JUTLP
Journal of University Teaching & Learning Practice

Teaching Profiles and Perceptions of Student Learning of Generic Skills in the Hungarian Universities

Natia Bendeliani[a] and Tarja Tuononen[b]
Eötvös Loránd University, Hungary; [b] University of Helsinki, Finland

Abstract

Teachers' approaches to teaching, which are understood as the interplay between their intentions in a given teaching situation and the strategies they employ, have been widely examined in higher education research. However, approaches to teaching, as a concept, have not been sufficiently studied in relation to teaching generic skills, despite universities increasingly recognising their importance. Addressing this gap in the present study, we examined higher education teachers' approaches to teaching and their perceptions of student learning of generic skills. Conducted in the Hungarian higher education context, where research on teaching generic skills remains scarce, the study provides novel insights. A total of 221 university teachers filled in the online questionnaire. The data were analysed using Pearson's correlations, cluster analysis, the Chi-square test, and a one-way ANOVA. Three distinct teaching profiles emerged: interactive-organised, transmissive, and mixed. These profiles were associated with different perceptions of how students develop generic skills such as critical thinking, collaboration, multidisciplinary skills, and self-regulation. Disciplinary background also played a role in shaping profile distribution. Overall, the findings provide context-sensitive insights into how teaching approaches influence perceptions of generic-skill learning and extend the validity of the instrument in a cross-national context.

Editors

Section: Academic Development
Senior Editor: Kerry Dobbins
Associate Editor: Martin Andrew

Publication

Submission: 7 January 2026
Revised: 18 March 2026
Accepted: 23 March 2026
Online First: 25 May 2026
Published: 25 May 2026

Practitioner Notes

1. Teachers who adopt interactive and well-organised teaching approaches tend to perceive higher student development of generic skills than those using transmissive approaches.
2. Predominantly transmissive teaching approaches are associated with lower perceived learning of generic skills and may need to be complemented by interactive practices.
3. A mixed teaching approach, combining transmissive and interactive elements, is common and is associated with moderate support for generic-skill development.
4. The questionnaire used in this study can be applied to identify teaching profiles related to generic-skill support in the higher education context.
5. Institutions should invest in pedagogical training that increases teachers' awareness of generic skills and supports the use of interactive and reflective teaching practices.

Keywords

approaches to teaching, higher education, generic skills, Hungarian universities

Citation:

Bendeliani, N., Tuononen, T. (2026). Teaching profiles and perceptions of student learning of generic skills in the Hungarian universities. *Journal of University Teaching and Learning Practice, 23*(2). https://doi.org/10.53761/zdtf8p33

Introduction

Across various educational settings and disciplines, higher education institutions increasingly emphasise the importance of generic skills, such as critical thinking, collaboration, problem solving, and communication, for students' long-term employability and personal development (Tuononen et al., 2022). These skills are widely regarded as essential not only for navigating complex professional environments but also for contributing meaningfully to society. Numerous studies have highlighted that integrated pedagogical practices, including project-based assignments, problem-based learning, and embedding skills into subject-specific lectures, are effective in promoting these skills among students (Muukkonen et al., 2022; Tynjälä et al., 2016; Virtanen & Tynjälä, 2019). However, despite this theoretical consensus, a gap may still exist between pedagogical intention and classroom implementation.

In parallel, in this article, we engage with the broader scholarly conversation on approaches to teaching, a concept that continues to be influential in analysing diverse pedagogical issues in higher education. Approaches to teaching refer to the beliefs, intentions, and strategies that teachers adopt in planning and delivering instruction. The concept remains valuable because it encapsulates not only what teachers do in the classroom but also how they think about teaching and learning (Prosser & Trigwell, 2006). Decades of research have shown that teaching approaches are closely connected to teachers' conceptions of teaching and learning (Gonzalez, 2008; Kember & Kwan, 2002; Lam & Kember, 2006), their instructional design decisions, and students' learning outcomes (Beausaert et al., 2013; Richardson, 2005; Uiboleht et al., 2018). However, one area that remains insufficiently investigated is the interplay between teachers' perceptions of generic skills and their approaches to teaching.

The Hungarian higher education context offers a particularly interesting setting for examining how teachers perceive the teaching and learning of generic skills. In recent years, Hungarian universities have been undergoing structural and curricular transformations aimed at aligning more closely with the European Higher Education Area (EHEA) standards, including an increased emphasis on student-centred learning and competence-based education (Kováts, 2019). At the same time, traditional academic cultures that prioritise content knowledge and discipline-specific expertise remain influential, often resulting in tension between innovation and established teaching norms (Bogdány et al., 2021). This duality creates a unique pedagogical landscape where diverse approaches to teaching coexist, making it possible to explore how different teaching orientations influence the perceived development of skills. Furthermore, national policies and accreditation frameworks in Hungary increasingly emphasise the role of transferable skills in fostering graduate employability (Kováts & Derényi, 2023). Yet relatively little is known about how teachers interpret and implement these expectations in their daily practice. Investigating teachers' perceptions within this context not only contributes to understanding local pedagogical realities but also offers broader insights into how system-level changes influence instructional beliefs and practices in post-socialist higher education systems.

Although previous studies have examined academics' conceptions of generic skills and how these conceptions are related to pedagogical practices (Tuononen et al., 2023), little is known about whether and how their perceptions of students' learning of generic skills align with their broader approaches to teaching. This study seeks to fill that gap by exploring the relationship between

higher education teachers' perceived development of students' generic skills and their teaching approaches, using a validated instrument in a contextually relevant national setting.

In addition to this, research on generic skills development is often methodologically fragmented or conceptually narrow. Prior reviews of the literature have revealed that many studies introduce their own survey instruments, making cross-study comparisons difficult (Chan et al., 2017; Tuononen et al., 2022). As a result, research in this area lacks coherent pedagogical frameworks and robust measurement tools. To address these gaps, this study uses an existing quantitative instrument that captures higher education teachers' perceptions of how generic skills are learnt in their teaching sessions. The study is situated in an educational context in Hungary, where such issues are still underexplored, contributing to the cross-national validation of the instrument.

Research Questions

1) What kind of teaching profiles can be identified among Hungarian higher education teachers?
2) How are teachers' disciplines related to their teaching profiles?
3) How are the teaching profiles associated with teachers' perceptions of the generic skills that students develop in their teaching?

The present study applies a person-oriented approach to investigate teaching profiles and their relationship to teachers' perceptions of the generic skills that students learn in teaching. This approach enhances our understanding of individual differences in approaches to teaching and considers the combinations of approaches that teachers may adopt.

Literature

Teaching Approaches in Higher Education

Approaches to teaching refer to the intentions, strategies, and underlying beliefs that teachers bring into their instructional practices. Initially, this concept was developed to measure how teachers conceptualise the act of teaching, especially in relation to student learning. One of the foundational contributions to this field was the development of the Approaches to Teaching Inventory (ATI) by Trigwell and Prosser (1996), which became one of the most widely used and cited instruments in educational research. It focused on two core dimensions: the Information-Transmission/Teacher-Focused (ITTF) approach and the Conceptual-Change/Student-Focused (CCSF) approach. These dimensions sought to capture the variance in how teaching is enacted, from delivering content to fostering deeper understanding. Approaches to teaching are often conceptually confused with teaching practices or conceptions of teaching. However, approaches to teaching refer specifically to teachers' own judgments and beliefs about how they teach, while conceptions of teaching refer to how teachers conceptualise and define the nature and purpose of teaching in broader terms (Kember & Kwan, 2002). The focus of this study is on approaches to teaching.

Importantly, ATI was not merely a tool for identifying teaching preferences, it was informed by studies that demonstrated how teaching approaches link to student learning outcomes (Trigwell & Prosser, 1996). This established it as a construct with practical implications, helping explain why two teachers in similar contexts might employ different strategies, with varying effects on

students. Understanding teaching approaches became crucial for recognising such pedagogical differences. Additionally, teaching approaches are not fixed traits but are context-sensitive and relational. They evolve depending on how teachers perceive their students, the subject matter, and institutional culture. This relational nature made the study of teaching approaches especially valuable across diverse educational contexts.

More recently, the field has seen renewed interest through the development of the HEAT (Higher Education Approaches to Teaching) Inventory (Postareff et al., 2024), which was the response to the criticisms and limitations of the previous instrument (Meyer & Eley, 2006; Stes et al., 2010). The inventory measures four extended dimensions of teaching approaches. The study by Postareff et al. (2024) identifies these as: the interactive approach, which emphasises student engagement through discussion and active learning; the transmissive approach, which focuses on delivering content in a teacher-centred manner; the unreflective approach, which reflects a lack of pedagogical awareness and difficulty understanding how students learn; and the organised approach, which highlights systematic planning and preparation in teaching. These dimensions offer a more nuanced view than the traditional dichotomy of teacher- versus student-centred teaching. Therefore, it will be the underpinning theoretical framework for our study. Civil et al. (2025) adopted the same instrument and derived similar teaching profile clusters. They found that interactive and transmissive approaches positively predicted teachers' self-efficacy and self-compassion, while an unreflective approach predicted them negatively. Additionally, an organised approach positively predicted teachers' self-efficacy.

Earlier research using a person-centred approach has demonstrated that teachers can integrate teaching approaches in various ways, sometimes employing conflicting combinations (Cao et al., 2019; Postareff et al., 2024, 2007). For example, four profiles – namely, interactive, interactive-organised, mixed, and transmissive – have been identified (Postareff et al., 2024). Teachers belonging to mixed profiles apply both interactive and transmissive approaches in their teaching. Disciplinary differences are also found in relation to teaching profiles. Teachers from hard disciplines tend to be less student-focused on their teaching approach compared to those from soft disciplines (Lindblom-Ylänne et al., 2006; Stes & Van Petegem, 2014).

Approaches to teaching have also been explored in relation to professional development (Postareff et al., 2007; Postareff & Lindblom-Ylänne, 2008). Studies demonstrated that participation in development programs can foster positive changes in teachers' approaches, highlighting their malleability. Subsequent studies have explored how approaches to teaching are associated with teachers' professional growth and responsiveness to institutional initiatives (Nevgi & Löfström, 2015; Stes et al., 2010; Vilppu et al., 2019). It has been found that teachers with formal pedagogical qualifications used a more interactive and less transmissive approach than teachers without such qualifications (Civil et al., 2025).

While the study of teaching approaches is prominent in global contexts (Montenegro Maggio & González Ugalde, 2013; Stes et al., 2010; Tezci, 2016), research specifically focused on Hungarian higher education remains relatively limited. Nonetheless, recent work has begun to explore this area, and the present study contributes to this research area. A notable contribution is the study by Kálmán et al. (2019), which investigated teaching approaches in the Hungarian university context. They identified four teacher profiles in relation to their professional development and perceptions of departmental teaching culture: experimenters with diverse

teaching approaches, experimenters in supportive and collaborative cultures, individualistic knowledge-focused teachers, and student-thinking-oriented but professionally unintegrated teachers.

Academics' Perceptions of Student Learning of Generic Skills

This section focuses on academics' perceptions of the extent to which students develop generic skills through academic teaching. These perceptions are distinct from teaching strategies or intended learning outcomes. They represent a more reflective evaluation of what teachers believe students gain in terms of generic skills during the learning process. While some studies have explored teachers' conceptions of how generic skills are *taught or emphasised in higher education* (Barrie, 2006; Tuononen et al., 2023), much less is known about how teachers think that students are developing these skills in practice.

Existing literature indicates that higher education teachers generally endorse the importance of generic skills. Studies have shown that most academics agree that graduates should possess strong analytical and communication skills, the ability to collaborate, and the capacity for autonomous learning (Aničić & Bušelić, 2021; Legget et al., 2004). Additionally, there is substantial research exploring how generic skills are being developed through specific pedagogical approaches, such as project-based learning, interdisciplinary modules, or problem-based learning (Choi-Lundberg et al., 2024; Tynjälä et al., 2016; van der Baan et al., 2025). However, what remains unexplored is how educators perceive that students acquire these skills in their teaching.

Our study contributes to this emerging field by examining how university teachers perceive student learning of four key generic skills: collaboration, critical thinking, multidisciplinary competence, and self-regulation. Generic skills, also termed 'transferable skills, 'soft skills,' or transversal competences,' refer to capabilities applicable across diverse professional and academic contexts (Barrie, 2006; OECD, 2005). In this paper, we retain this widely adopted terminology to align with established educational policy discourse.

In focusing on these four specific skills, we attempt to respond to growing expectations and the relevance of these skills across disciplines. Collaboration is increasingly emphasised as students are expected to work in teams both during and after their studies. It enables graduates to work effectively in diverse teams, manage conflicts, and contribute to innovative solutions (Ellis et al., 2018; Thornhill-Miller et al., 2023). Critical thinking fosters the ability to synthesise information, evaluate evidence, and construct well-reasoned arguments – skills fundamental to academic achievement and lifelong learning (Bellaera et al., 2021; Lincoln & Kearney, 2019; Orhan & Çeviker Ay, 2023). Multidisciplinary skills reflect the demand for graduates who can draw on diverse knowledge domains to solve complex problems. The integration of knowledge from different disciplines and being able to synthesise it enables graduates to develop practical solutions for complex, real-world issues (Ashby & Exter, 2018; Hero & Lindfors, 2019). And finally, self-regulation underpins students' capacity to manage their own learning and adapt to different academic and professional challenges (Nyman, 2024; Russell et al., 2020).

Teaching Approaches in Relation to Perceptions of Generic Skills

Understanding how university teachers perceive students' acquisition of generic skills provides important insight into their beliefs and assumptions about student learning. However, examining these perceptions in isolation might not tell us how such beliefs are enacted in actual teaching practice. For this reason, exploring teaching approaches in relation to perceptions of generic skills offers a new perspective.

Prior research has shown that student-centred, interactive, and collaborative approaches are more likely to support the development of skills such as critical thinking, teamwork, and self-regulation (Lee et al., 2015; Warsah et al., 2021). Furthermore, previous studies have indicated that teachers' conceptions of generic skills are reflected in their teaching practices (Tuononen et al., 2023). For example, teachers who believed that generic skills are best learned through participation in authentic multidisciplinary projects and collaboration with researchers and practitioners tended to apply more practices related to sharing experiences and integrating theory and practice in their teaching compared to other teachers. Since teachers' conceptions of teaching and learning have also been found to influence their broader teaching approaches, it is reasonable to assume that there may be links between how teachers perceive generic skills and the ways they organise their teaching.

Exploring connections between intentions and practices might be interesting to open the discussion about the interplay and possible discrepancies in teachers' practices and approaches. There is some evidence that teachers' conceptions and practices are not always aligned (Tuononen et al., 2023; Wai Mui Yu & Boulton-Lewis 2008). For example, a teacher may highly value the development of self-regulation skills but may still rely heavily on lectures, limiting students' opportunities to take responsibility for their own learning. Conversely, some teachers may use active methods without consciously framing them as supporting generic-skill development. In both cases, examining teaching approaches alongside perceptions of generic skills learning helps us better understand how, and whether, generic-skill learning is supported through day-to-day teaching practices.

Method

Instrument

This study employed a quantitative survey instrument to explore higher education teachers' perceptions of how generic skills are developed through teaching, as well as their approaches to teaching (see Table 1). Approaches to teaching were measured using the HEAT inventory, developed within the HowUTeach project (Parpala & Postareff, 2022). The instrument has been validated in recent studies (Lahdenperä & Postareff, 2025; Postareff et al., 2024). Originally created in Finnish, the inventory was first translated into English and then into Hungarian. The survey was made available in both languages for participants. All items were rated on a five-point Likert scale, ranging from *strongly disagree* to *strongly agree*, and the inventory included 26 items in total.

To assess teachers' perceptions of students' acquisition of generic skills, this study utilised the Teachers' Pedagogical Conceptions and Practices (TPCP) questionnaire (Tuononen et al., 2023). The instrument includes 29 items specifically designed to capture educators' views on how

students develop key generic skills within the context of their teaching. Its construction draws on established theoretical and empirical frameworks from previous research (Barrie, 2006; Jääskelä et al., 2018; Virtanen & Tynjälä, 2019). Respondents rated their perceptions on a five-point scale, ranging from 1 (*nothing*) to 5 (*a great deal*), indicating the extent to which they believe these skills are fostered through their teaching.

Table 1.

Factors, items, and Cronbach's alpha for measuring approaches to learning and generic skills

Factors	Items	Cronbach's alpha
Approaches to teaching		
Interactive approach	7. In my teaching, I create situations where I encourage students to discuss their thoughts and opinions about the topic.	.77
	11. I set aside teaching time so that the students can discuss among themselves the key concepts of the subject.	
	16. In teaching situations, I provide an opportunity for students to deepen their understanding of the subject through discussion.	
Transmissive approach	19. The most important goal of my teaching is to deliver what I know to the student.	.81
	2. The majority of my teaching time is spent transmitting information to the students about the topic	
	10. My teaching is focused on the good presentation of information to the students.	
Unreflective approach	8. I have trouble understanding how I can help the students learn.	.77
	14. The students' learning process is so challenging for me to understand. How can I support it as a teacher?	
	18. It is difficult for me to understand what learning is all about.	
Organised approach	22. I spend a lot of time preparing my teaching.	.68
	17. I put a lot of effort into my teaching.	
	12. I am organised and systematic as a teacher.	
Perceptions of how students learn generic skills		
Collaboration skills	5. Goal-oriented work together with others. 7. Working in a group. 11. Leading group work.	.84
Critical thinking skills	15. Identifying central knowledge in their own field. 16. Questioning knowledge. 17. Evaluating knowledge from different perspectives.	.83
Multidisciplinary skills	24. Asking questions relating to the practices of another field. 25. Presenting expertise to representatives of another field.	.83

	26. Collaborating with representatives of other fields.	
Self-regulation skills	21. Taking responsibility for their own studies. 22. Organising their own activities. 28. Planning their own use of time.	.82

Participants and Data Collection

A total of 221 university teachers took part in the study by completing an online questionnaire. The highest number of responses came from Eötvös Loránd University (n = 65), followed by the University of Pécs (n = 54). Other notable contributors included Corvinus University of Budapest (n = 24), Budapest University of Economics and Business (n = 15), and the University of Szeged (n = 14). A smaller number of responses were collected from various other institutions across Hungary. This mix reflects engagement from both research-oriented and applied science universities across the country.

Half of the participants (51%, n = 112) were female, and 48% were male. A few reported being non-binary or did not want to disclose their gender. Over 70% (n = 159) of the participants were professors (assistant, associate, or university professor). Almost 10% were teaching assistants, 5% were senior lecturers, and 4% were PhD researchers. The rest of the participants held other positions, such as visiting lecturers or postdoctoral researchers. Most of the teachers (57%, n = 126) did not have pedagogical training; however, the majority of them (59%, n = 131) had more than 10 years of teaching experience.

Participants represented a wide range of academic disciplines. To facilitate analysis, these disciplines were grouped according to the International Standard Classification of Education (ISCED) with minor modifications. The five final categories were: humanities (n = 30, 13.6%), which included humanities, arts, and theology; social sciences (n = 126, 57%), encompassing fields such as law, education, business, and economics; sciences (n = 41, 18.6%), covering natural sciences, mathematics, computer science, and engineering; health and welfare (n = 17, 7.7%), including medicine, pharmacy, and health sciences; and agriculture (n = 7, 3.2%), covering agricultural, forestry, and environmental disciplines.

Data collection was conducted via an online survey platform. University teachers were contacted through official institutional email addresses using an invitation message that had been reviewed and approved by the university's research ethics committee. Additional outreach was carried out at academic events and conferences, where printed flyers with survey details and QR codes were distributed to increase visibility and participation. The first page of the questionnaire included an informed consent form outlining the study's purpose and ethical considerations, which participants had to acknowledge before proceeding with the survey.

Analysis

Exploratory and confirmatory factor analyses were conducted to validate the new instruments in the Hungarian higher education context. Exploratory factor analysis for approaches to teaching items suggested a five-factor solution. However, some items had low factor loadings and/or communalities, and one factor was theoretically unsound. Subsequently, we conducted confirmatory factor analysis (CFA) to determine how the factor structure found in the Finnish context (Postareff et al., 2024) works with the Hungarian data. The results showed a good fit, and

thus a four-factor solution was selected. The fit indices were 0.94 for CFI, 0.058 for SRMR (Standardised Root Mean Square Residual), and 0.068 for RMSEA (Root Mean Square Error of Approximation). The value of the CFI indicated a good fit and SRMR and RMSEA acceptable fits between the model and the observed data. Cronbach's alphas were 0.77 for interactive approach, 0.81 for transmissive approach, 0.77 for unreflective approach, and 0.68 for organised teaching (See Table 1).

Exploratory factor analysis was conducted on the generic skills items, resulting in a seven-factor solution. However, four items had low communalities, below the desired threshold of 0.40 (Costello & Osborne, 2005), and one item did not load at all. Additionally, two factors included only two items, which can be problematic for reliability. Therefore, all these items were removed. For example, three items measuring digital skills did not perform well with this data, and those three items were eliminated. After the exploratory factor analysis, we selected the strongest and most relevant items and tested them using confirmatory factor analysis (CFA). We conducted several factor analyses with four to six factors, and ultimately, the four-factor solution provided a reasonable fit and theoretically consistent factors. The fit indices were .90 for CFI, 0.067 for SRMR, and 0.103 for RMSEA, which can be considered reasonable. Cronbach's alphas are presented in Table 1.

Descriptive statistics and Pearson's correlations were conducted before actual analysis. A K-means cluster analysis was used to group teachers into different groups based on their approaches to teaching. Next, the Chi-square test was used to analyse whether there are differences in clusters between different disciplines. Finally, one-way ANOVA was applied to compare the clusters about their perceptions of student learning of generic skills. Analyses were conducted using SPSS Statistics version 29 and Mplus 8.

Results

Teaching Profiles

A series of K-means cluster analyses were conducted, evaluating models with 2 to 4 clusters to identify the optimal number of clusters for the study. The selection of the appropriate number of clusters involved careful examination of the distribution of participants across each cluster to ensure that each contained enough observations. Additionally, the theoretical relevance of the identified clusters was critically assessed, confirming alignment with the conceptual framework and ensuring that no further meaningful clusters emerged beyond the selected structure. As a result, three clusters were identified from the data. Cluster 1 (n = 59) had the highest scores on the interactive approach and organised teaching and the lowest scores on the transmissive and unreflective approaches. This cluster was labelled as interactive-organised. The second cluster (n = 54) had the highest scores on the transmissive approach and the lowest on the interactive approach. Thus, it was labelled as transmissive. The unreflective approach was relatively high, and organised teaching was relatively low. The third cluster (n = 108), the largest cluster, had high scores across all interactive, organised, and transmissive approaches and was labelled as mixed. Mean values of approaches to teaching in clusters are presented in Table 2.

Table 2.

The mean values of approaches to teaching in teaching profiles

	C1 Interactive-organised (n = 59)	C2 Transmissive (n = 54)	C3 Mixed (n = 108)
Interactive approach	4.53	2.77	4.23
Transmissive approach	1.98	4.03	3.81
Unreflective approach	1.47	2.25	1.78
Organised approach	4.36	3.73	4.34

Disciplinary Differences in Teaching Profiles

Next, we examined the disciplinary differences between the three teaching profiles (Table 3). The teachers' subject discipline was found to be significantly associated with their teaching profile ($\chi^2(8) = 15.49$, $p = .050$), indicating that the distribution of teaching approaches varied across disciplinary areas. In the humanities, the interactive-organised profile was most common, but also mixed was quite often employed. The mixed profile predominated in social sciences and sciences, health and welfare, and agriculture. The transmissive profile was applied less in all disciplines. However, in social sciences, almost a quarter of the teachers belonged to the transmissive profile. In the fields of health and welfare as well as agricultural sciences, there was a relatively small number of teachers; however, all the profiles were found quite evenly across these fields. In health and welfare, the mixed profile is slightly more represented than the other profiles.

Table 3.

The teaching profile distribution in different disciplines

Teaching profile	Humanities (1)	Social sciences (2)	Sciences (3)	Health & welfare (4)	Agriculture (5)	Total n
Interactive-organised	12	39	3	3	2	59
Transmissive	8	30	9	5	2	54
Mixed	10	57	29	9	3	108
Total	30	126	41	17	7	221

Associations with Teaching Profiles and Perceptions of Student Learning of Generic Skills

The ANOVA results showed that teaching profiles differed in perceptions of all generic skills. The transmissive profile had the lowest perceptions of student learning across all generic skills compared to the other profiles. In addition, the interactive-organised profile showed the highest scores on collaboration and self-regulation skills compared to the mixed profile. Table 4 shows the results of the profile comparisons.

Table 4.

The differences between teaching profiles and perceptions of student learning of generic skills

Skills	C1 Interactive-organised (n = 59)		C2 Transmissive (n = 54)		C3 Mixed (n = 108)		F	p	Eta-squared
Critical thinking	3.64	.94	2.90	.95	3.42	.92	9.443	<.001	.080
Collaboration	4.10	.90	2.80	1.10	3.71	.85	29.022	<.001	.210
Multidisciplinary	2.71	1.16	2.18	.88	2.83	1.03	7.398	<.001	.064
Self-regulation	4.19	.94	2.93	.98	3.54	.87	26.770	<.001	.197

Discussion

The present study aimed to explore what kind of teaching approaches can be identified among Hungarian university teachers and how these approaches are related to teachers' perceptions of generic skills. This relation has received limited attention in previous research. Our findings showed that teaching approaches are significantly related to how teachers perceive students' learning of generic skills.

Using a person-oriented approach, we identified three teaching profiles: interactive-organised, transmissive, and mixed. Similar profiles have been found in previous studies (Cao et al., 2019; Postareff et al., 2024; Stes & Van Petegam, 2014). However, compared to the study by Postareff and colleagues (2024), we found only three profiles, and the interactive profile was not detected in our data. This may reflect the specific characteristics of the Hungarian higher education system, which has also been identified as distinct from the Nordic context (Kalman et al., 2019). The results of the present study showed that teachers in the interactive-reflective profile perceived that students learn all generic skills more than teachers in other profiles. Teachers in this profile appear to create student-centred and reflective environments that enable learners to actively engage with content, collaborate with peers, and regulate their own learning. Although previous studies have not examined teaching approaches in the same way as this study, a substantial body of research confirms that interactive, reflective, and well-organised teaching practices are particularly effective in fostering generic skills. Chan et al. (2021), for example, showed that active learning methods such as flipped classrooms and enhanced lectures significantly improved students' critical thinking, problem-solving, communication, and creative skills, largely because such approaches enabled students to plan, organise, and evaluate their own learning strategies.

Similarly, the principles of Integrative Pedagogy (Tynjälä et al., 2016) emphasise the integration of theoretical knowledge, practical experience, reflection, and collaboration. Empirical evidence from a Finnish university confirmed that such integration, especially in small-group settings, enhanced students' social competence, reflection, and metacognitive awareness. Other research points to the same direction. Madar (2015) highlighted that participatory teaching, which parallels cooperative and interactive learning, enabled students to practice knowledge in authentic social

contexts, while Ballantine and McCourt Larres (2007) showed that cooperative learning in mixed-ability groups fostered substantial gains in communication, teamwork, problem solving, and leadership skills for all students, regardless of prior achievement.

The second profile, which is the transmissive profile, consisted of teachers who perceived students' learning of generic skills to be the lowest. Teachers in this profile relied heavily on knowledge transmission and low interactivity. This finding is consistent with earlier research showing that transmissive teaching approaches limit opportunities for developing transferable competencies (Virtanen & Tynjälä, 2019; Yusof et al., 2015). Yusof et al. (2015) found that lecturers recognised the drawbacks of traditional methods, noting that students became passive and unresponsive, with few opportunities to apply knowledge in authentic contexts. Similarly, it has been found that traditional forms of university teaching, such as reading, lecturing, and working alone, correlated negatively with the learning of key generic skills (Virtanen & Tynjälä, 2019). Specifically, lecturing was negatively associated with creativity, reading with problem solving and adaptability, and working alone with the ability to solve occupational problems. These findings highlight that while traditional methods may still play a role in acquiring theoretical knowledge, they are insufficient for cultivating the competencies needed in working life. Importantly, it can be argued that when such methods are used, they must be complemented by practices that require students to actively process knowledge, link theory with practice, and engage collaboratively with peers.

Teachers in the third profile, labelled as mixed, scored high across all teaching dimensions, suggesting an attempt to integrate interactive and transmissive elements. While their support for generic skills was not as strong as in Profile 1, it was considerably higher than in Profile 2. In institutional contexts where systematic professional development is limited, teachers often resort to a blend of methods without a clear pedagogical rationale. This tendency can be observed in the Hungarian higher education context, where professional training for university teachers is still uneven and where traditional teaching norms continue to dominate. The nature of this profile resembles the teaching profile that was identified with Kálmán et al. (2019), where teachers with diverse teaching approaches had been the most frequent cluster in the Hungarian university context. This is the group of teachers who combine knowledge-focused teaching with learning-outcomes alignment, practice-based tasks, and the development of thinking skills. In such environments, adopting a mixed approach may reflect both the persistence of transmissive traditions and the gradual introduction of more interactive practices. Most of the teachers belonged to this mixed teaching profile.

One of the objectives of this study was to explore how teachers' disciplinary backgrounds relate to their teaching profiles. The results showed that the interactive-organised profile was most common in the humanities, while the mixed approach predominated in social sciences, sciences, health and welfare, and agriculture. The transmissive approach appeared in smaller proportions across all disciplines, with a slightly higher representation in the sciences and health-related fields. This association between teachers' disciplinary background and teaching profile aligns with earlier findings (Lindblom-Ylänne et al., 2006; Veniger & Kočar, 2018) and also findings from a Hungarian university context, where Kálmán et al. (2019) reported clear differences between soft and hard sciences. In their study, academics from soft disciplines were more strongly oriented towards student-focused approaches, practice-based teaching, and the development of thinking

skills, whereas teachers from hard sciences prioritised knowledge-focused approaches. The findings suggest that disciplinary variation is not only relevant for understanding instructional strategies but also for anticipating which environments may be supportive for fostering skills such as communication, critical thinking, or collaboration. This consideration carries particular weight in the Hungarian university context, where targeted, discipline-sensitive faculty development remains limited.

Practical Implications

The application of this study lies in clarifying how teaching approaches, captured in teachers' profiles, are likely to support or constrain the development of generic skills in higher education. Studies have shown that teachers who adopt interactive and well-organised approaches report greater self-efficacy and confidence and a more collaborative culture (Myllykoski-Laine et al., 2022). These conditions are vital for embedding generic skills, since teachers who feel competent, supported, and motivated are more able to design and sustain learning environments that foster communication, teamwork, problem solving, and critical thinking. Conversely, transmissive approaches have been linked to higher teacher exhaustion and burnout. Such conditions may undermine teachers' capacity to engage students actively, organise collaborative learning, or create space for practicing transferable skills (Civil et al., 2025). The results of the present study highlight that teachers' awareness of the importance of teaching generic skills and the significance of active and interaction-supporting practices in their instruction needs to be enhanced. This can occur through pedagogical training (Tuononen et al., 2023). Support is particularly needed for teachers who heavily rely on knowledge transfer in their teaching. By incorporating more interaction, group work, and tasks that require critical thinking into their teaching, teachers can better support students' learning of generic skills. In addition, skills such as self-regulation, which involves students taking responsibility for planning, monitoring, and evaluating their own learning, or multidisciplinary thinking, which requires connecting knowledge across context, are complex abilities that are supported by interactive and well-organised teaching environments. Creating this kind of learning environment requires that teachers regularly create situations of students taking ownership of learning, where knowledge is constructed and not transferred, students are required to engage in meaningful discussion, conflict resolution, and working on professional dilemmas. Applying new teaching practices and changing instruction takes time and resources from teachers. Therefore, these changes often require support from management, pedagogical leadership, and collaboration among colleagues. Furthermore, it is important to note that it is not only the individual teachers' responsibility to ensure that students learn the generic skills they are expected to acquire during their studies, as these skills should also be embedded at the curriculum level (Hyytinen et al., 2019).

Beyond the local context, this study contributes to the international field by extending the validity of the measurement instrument to a Central European setting. By demonstrating that similar teaching profiles - interactive-organised, transmissive, and mixed - can be identified across different educational cultures, the research opens pathways for future cross-national comparative studies seeking to understand the universal pedagogical drivers of generic skill development. In addition to this, by identifying how specific teacher profiles constrain or enable generic skill acquisition, this study contributes to a global body of evidence needed to design faculty development programs that are effective across diverse educational systems.

Limitations and Future Research

However, we acknowledge the possible limitation that may impact the generalisability and depth of its findings. First, due to the relatively small sample size, the results should be generalised with caution. Using K-means cluster analysis did not allow for the evaluation of BIC values to determine the optimal number of clusters. Therefore, larger datasets and more sophisticated analytical methods will be important to consider in future research. Second, the uneven distribution of participants across various disciplines made it challenging to thoroughly investigate disciplinary differences, particularly in fields such as health and welfare and agriculture. Future research should aim to include a more diverse and representative sample from various disciplines. Third, the data of this study are based entirely on teachers' self-reports. Therefore, what actually happens in classrooms remains unclear. In the future, it would be important to explore teaching situations by observing how teachers support students in learning generic skills.

Conclusion

The present study identifies three distinct teaching profiles among Hungarian university teachers: interactive-organised, transmissive, and mixed. It demonstrates that these profiles are meaningfully related to how teachers perceived students' learning of generic skills. Teachers in the interactive-organised profile perceived students' learning more collaboration and self-regulation skills than teachers belonging to the mixed profile. These findings expand on previous profile-based research within a Central European context and provide empirical support for the view that teaching approaches reflect teachers' beliefs about what generic skills students learn in their teaching.

Acknowledgements

The authors disclose that they have no actual or perceived conflicts of interest. This research was supported by (funding body anonymised for double-blind review). The authors have used artificial intelligence solely for language refinement and clarity of expression; artificial intelligence was not used in the ideation, research design, data collection, analysis, or interpretation of findings, in line with Crawford et al. (2023). The authors confirm that they have met the ethical standards expected as per Purvis and Crawford (2024). The authors list the following CRediT contributions: **Bendeliani**: Conceptualisation, Data Collection, Writing – original draft. **Tuonenen**: Data analysis, writing, review and editing.

References

Aničić, K. P., & Bušelić, V. (2021). Importance of generic skills of ICT graduates–employers, teaching staff, and students' perspective. *IEEE Transactions on Education*, *64*(3), 245–252. https://doi.org/10.1109/te.2020.3034958

Ashby, I., & Exter, M. (2018). Designing for interdisciplinarity in higher education: Considerations for instructional Designers. *TechTrends*, *63*(2), 202–208. https://doi.org/10.1007/s11528-018-0352-z

Ballantine, J., & Larres, P. M. (2007). Cooperative learning: a pedagogy to improve students' generic skills? *Education + Training*, *49*(2), 126–137. https://doi.org/10.1108/00400910710739487

Barrie, S. C. (2006). A conceptual framework for the teaching and learning of generic attributes. *Studies in Higher Education, 32*(4), 439–458. https://doi.org/10.1080/03075070701476100

Beausaert, S. A., Segers, M., & Wiltink, D. P. (2013). The influence of teachers' teaching approaches on students' learning approaches: the student perspective. *Educational Research*, *55*(1), 1–15. https://doi.org/10.1080/00131881.2013.767022

Bellaera, L., Weinstein-Jones, Y., Ilie, S., & Baker, S. T. (2021). Critical thinking in practice: The priorities and practices of instructors teaching in higher education. *Thinking Skills and Creativity*, *41(4)*, 100856. https://doi.org/10.1016/j.tsc.2021.100856

Bogdány, E., Cserháti, G., & Dabrónaki-Priszinger, K. (2021). Analysis of the gap between competencies developed by higher education and required by employers in Hungary. *Journal of Skills Development eBooks, 1,* 51–62. https://doi.org/10.56611/conf.proc.2021.1.51-62

Cao, Y., Postareff, L., Lindblom-Ylänne, S., & Toom, A. (2019). Teacher educators' approaches to teaching and connections with their perceptions of the closeness of their research and teaching. *Teaching and Teacher Education*, *85*, 125–136. https://doi.org/10.1016/j.tate.2019.06.013

Chan, C. K., Fong, E. T., Luk, L. Y., & Ho, R. (2017). A review of literature on challenges in the development and implementation of generic competencies in higher education curriculum. *International Journal of Educational Development*, *57(1)*, 1–10. https://doi.org/10.1016/j.ijedudev.2017.08.010

Chan, C. W. H., Tang, F. W. K., Chow, K. M., & Wong, C. L. (2021). Enhancing generic capabilities and metacognitive awareness of first-year nursing students using active learning strategy. *BMC Nursing*, *20*(1), 81. https://doi.org/10.1186/s12912-021-00601-7

Choi-Lundberg, D., Douglas, T., Bird, M.-L., Coleman, B., Greenwood, M., Martin, R., Prior, S., Saghafi, F., Roehrer, E., Waddingham, S., Wolsey, C., & Kelder, J.-A. (2024). Employability learning and teaching research: A twenty year structured narrative review. *Journal of University Teaching and Learning Practice*, *21*(5), 1–38. https://doi.org/10.53761/g8mryt07

Civil, T., Kosenkranius, M., Hailikari, T., Virtanen, V., & Postareff, L. (2025). Approaches to teaching and wellbeing among European higher education teachers. *Ammattikasvatuksen Aikakauskirja*, *27*(1), 72–91. https://doi.org/10.54329/akakk.157577

Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research and Evaluation*, *10*(1), 1–9. https://doi.org/10.7275/jyj1-4868

Ellis, R. A., Han, F., & Pardo, A. (2018). When does collaboration lead to deeper learning? Renewed definitions of collaboration for engineering students. *IEEE Transactions on Learning Technologies*, *12*(1), 123–132. https://doi.org/10.1109/tlt.2018.2836942

Gonzalez, C. (2008). Conceptions of, and approaches to, teaching online: a study of lecturers teaching postgraduate distance courses. *Higher Education*, *57*(3), 299–314. https://doi.org/10.1007/s10734-008-9145-1

Hero, L., & Lindfors, E. (2019). Students' learning experience in a multidisciplinary innovation project. *Education + Training*, *61*(4), 500–522. https://doi.org/10.1108/et-06-2018-0138

Hyytinen, H., Toom, A., & Shavelson, R. J. (2019). Enhancing scientific thinking through the development of critical thinking in higher education. In M. Murtonen & K. Balloo (Eds.), *Redefining scientific thinking for higher education: Higher-order thinking, evidence-based reasoning and research skills* (pp. 59–78). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-24215-2_3

Jääskelä, P., Nykänen, S., & Tynjälä, P. (2018). Models for the development of generic skills in Finnish higher education. *Journal of Further and Higher Education*, *42*(1), 130–142. https://doi.org/10.1080/0309877x.2016.1206858

Kálmán, O., Tynjälä, P., & Skaniakos, T. (2019). Patterns of university teachers' approaches to teaching, professional development and perceived departmental cultures. *Teaching in Higher Education*, *25*(5), 595–614. https://doi.org/10.1080/13562517.2019.1586667

Kember, D., & Kwan, K. P. (2002). Lecturers' approaches to teaching and their relationship to conceptions of good teaching. In N. Hativa & P. Goodyear (Eds.), *Teacher thinking, beliefs and knowledge in higher education* (pp. 219–239). Springer. https://doi.org/10.1007/978-94-010-0593-7_10

Kováts, G. (2019). The Bologna reform in Hungary. In B. Broucker, K. De Wit, J. C. Verhoeven, & L. Leišytė (Eds.), *Higher education system reform: An international comparison after twenty years of Bologna* (pp. 197–219). Brill. https://doi.org/10.1163/9789004400115

Kováts, G., & Derényi, A. (Eds.). (2023). *A magyar felsőoktatási duális képzés első évtizede: Eredmények, kockázatok, lehetőségek* (NFKK Kötetek, 6). Corvinus University of Budapest, Center for International Higher Education Studies. https://unipub.lib.uni-corvinus.hu/8268/1/NFKK_Dualis_2023.pdf

Lahdenperä, J., & Postareff, L. (2025). Teacher well-being in change: a quantitative analysis of schoolteachers' approaches to teaching and their teaching-related well-being during rapid shift in their work environment. *Scandinavian Journal of Educational Research*, *70*(2), 249–265. https://doi.org/10.1080/00313831.2025.2468182

Lam, B., & Kember, D. (2006). The relationship between conceptions of teaching and approaches to teaching. *Teachers and Teaching*, *12*(6), 693–713. https://doi.org/10.1080/13540600601029744

Leggett, M., Kinnear, A., Boyce, M., & Bennett, I. (2004). Student and staff perceptions of the importance of generic skills in science. *Higher Education Research & Development*, *23*(3), 295–312. https://doi.org/10.1080/0729436042000235418

Lincoln, D., & Kearney, M. (2019). Promoting critical thinking in higher education. *Studies in Higher Education*, *44*(5), 799–800. https://doi.org/10.1080/03075079.2019.1586322

Lindblom-Ylänne, S., Trigwell, K., Nevgi, A., & Ashwin, P. (2006). How approaches to teaching are affected by discipline and teaching context. *Studies in Higher Education*, *31*(3), 285–298. https://doi.org/10.1080/03075070600680539

Lee, D., Huh, Y., & Reigeluth, C. M. (2015). Collaboration, intragroup conflict, and social skills in project-based learning. *Instructional Science*, *43*(5), 561–590. https://doi.org/10.1007/s11251-015-9348-7

Madar, M. J. (2015). Impact of participatory teaching in students' generic skills in tertiary education. *African Educational Research Journal*, *3(3),* 190–197. https://doi.org/10.13140/rg.2.1.2676.5920

Meyer, J. H. F., & Eley, M. G. (2006). The approaches to teaching inventory: A critique of its development and applicability. *British Journal of Educational Psychology*, *76*(3), 633–649. https://doi.org/10.1348/000709905x49908

Montenegro Maggio, H., & González Ugalde, C. (2013). Análisis factorial confirmatorio del cuestionario: "Enfoques de Docencia Universitaria" (Approaches to Teaching Inventory, ATI-R) [Confirmatory factorial analysis of a Spanish version of Approaches to Teaching Inventory (ATI-R)]. *Estudios Pedagógicos*, *39*(2), 213–230. https://doi.org/10.4067/S0718-07052013000200014

Muukkonen, H., Lakkala, M., Ilomäki, L., & Toom, A. (2022). Juxtaposing generic skills development in collaborative knowledge work competences and related pedagogical practices in higher education. *Frontiers in Education*, *7*, 886726. https://doi.org/10.3389/feduc.2022.886726

Myllykoski-Laine, S., Lahdenperä, J., Nikander, L., & Postareff, L. (2022). Students' experiences of the development of generic competences in the Finnish higher education context – The role of the teaching-learning environment and approaches to learning. *European Journal of Higher Education, 13*(4), 448–467. https://doi.org/10.1080/21568235.2022.2058975

Nevgi, A., & Löfström, E. (2015). The development of academics' teacher identity: Enhancing reflection and task perception through a university teacher development programme. *Studies in Educational Evaluation*, *46*, 53–60. https://doi.org/10.1016/j.stueduc.2015.01.003

Nyman, F. (2024). "You're not learning skills—you're just realizing what you can do": a preliminary study of self-regulation in higher education. *Frontiers in Education*, *9*, 1418297. https://doi.org/10.3389/feduc.2024.1418297

OECD. (2005). *The definition and selection of key competencies: Executive summary*. https://www.oecd.org/pisa/35070367.pdf

Orhan, A., & Çeviker Ay, Ş. (2023). How to teach critical thinking: An experimental study with three different approaches. *Learning Environments Research*, *26*(1), 199–217. https://doi.org/10.1007/s10984-022-09413-1

Parpala, A., & Postareff, L. (2022). Supporting high-quality teaching in higher education through the HowUTeach self-reflection tool. *Ammattikasvatuksen Aikakauskirja*, *23*(4), 61–67. https://doi.org/10.54329/akakk.113327

Postareff, L., Lindblom-Ylänne, S., & Nevgi, A. (2007). The effect of pedagogical training on teaching in higher education. *Teaching and Teacher Education*, *23*(5), 557–571. https://doi.org/10.1016/j.tate.2006.11.013

Postareff, L., & Lindblom-Ylänne, S. (2008). Variation in teachers' descriptions of teaching: Broadening the understanding of teaching in higher education. *Learning and Instruction*, *18*(2), 109–120. https://doi.org/10.1016/j.learninstruc.2007.01.008

Postareff, L., Lahdenperä, J., Hailikari, T., & Parpala, A. (2024). The dimensions of approaches to teaching in higher education: a new analysis of teaching profiles. *Higher Education*, *88*(1), 37–59. https://doi.org/10.1007/s10734-023-01104-x

Prosser, M., & Trigwell, K. (2006). Confirmatory factor analysis of the approaches to teaching Inventory. *British Journal of Educational Psychology, 76*(2), 405–419. https://doi.org/10.1348/000709905X43571

Richardson, J. (2005). Students' approaches to learning and teachers' approaches to teaching in higher education. *Educational Psychology, 25*(6), 673–680. https://doi.org/10.1080/01443410500344720

Russell, J., Baik, C., Ryan, A., & Molloy, E. (2020). Fostering self-regulated learning in higher education: Making self-regulation visible. *Active Learning in Higher Education*, *23,* 97–113. https://doi.org/10.1177/1469787420982378.

Stes, A., De Maeyer, S., & Van Petegem, P. (2010). Approaches to teaching in higher education: Validation of a Dutch version of the Approaches to Teaching Inventory. *Learning Environments Research, 13(1)*, 59–73. https://doi.org/10.1007/s10734-021-00766-9

Stes, A., & Van Petegem, P. (2014). Profiling approaches to teaching in higher education: a cluster-analytic study. *Studies in Higher Education*, *39(4)*, 644–658. https://doi.org/10.1080/03075079.2012.729032

Tezci, E. (2016). Adaptation of ATI-R scale to Turkish samples: Validity and reliability analyses. *International Education Studies*, *10(1)*, 67–81. https://doi.org/10.5539/ies.v10n1p67

Thornhill-Miller, B., Camarda, A., Mercier, M., Burkhardt, J., Morisseau, T., Bourgeois-Bougrine, S., Vinchon, F., Hayek, S., Augereau-Landais, M., Mourey, F., Feybesse, C., Sundquist, D., & Lubart, T. (2023). Creativity, critical Thinking, communication, and collaboration: Assessment, certification, and promotion of 21st century skills for the future of work and education. *Journal of Intelligence*, *11*(3), 1-32. https://doi.org/10.3390/jintelligence11030054

Trigwell, K., & Prosser, M. (1996). Changing approaches to teaching: A relational perspective. *Studies in Higher Education, 21*(3), 275–284. https://doi.org/10.1080/03075079612331381211

Tuononen, T., Hyytinen, H., Kleemola, K., Hailikari, T., Männikkö, I., & Toom, A. (2022). Systematic review of learning generic skills in higher education—Enhancing and impeding factors. *Frontiers in Education, 7*, 885917. https://doi.org/10.3389/feduc.2022.885917

Tuononen, T., Hyytinen, H., Kleemola, K., Hailikari, T., & Toom, A. (2023). Generic skills in higher education – teachers' conceptions, pedagogical practices and pedagogical training. *Teaching in Higher Education, 30*(1), 207–224. https://doi.org/10.1080/13562517.2023.2248003

Tynjälä, P., Virtanen, A., Klemola, U., Kostiainen, E., & Rasku-Puttonen, H. (2016). Developing social competence and other generic skills in teacher education: Applying the model of integrative pedagogy. *European Journal of Teacher Education, 39*(3), 368–387. https://doi.org/10.1080/02619768.2016.1171314

Uiboleht, K., Karm, M., & Postareff, L. (2018). The interplay between teachers' approaches to teaching, students' approaches to learning and learning outcomes: A qualitative multi-case study. *Learning Environments Research, 21*(3), 321–347. https://doi.org/10.1007/s10984-018-9257-1

van der Baan, N., Gast, I., Gijselaers, W., Kyndt, E., Tynjälä, P., & Beausaert, S. (2025). The education-to-work transition: A systematic analysis of pedagogical interventions in the context of higher education. *Scandinavian Journal of Educational Research. 70(*1), 164–188. https://doi.org/10.1080/00313831.2025.2459916

Veniger, K. A., & Kočar, S. (2018). The Impact of academic discipline on university teaching and pedagogical training courses. *Croatian Journal of Education, 20*(4), 1261–1298. https://doi.org/10.15516/cje.v20i4.2718

Vilppu, H., Södervik, I., Postareff, L., & Murtonen, M. (2019). The effect of short online pedagogical training on university teachers' interpretations of teaching–learning situations. *Instructional Science*, *47*(6), 679–709. https://doi.org/10.1007/s11251-019-09496-z

Virtanen, A., & Tynjälä, P. (2019). Factors explaining the learning of generic skills: A study of university students' experiences. *Teaching in Higher Education, 24*(8), 880–894. https://doi.org/10.1080/13562517.2018.1515195

Wai Mui Yu, C., & Boulton-Lewis, G. M. (2008). Hong Kong secondary business teachers' conceptions of student competence and ways of teaching. *Journal of Vocational Education and Training*, *60*(3), 257–272. https://doi.org/10.1080/13636820802305603

Warsah, I., Morganna, R., Uyun, M., Hamengkubuwono, H., & Afandi, M. (2021). The impact of collaborative learning on learners' critical thinking skills. *International Journal of Instruction*, *14*(2), 443–460. https://doi.org/10.29333/iji.2021.14225a

Yusofa, Y., Roddin, R., & Awang, H. (2015). What students need, and what teacher did: The impact of teacher's teaching approaches to the development of students' generic competences. *Procedia – Social and Behavioral Sciences, 204*, 36–44. https://doi.org/10.1016/j.sbspro.2015.08.143