stooyanov et al., 2020). Concepts such as “inclusive excellence” (Erbe 2020), which view performance orientation and equity of opportunity not as opposites but as complementary goals, appear in this context to be less established. A more differentiated assessment within the student group - gender was assessed only for this stakeholder group in the survey - reveals pronounced gender-specific differences. While only around two-fifths of male students perceive a need for further action, more than 70% of female students express a demand for development in the area of the promotion of women and gender equality.

Regarding the promotion of inclusion, there is a considerable range between approval rates of 49.7% among professors and 75.2% among dual partners. The high level of approval among dual partners may be due to the fact that they regard inclusion not only as a societal responsibility, but also as a strategic factor for tapping additional potential in the labour market while ensuring the long-term availability of skilled workers. At the same time, inclusive study and working conditions may help prevent student dropouts and safeguard investments already made in training and qualification. Inclusion can encompass various dimensions (Marom & Hardwick, 2025). These include, for example, the removal of barriers for students with physical or psychological impairments, the consideration of diverse social and educational backgrounds, the handling of chronic illnesses or caregiving responsibilities, as well as the creation of study conditions that enable equal participation for international or non-traditional students. In the dual education context, inclusion additionally concerns the coordination between university and company, for instance with regard to flexible deployment models, adapted practical phases, or supportive accompanying structures.

The approval for reducing the student dropout rate ranges from 33.9% among professors to 58.0% among dual partners. From the perspective of dual partners, each student dropout represents a concrete setback for corporate qualification, personnel, and investment planning. By contrast, the comparatively lower level of approval among professors points to a different perspective on student dropouts and acceptable attrition rates (Deuer & Wild 2017). In this context, dropouts may also be interpreted as a result of academic selectivity, problems of fit, or the failure of necessary performance requirements, and thus - at least implicitly - understood as part of a quality assurance process.

3.2.4 Sustainability, internationalisation, and personality development

The percentages of agreement for all four domains across the different stakeholders are shown in Figure 6.

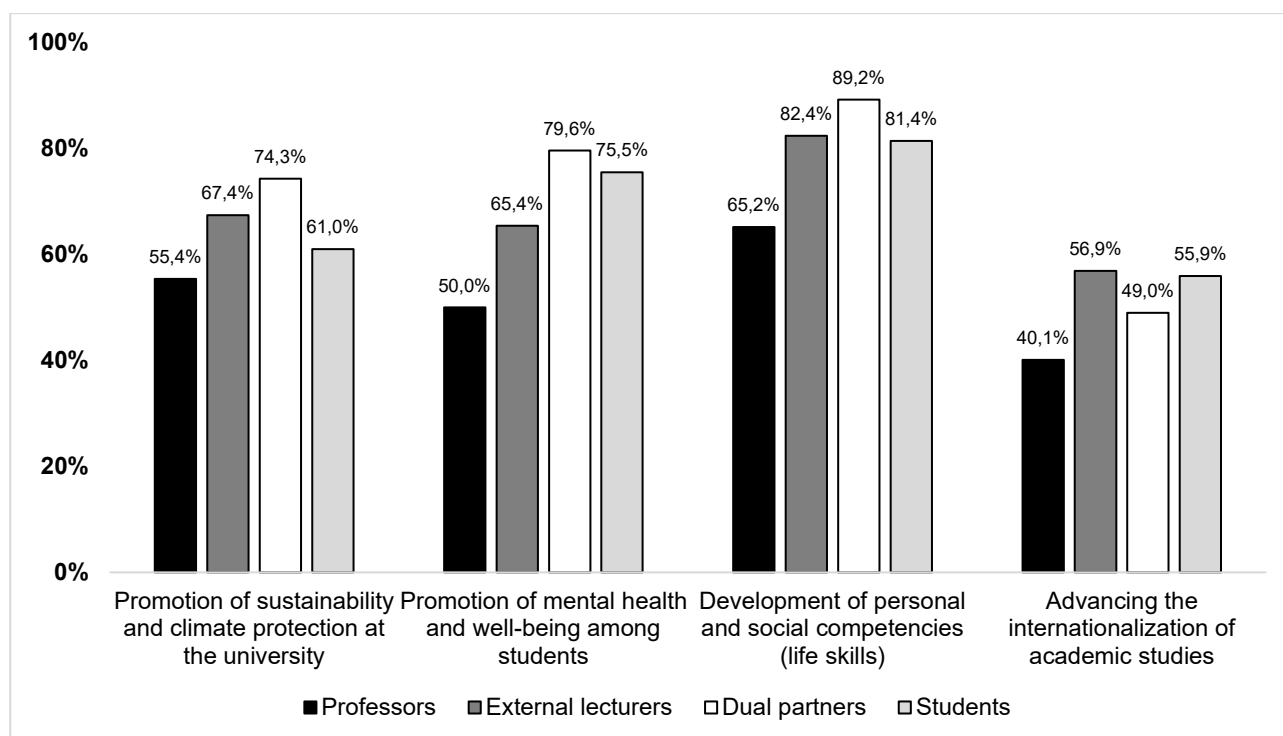


Figure 6. Sustainability, internationalisation, and personality development

The promotion of sustainability and climate protection at the university is supported by the majority of all stakeholder groups with dual partners having the highest approval rate (74.4%). The high approval rate among dual partners may be explained by their operational and corporate requirements. Companies are increasingly subject to regulations such as sustainability reporting, climate protection regulations, or requirements along global supply chains. At the same time, they face growing expectations from customers, investors, and the public. Accordingly, there is considerable interest in graduates who possess fundamental knowledge in the areas of environmental management, resource efficiency, sustainable production, or climate accounting (Leal Filho et al., 2025). The promotion of sustainability in dual study programmes can take various forms. In teaching, this may include the integration of sustainability-related content into existing modules, dedicated courses on climate protection, circular economy, as well as practice-oriented project work addressing real sustainability challenges faced by partner companies. Beyond teaching, sustainability also encompasses organisational aspects, such as energy- and resource-efficient campus concepts, sustainable mobility methods, or an overall environmentally conscious university organisation (Gerstung-Jungherr & Deuer 2024).

The promotion of mental health and well-being among students is highly valued by dual partners (79.6%) and students (75.5%), while the ratings are lowest among professors (50.0%). The high level of approval among students and dual partners points to a growing pressure of expectations to systematically anchor appropriate support and prevention measures (Hyseni Duraku et al., 2024). Such partly already existing measures may involve offers aimed at strengthening individual resilience, coping with stress, and managing performance pressure, as well as low-threshold counselling and coaching formats (Conley et al., 2013). Particularly in dual study programmes, which are recognised as intensive programmes characterised by high temporal compression and the parallel demands of academic study and company-based practice, the conscious management of one's own resources is highly relevant. Such measures can include programmes that address competencies such as self-awareness, self-regulation, self-efficacy, social competence, and problem-solving ability. Moreover, they can also address the capacity to assess stressful situations and to recognise whether they can be managed independently or whether support is required (adaptive coping competence). These skills that can be deliberately trained are of great importance not only for academic success but also for subsequent professional practice.

The development of personal and social competencies (life skills) is highly valued by students, external lecturers, and dual partners with approval ratings between 81.4% and 89.2%. The approval ratings among professors are again considerably lower with 65.2%. The high ratings by dual partners underscore the labour market relevance of these competencies. From their perspective, life skills constitute essential prerequisites for professional agency, teamwork, and leadership development, and are therefore decisive for the sustainable integration of students into work processes (Nasheeda et al., 2018). At the same time, they contribute to preparing students for complex professional and life situations, in which technical knowledge alone is insufficient. A concrete example of the targeted promotion of personal and social competencies in dual study programmes is the project “*DIRK Dual – Digital Reflection Tool for Competence Development in Dual Study Programs*” (Eigbrecht et al., 2024). This study-accompanying digital tool supports students in systematically reflecting on their professional competencies during practical phases and in further developing them throughout the entire course of study. Beyond subject-specific qualifications, the focus lies on the cultivation of future skills such as communication, teamwork, self-organisation, problem-solving competence, and a reflective use of digital tools. *DIRK Dual* integrates an ePortfolio tool and supplements it with a mentoring and coaching concept. In this way, students are not only supported in self-reflection but also receive ongoing feedback from practice partners and mentors.

The approval ratings for advancing the internationalisation of academic studies range from 40.1% among professors to 56.9% among external lecturers. International experiences can be realised in a variety of formats: traditional study-abroad semesters, practical phases in international partner companies, double-degree programmes, or international project collaborations in specific courses. These mobility options foster language proficiency, intercultural sensitivity, and global problem-solving skills - competencies of high relevance in an increasingly interconnected world (Baxter, 2017). For dual partners engaged in international business relations, students with these skills can represent a decisive advantage. A possible reason for the more reserved attitude of the professors may lie in the fact that many students already make use of the opportunities described. For example, in some places at the Baden-Wuerttemberg Cooperative State University, more than 40% of graduates have integrated a period of study abroad, which exceeds the average at many traditional universities. In addition, full-time professors may perceive potential organisational obstacles, complex curricular coordination processes, issues of recognition, or the safeguarding of academic standards as critical challenges in this context (de Wit, 2019).

4 Conclusions

The results of this article address the relevance of established characteristics of cooperative state universities as well as various potential areas for further development. Through the systematic inclusion of all relevant stakeholder groups, both overarching commonalities in assessments and group-specific differences in evaluations become visible, reflecting the diverse roles, expectations, and responsibilities within the dual education system.

Established characteristics of cooperative state universities

The evaluation of the six established characteristics of dual education programmes by the various stakeholder groups demonstrates that these continue to be regarded as highly relevant. In particular, the regular change between theoretical and practical phases receives approval ratings of over 90%, reflecting an almost unanimous consensus across all groups, thereby confirming its function as a core identity feature of dual education programmes (Gerstung-Jungherr & Deuer 2025a). Likewise, the feasibility of completing studies within the standard period of study is acknowledged by all stakeholders as an essential quality criterion. Above all, students and dual partners attach high importance to the predictability and reliability of the study trajectory.

Moreover, the findings indicate that the structural features that directly contribute to the assurance of teaching and supervisory quality are generally considered highly important, though some differences have emerged. The small-group teaching concept is particularly highlighted by professors and dual partners, whereas students and external lecturers assess this aspect as somewhat less relevant. The high proportion of external lecturers from professional practice receives

broad approval across all stakeholder groups; a similar pattern emerges in the evaluation of practice-oriented examination formats. These formats are regarded as a relevant structural feature especially by dual partners and external lecturers, while students and professors attribute comparatively less importance to them. Here, potential conflicts between an applied orientation, predictability, supervisory workload, and comparability of performance standards become apparent. These are conflicts that are structurally embedded in the dual study system and reflect differing interests between the stakeholders (Mordhorst & Jenert, 2022).

Overall, the results demonstrate that the established characteristics of dual study programmes continue to be regarded as important by the vast majority of stakeholders. At the same time, the differences among stakeholders with respect to individual features reveal divergent expectations that must be taken into account in the future development of dual education programmes.

Areas for development

The results reveal, in many cases, a broad consensus across all stakeholders. The necessity of adapting curricula and examination formats to the transformations triggered by artificial intelligence and preparing students specifically for the use of new digital technologies are particularly emphasised. In the same vein, a stronger promotion of interdisciplinary approaches within dual study programmes is stressed, enabling the handling of complex problems across disciplinary boundaries. Furthermore, a practice- and labour-market-oriented design of study programmes is identified as a central task, accompanied by a further intensification of the integration of theory and practice. In addition to these content-related and structural aspects, social dimensions are also gaining importance: the promotion of inclusion and the assurance of fair and non-discriminatory access to higher education, particularly for disadvantaged groups, are regarded by all stakeholder groups as important future tasks.

The results also show that professors view the least need for further development in many areas, whereas representatives of the dual partners often identify the greatest scope for action. This divergence can primarily be explained by the differing roles, experiences, and responsibilities within the dual education system (Mordhorst & Jenert, 2022). Dual partners are directly confronted with current developments in their daily practice, such as increasing demands for sustainability, diversity and inclusion, internationalisation, and digital competencies. For this reason, they seek optimal study conditions for “their” students - conditions that, in addition to subject-specific qualifications, also encompass the development of personal and social competencies (life skills) as well as the promotion of mental health. For them, students are often regarded as future professionals and long-term employees within the company.

Professors often evaluate the potential for further development more cautiously. This does not mean they reject innovation, but rather that they thoroughly weigh different factors. They possess a comprehensive overview of existing curricular structures, institutional frameworks, and established quality standards, and often perceive the status quo as appropriate. Moreover, they are more directly confronted with the practical limits of feasibility such as restricted personnel and financial resources, legal requirements, administrative burdens, or potentially conflicting objectives. For example, while internationalisation within dual study programmes may in principle be assessed positively, its implementation raises questions regarding compliance with the standard period of study, the recognition of examination results from foreign universities, and the safeguarding of academic quality standards (de Wit, 2019). In addition, it is the responsibility of the professors, as representatives of the university, to ensure the long-term preservation of curricular coherence and academic standards. This leads to a sharper distinction between desirable developmental goals and realistically achievable innovation measures. The more cautious evaluations therefore reflect less a lack of willingness to reform than an awareness of complexity, potential consequences, and the need for sustainable implementation.

There are several limitations to consider when interpreting the results of the present study. One limitation concerns the relatively low response rate among students (7.82%), which raises the possibility of non-response bias. It cannot be ruled out that students who chose to participate differ systematically from non-respondents in their perceptions of cooperative state universities. Although the response levels of the other stakeholder groups are higher, these differential response rates may affect the comparability of stakeholder perspectives and limit the generalisability of the student

findings. Another limitation concerns the dichotomisation of the 7-point Likert scales, which inevitably entails a loss of information and may reduce statistical power. We chose this procedure to obtain a clear distinction between respondents who (rather) endorse the importance of an aspect and those who do not, and to facilitate communication of the findings to practitioners via easily interpretable percentages. Nevertheless, future research should, where possible, rely on more sophisticated analytical approaches in order to capture more nuanced differences in stakeholders' assessments. Moreover, the response format did not include open-ended comments. Future research could complement quantitative assessments with qualitative approaches (e.g., interviews, focus groups, or structured analyses of free text responses) to gain a deeper understanding of how stakeholders interpret and justify their evaluations. An additional point to consider is that the study focuses exclusively on a single cooperative state university, which restricts the generalisability of the findings. Future research could address this limitation by examining whether similar patterns emerge at other cooperative state universities and by comparing stakeholder perceptions with those at traditional universities or universities of applied sciences.

Overall, the findings suggest that, from the perspective of the respondents at the Baden-Wuerttemberg Cooperative State University, the current status may not call for a fundamental structural transformation but rather for targeted adaptations and fine-tuning of existing elements. At the same time, the results should be interpreted with caution and not be generalised to the system level without further corroborating evidence. Within the context studied, a central challenge appears to lie in safeguarding established characteristics and quality standards while maintaining sufficient openness to innovation. The present study provides an empirical basis that can inform further discussions and may offer initial substantive impulses. However, the specific measures that can or should be implemented depend on the respective scope for action, resources, and priorities of the stakeholders involved. In this regard, a systematic coordination between the university and dual partners seems particularly important to align curricular, organisational, and practice-related requirements. Likewise, the continuous inclusion of the perspectives of students and external lecturers may help to ensure that development processes remain both student-oriented and practice-oriented. Within this interplay, dual study programmes could potentially be further developed and shaped for the future, while recognising that additional research is needed before drawing broader system-level conclusions.

Statement on AI use in manuscript preparation

The authors used the tool Copilot to support the preparation of this manuscript. The AI tool assisted with language refinement, formatting references in APA style, and improving clarity of expression. The authors reviewed and approved all content generated by AI, and take full responsibility for the accuracy and integrity of the final manuscript.

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